



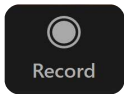
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Scope 2 Technical Working Group Meeting

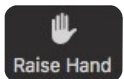
Meetings #4 and #5: Options To Improve The Market-Based Method

December 17 & 18, 2024

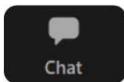




This meeting is recorded.



Please use the Raise Hand function to speak during the call.



You can also use the chat function in the main control.



Recording, slides, and meeting minutes will be shared after the call.



Be mindful of sharing group discussion time; keep comments as succinct as possible.

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Agenda

Day 1: December 17th, 2024

- Welcome
- Goal and structure of today's discussion
- Current purposes of the market-based method
- Discussion on market-based method purposes
- Background on hydrogen research and related studies on C&I load
- Secretariat assessment of proposed options A, B and C
- Options A-C discussion: status quo, time and location matching, and three pillars

Day 2: December 18th, 2024

- Option D discussion: additionality or causality test
- Option E discussion: induced – avoided emissions
- Plan for proposing redline changes to the Scope 2 Guidance
- Next steps



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Timeline check-in: Phase 1 revision overview

- Early TWG meetings focus on initial examination of specific options
- Subsequent TWG meetings will focus on any improvements to purpose, intended uses, and methodology

Meeting	Date	Topic
1	16-Oct	SDP & workplan review
2	6-Nov	Changes to required reporting methods
3	26-Nov	Improvements to location-based method
4-5	17 & 18-Dec	Improvements to market-based method
6	16-Jan	Project accounting interactions with scope 2
7	29-Jan	Reviewing location-based method changes
8	19-Feb	Reviewing market-based method changes
9-13	5-Mar to 30-Apr	Continued discussion of location- and market-based method changes
14	14-May	Send recommendation(s) on interim guidance for ISB feedback

Today & tomorrow's meeting

Please see revised Nov 26th TWG presentation for updated detailed timeline

Goal and structure of discussion

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Goals of Day 1 & Day 2 meetings

1. Hear TWG members' perspectives on potential changes to the market-based method's
 - Stated purposes & uses
 - Methodology
2. Begin process for conceptualizing what a revised market-based method looks like based on TWG consensus
3. Identify initial TWG ideas, road-blocks, and questions for ISB awareness

Due to the number of options being considered, the options are being divided across two days. Each day will focus on a discussion of a subset of the proposed changes as follows:

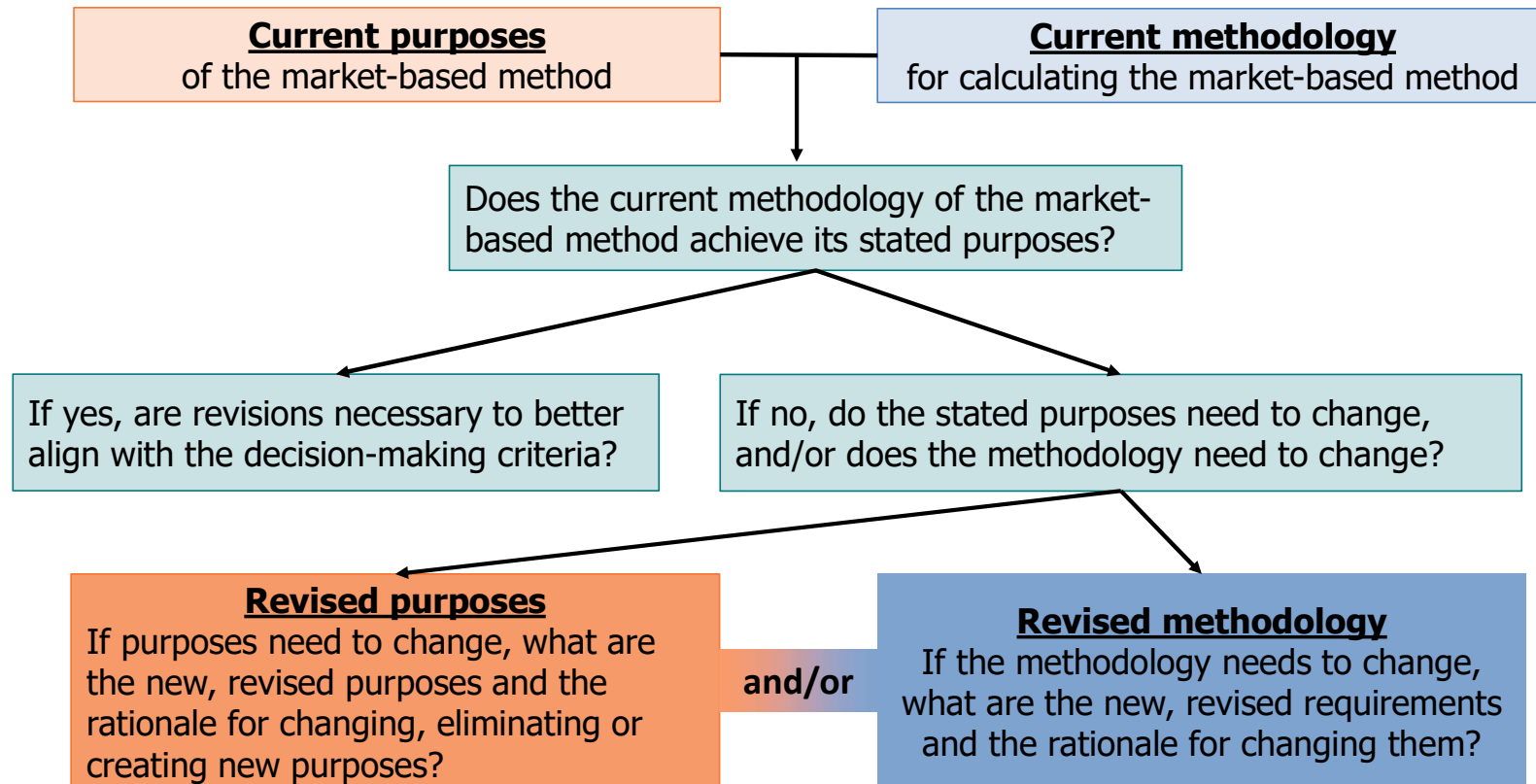
Day 1:

- Focus on market-based method Options A, B, and C

Day 2:

- Focus on market-based method Options D and E
- Discuss redline changes planning moving forward

Evaluating proposed options for improving the market-based method and considering alignment with purposes



Matrix for categorizing feedback on how to make revisions

During the meeting, TWG members are encouraged to use the below matrix as a reference for categorizing the nature of their feedback on how to revise the market-based method and rationale for doing so.

The <i>what</i> :	The <i>how</i> :
<u>Keep current purposes</u>	<u>Keep current methodology</u>
<u>Revise purposes</u>	<u>Revise methodology</u>

Current definition, stated purpose, intended uses, and decision-making value of the market-based method

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Definition of the market-based method within the scope 2 inventory

Scope 2 inventory definition:

- Corporate Standard: "Electricity indirect GHG emissions - Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated."¹
- Scope 2 Guidance: "Scope 2 is an indirect emission category that includes GHG emissions from the generation of purchased or acquired electricity, steam, heat, or cooling consumed by the reporting company."²

Market-based method definition:

- "A method to quantify the scope 2 GHG emissions of a reporter based on GHG emissions emitted by the generators from which the reporter contractually purchases electricity bundled with contractual instruments, or contractual instruments on their own."³
- "This allocation pathway represents contractual information and claims flow, which may be different from underlying energy flows in the grid."⁴

¹ Corporate Standard, Chapter 4, pg. 25

² Scope 2 Guidance, section 5.3, pg. 34

³ Scope 2 Guidance, Table 4.1, pg. 26

⁴ Scope 2 Guidance, section 4.1.2, pg. 26

Scope 2 is an allocation of indirect emissions through accounting methods that use generation-only emission factors

4.2 Emission rate approach

These scope 2 accounting methods have several features in common, including:

- They use generation-only emission factors (e.g. emissions assessed at the point of energy generation), designed to label emissions associated with a quantity of electricity delivered and consumed. The emission factors do not include T&D losses or upstream life-cycle emissions associated with the technology or fuel used in generation. Instead, these other categories of upstream emissions should be quantified and reported in scope 3, category 3 (emissions from fuel- and energy-related activities not included in scope 1 or scope 2). In the case of supplier-specific emission factors, the emission factor should reflect emissions from all delivered energy, not just from generation facilities owned/operated by the utility.

Scope 2 Guidance, pg. 27-28

- They represent emission rates that allocate emissions at generation to end-users. This type of treatment is consistent with corporate inventory approaches across other scopes, particularly with product-specific emission factors or labels. Both methods should be applied comprehensively to ensure all energy generation emissions within a defined region have been accounted for.
- This guidance does not support an "avoided emissions" approach for scope 2 accounting due to several important distinctions between corporate accounting and project-level accounting. However, companies can report avoided grid emissions from energy generation projects separately from the scopes using a project-level accounting methodology.

6.7 Calculate emissions

To calculate scope 2 emissions according to one or both methods, the following procedure applies:

1. Multiply activity data from each operation by the emission factor for that activity for each applicable GHG. Some electricity emission factor sets may include emission rates for CO₂, CH₄, and N₂O; others may only provide CO₂ emission rates (see Box 6.1)
2. Multiply global warming potential (GWP) values by the GHG emissions totals to calculate total emissions in CO₂ equivalent (CO₂e).
3. Report final scope 2 by each method in metric tons of each GHG (where available) and in metric tons of CO₂e.

Example calculations are provided for the location-based method and market-based method in Table 6.4 and Table 6.5, respectively.

Scope 2 Guidance, pg. 49

Accounting for Indirect Emissions & Enabling Decision-Making

4.3 The decision-making value of each method's results

The *Corporate Standard* notes that reductions in indirect emissions (changes in scope 2 or 3 emissions over time) may not always capture the actual emissions reduction accurately. This is because there is not always a direct cause-effect relationship between the single activity of the reporting company (purchasing and consuming energy) and the resulting GHG emissions on the grid.³ Generally, as long as the accounting of indirect emissions over time recognizes activities that in aggregate change global emissions, any such concerns over accuracy should not inhibit companies from reporting their indirect emissions.⁴

These two scope 2 accounting methods each provide a different “decision-making value” profile—that is, different indications of performance and risks, revealing different levers to reduce emissions and reduce risks. Ultimately, system-wide emission decreases are necessary over time to stay within safe climate levels. Achieving this requires clarity on what kinds of decisions individual consumers can make to reduce both their own reported emissions as well as contribute to emission reductions in the grid. Working backward from those decisions to the methods used to calculate emissions, there are three types of decisions companies can make that impact overall electricity grid emissions. These decisions include facility siting, the level and timing of demand, and supporting supply shifting.

Scope 2 Guidance, section 4.3, pg. 28

What is the purpose of the market-based method?

The Secretariat aggregated all text related to the method’s purposes, recommended uses and decision-making value, which is summarized by the following categories:

1. Estimating emissions based on contractual relationships to electricity supply
2. Influencing electricity suppliers and generation resource supply mix across the grid ← Different than LBM
3. Risk and opportunity assessment related to contractual relationships
4. Enabling decision-making for consumers and companies

These purposes were assessed within the context of the GHG Protocol Decision-Making Criteria



Please see section Discussion Paper Section 5. *Technical Improvements: Market-Based Method* for a comprehensive evaluation of uses described in the Scope 2 Guidance.

Current purposes of the market-based method (1/2)

Throughout the Scope 2 Guidance, the various purposes of the market-based method are recognized as 1) useful for demonstrating, and 2) providing decision-making relevant information in the following areas:

1. Estimating emissions based on contractual relationships to electricity supply

- Demonstrating the individual choices of electricity product or supplier, or the lack of a differentiated choice, which requires the use of a residual mix⁵
- Allocating emission attributes based on a company's contractual relationships, or what a company is paying for⁶

2. Influencing electricity suppliers and generation resource supply mix across the grid

- Increasing demand for low-carbon energy⁷
- Motivating consumers to partner with suppliers offering low-carbon products, and to seek out opportunities to leverage a company's own financial resources to help develop new projects⁸

⁵ Scope 2 Guidance, section 4.3, pg. 31 ⁷ Scope 2 Guidance, section 11.1, pg. 89
⁶ Scope 2 Guidance, section 2.4, pg. 19 ⁸ Scope 2 Guidance, section 2.3, pg. 19

Current purposes of the market-based method (2/2)

Throughout the Scope 2 Guidance, the various purposes of the market-based method are recognized as 1) useful for demonstrating, and 2) providing decision-making relevant information in the following areas:

3. Risk and opportunity assessment related to contractual relationships

- Reflecting reputational risks/opportunities related to a company's energy procurement⁹
- Conveying legally enforceable rights and claims from contractual instruments (reducing exposure to legal risks)¹⁰
- Reflecting risks related to cost premiums of low-carbon energy and related GHG emissions¹¹
- Reflecting risks related to cost of environmental compliance for the energy resources owned or purchased by a customers' utility¹²

4. Enabling decision-making for consumers and companies

- Enabling facility-siting decisions based on carbon intensities of supply offerings or the residual mix used in a location¹³
- Highlighting opportunities for reduced energy consumption¹⁴
- Enabling a choice of specific resources¹⁵
- Reflecting the individual consumer or supplier choices (or lack thereof) that over time and in aggregate drive supply change¹⁶
- Providing transparency for stakeholders¹⁷

⁹ Scope 2 Guidance, section 2.2, pg. 17

¹² Scope 2 Guidance, section 2.2, pg. 16

¹⁰ Scope 2 Guidance, section 2.2, pg. 17

¹³ Scope 2 Guidance, section 4.3, pg. 28

¹¹ Scope 2 Guidance, section 2.2, pg. 15

¹⁴ Scope 2 Guidance, section 4.3, pg. 30

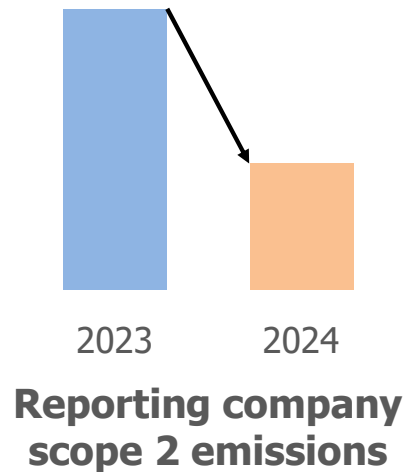
¹⁵ Scope 2 Guidance, section 2.4, pg. 19

¹⁶ Scope 2 Guidance, section 4.3, pg. 31

¹⁷ Scope 2 Guidance, section 7.4, pg. 62

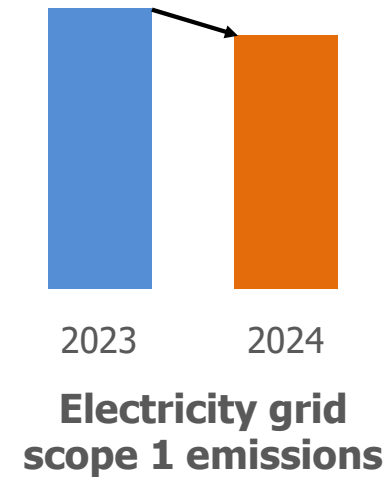
Influencing the electricity supply mix

- The Scope 2 Guidance specifies that one of the market-based method's purposes is to allocate emissions in a way that enables organizations to influence and change the mix of resources serving the electricity grid through their procurement choices (e.g., contracts for carbon-free energy).
- The extent to which a proposed market-based method achieves this result was a key component of the Secretariat's analysis of the scientific integrity of these proposals.



“...accounting of indirect emissions over time recognizes activities that in aggregate change global emissions...”

Scope 2 Guidance, section 4.3, pg. 28

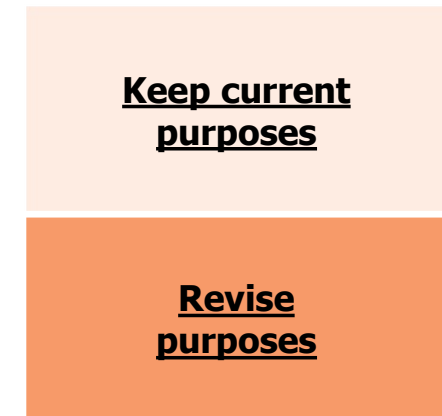


Scope 2 market-based method purpose and use considerations

- What, if any, of the *current purposes* need to change with the current market-based method?
 1. **Estimating emissions based on contractual relationships to electricity supply**
 2. **Influencing electricity suppliers and generation resource supply mix across the grid**
 3. **Risk and opportunity assessment related to contractual relationships**
 4. **Enabling decision-making for consumers and companies**

- Are there other purposes that should be listed?

Matrix for categorizing feedback:



Background on hydrogen research and related studies on C&I load

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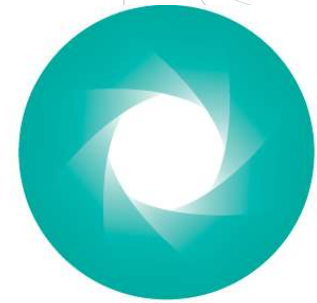
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Hydrogen research and related studies on C&I load

- The US Inflation Reduction Act and EU Delegated Acts on Renewable Hydrogen provide incentives for "clean hydrogen" produced via electrolysis using electricity from the grid.
- Recent research has sought to determine methods for clean energy procurement and use that demonstrate electrolysis is "clean", as defined as sourcing electricity that does not induce significant GHG emissions from the grid.
- A method widely used to study energy market dynamics and policy known as *capacity expansion modeling* was used by a majority of researchers.
- Important caveats to research cited by the Secretariat:
 - Only North America and European markets have been extensively modeled
 - Electrolysis load profiles can differ from typical C&I loads
 - Input assumptions used by researchers to enable modeling can impact results
- Given the significance of this work in assessing the market-based method options, a future TWG meeting could be allocated to a deeper review of the methods, assumptions, findings and interpretation of results if the TWG deems appropriate.

Day 1: Options A-C

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Secretariat assessment – Options A-C

		DAY ONE			DAY TWO	
		Option A: Maintain the Current Market- Based Method Accounting and Reporting Requirements	Option B: Time and Location Matching	Option C: Three Pillars (Time and Location Matching Plus Resource Newness)	Option D: Introduce additionality or causality test in the Scope 2 Quality Criteria	Option E: Induced – avoided emissions
Scientific integrity		Mixed	Mixed / Yes	Mixed / Yes	Mixed	Mixed
Corporate Standard GHG accounting and reporting principles	Relevance	Mixed	Mixed / Yes	Yes	Mixed	N/A
	Completeness	Yes	Yes	Mixed	Mixed	N/A
	Consistency	Mixed	Yes	Yes	Mixed	N/A
	Transparency	Yes	Yes	Yes	Mixed	N/A
	Accuracy	Mixed	Mixed / Yes	Yes	Mixed	N/A
	Comparability	Mixed	Mixed / Yes	Mixed / Yes	Mixed	N/A
Supports decision making that drives ambitious global climate action		Mixed	Mixed / Yes	Yes	Mixed	Mixed
Supports programs based on GHG Protocol and uses of GHG data		Mixed	Mixed	Mixed	Mixed	Mixed / No
Feasibility to implement		Mixed / Yes	Mixed	Mixed / No	Mixed	Mixed

Secretariat initial observations on Options A-C

- Generally, hourly time and location matching better aligns with the GHG Protocol principles of accuracy and relevance than annual matching, though without other constraints it may not drive system-wide changes to the grid.
- The combination of hourly time and location matching with a constraint on facility age (Option C) may offer the most alignment with the criteria of scientific integrity, and the principles of accuracy and relevance.
- Option C may best support decision-making, as there is a modeled theoretical basis for an alignment between actions taken to reduce market-based emissions using the proposed framework and actual changes on the grid.
- Option C's ability to meeting the Completeness principle remains unclear.
- Options B and C are less feasible to implement than Option A, and this difference may be more pronounced outside of North America and Europe.

Options A-C: Current methodology, time and location matching, three pillars

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Presentation of information

- 26 members completed the survey by the due date.
- Each option is presented showing both the initial Secretariat assessment along with TWG's initial degree of consensus and alternative assessments.
- Further analysis is included in the supplementary information detail for criterion with a wider range of perspectives.

Option A: Maintain the current market-based method accounting and reporting requirements

- **Maintain current broad flexibility of the scope 2 market-based method quality criteria**
- **Maintain existing Quality Criteria for contractual instruments**
 - Criteria 4 (vintage): “as close as possible”
 - Criteria 5 (market boundaries): “same market”

Table 7.1 Scope 2 Quality Criteria

Further explanation on select Scope 2 Quality Criteria can be found in Section 7.5.

All contractual instruments used in the market-based method for scope 2 accounting shall:
<ol style="list-style-type: none"> 1. Convey the direct GHG emission rate attribute associated with the unit of electricity produced. 2. Be the only instruments that carry the GHG emission rate attribute claim associated with that quantity of electricity generation. 3. Be tracked and redeemed, retired, or canceled by or on behalf of the reporting entity. 4. Be issued and redeemed as close as possible to the period of energy consumption to which the instrument is applied. 5. Be sourced from the same market in which the reporting entity’s electricity-consuming operations are located and to which the instrument is applied.
In addition, utility-specific emission factors shall:
<ol style="list-style-type: none"> 6. Be calculated based on delivered electricity, incorporating certificates sourced and retired on behalf of its customers. Electricity from renewable facilities for which the attributes have been sold off (via contracts or certificates) shall be characterized as having the GHG attributes of the residual mix in the utility or supplier-specific emission factor.
In addition, companies purchasing electricity directly from generators or consuming on-site generation shall:
<p>7.E nsure all contractual instruments conveying emissions claims be transferred to the reporting entity only. No other instruments that convey this claim to another end user shall be issued for the contracted electricity. The electricity from the facility shall not carry the GHG emission rate claim for use by a utility, for example, for the purpose of delivery and use claims.</p>
Finally, to use any contractual instrument in the market-based method requires that:
<ol style="list-style-type: none"> 8. An adjusted, residual mix characterizing the GHG intensity of unclaimed or publicly shared electricity shall be made available for consumer scope 2 calculations, or its absence shall be disclosed by the reporting entity.

Scope 2 Guidance, pg. 60

TWG feedback on Option A assessment

Secretariat assessment

		Option A: Maintain the Current Market-Based Method Accounting and Reporting Requirements
Scientific integrity		Mixed
Corporate Standard GHG accounting and reporting principles	Relevance	Mixed
	Completeness	Yes
	Consistency	Mixed
	Transparency	Yes
	Accuracy	Mixed
	Comparability	Mixed
Supports decision making that drives ambitious global climate action		Mixed
Supports programs based on GHG Protocol and uses of GHG data		Mixed
Feasibility to implement		Mixed/Yes

TWG Member Assessment

TWG Majority Assessment	TWG Alternative Assessments (ranked by count)			
Mixed 14/26	Mixed / No (9)	No (2)	Yes (1)	
Mixed 20/26	Mixed / No (4)	No (2)		
Yes 23/26	Mixed (2)	No (1)		
Mixed 20/26	Mixed / Yes (3)	Yes (2)	Mixed / No (1)	
Yes 20/26	Mixed / Yes (3)	Yes (2)	No (1)	
Mixed 13/26	Mixed / No (10)	No (1)	Mixed / Yes (1)	Yes (1)
Mixed 20/26	Mixed / No (2)	Mixed / Yes (2)	Yes (1)	No (1)
Mixed 17/26	Mixed / No (6)	Mixed / Yes (2)	No (1)	
Mixed 23/26	No (1)	Mixed / Yes (1)	Yes (1)	
Yes 14/26	Mixed / Yes (10)	Mixed (1)	Mixed/ No (1)	

Option B: Time and location matching

Change Scope 2 Quality Criteria to require more temporally and spatially granular matching of emission factors

- Criteria 4 (vintage): change language to require hourly matching
- Criteria 5 (market boundaries): change language to require matching from "deliverable" market boundaries

Table 7.1 Scope 2 Quality Criteria

Further explanation on select Scope 2 Quality Criteria can be found in Section 7.5.

All contractual instruments used in the market-based method for scope 2 accounting shall:

1. Convey the direct GHG emission rate attribute associated with the unit of electricity produced.
2. Be the only instruments that carry the GHG emission rate attribute claim associated with that quantity of electricity generation.
3. Be tracked and redeemed, retired, or canceled by or on behalf of the reporting entity.
4. Be issued and redeemed as close as possible to the period of energy consumption to which the instrument is applied.
5. Be sourced from the same market in which the reporting entity's electricity-consuming operations are located and to which the instrument is applied.

In addition, utility-specific emission factors shall:

6. Be calculated based on delivered electricity, incorporating certificates sourced and retired on behalf of its customers. Electricity from renewable facilities for which the attributes have been sold off (via contracts or certificates) shall be characterized as having the GHG attributes of the residual mix in the utility or supplier-specific emission factor.

In addition, companies purchasing electricity directly from generators or consuming on-site generation shall:

- 7.E nsure all contractual instruments conveying emissions claims be transferred to the reporting entity only. No other instruments that convey this claim to another end user shall be issued for the contracted electricity. The electricity from the facility shall not carry the GHG emission rate claim for use by a utility, for example, for the purpose of delivery and use claims.

Finally, to use any contractual instrument in the market-based method requires that:

8. An adjusted, residual mix characterizing the GHG intensity of unclaimed or publicly shared electricity shall be made available for consumer scope 2 calculations, or its absence shall be disclosed by the reporting entity.

Scope 2 Guidance, pg. 60

TWG feedback on Option B assessment

Secretariat assessment

		Option B: Time and Location Matching
Scientific integrity		Mixed / Yes
Corporate Standard GHG accounting and reporting principles	Relevance	Mixed / Yes
	Completeness	Yes
	Consistency	Yes
	Transparency	Yes
	Accuracy	Mixed / Yes
	Comparability	Mixed / Yes
Supports decision making that drives ambitious global climate action		Mixed / Yes
Supports programs based on GHG Protocol and uses of GHG data		Mixed
Feasibility to implement		Mixed

TWG Member Assessment

TWG Majority Assessment	TWG Alternative Assessments (ranked by count)			
Mixed / Yes (20/26)	Mixed (2)	Mixed / No (2)	No (1)	
Mixed / Yes (21/26)	Yes (2)	Mixed / No (2)	Mixed (1)	
Yes (24/26)	Mixed (1)	No (1)		
Yes (20/26)	Mixed (3)	Mixed / Yes (2)	Mixed / No (1)	
Yes (21/26)	Mixed / Yes (2)	Mixed (1)	Mixed / No (1)	No (1)
Mixed / Yes (15/26)	Yes (4)	Mixed (4)	No (2)	Mixed / No (1)
Mixed / Yes (21/26)	Mixed / No (3)	Mixed (2)		
Mixed / Yes (19/26)	Mixed (3)	Mixed / No (2)	Yes (2)	
Mixed (22/26)	Mixed / Yes (2)	No (2)		
Mixed (15/26)	Mixed / Yes (4)	Mixed / No (4)	No (3)	

Option C: Three pillars

Change Scope 2 Quality Criteria to require more temporally and spatially granular matching of emission factors, add a requirement for resource newness

- Criteria 4 (vintage): change language to require hourly matching
- Criteria 5 (market boundaries): change language to require matching from "deliverable" market boundaries
- New criteria: add a requirement that instruments must be sourced from "new" projects (to be discussed and defined)

Table 7.1 Scope 2 Quality Criteria

Further explanation on select Scope 2 Quality Criteria can be found in Section 7.5.

All contractual instruments used in the market-based method for scope 2 accounting shall:

1. Convey the direct GHG emission rate attribute associated with the unit of electricity produced.
2. Be the only instruments that carry the GHG emission rate attribute claim associated with that quantity of electricity generation.
3. Be tracked and redeemed, retired, or canceled by or on behalf of the reporting entity.
4. Be issued and redeemed as close as possible to the period of energy consumption to which the instrument is applied.
5. Be sourced from the same market in which the reporting entity's electricity-consuming operations are located and to which the instrument is applied.

In addition, utility-specific emission factors shall:

6. Be calculated based on delivered electricity, incorporating certificates sourced and retired on behalf of its customers. Electricity from renewable facilities for which the attributes have been sold off (via contracts or certificates) shall be characterized as having the GHG attributes of the residual mix in the utility or supplier-specific emission factor.

In addition, companies purchasing electricity directly from generators or consuming on-site generation shall:

7. Ensure all contractual instruments conveying emissions claims be transferred to the reporting entity only. No other instruments that convey this claim to another end user shall be issued for the contracted electricity. The electricity from the facility shall not carry the GHG emission rate claim for use by a utility, for example, for the purpose of delivery and use claims.

Finally, to use any contractual instrument in the market-based method requires that:

8. An adjusted, residual mix characterizing the GHG intensity of unclaimed or publicly shared electricity shall be made available for consumer scope 2 calculations, or its absence shall be disclosed by the reporting entity.

Scope 2 Guidance, pg. 60

TWG feedback on Option C assessment

Secretariat assessment

		Option C: Three Pillars (Time and Location Matching Plus Resource Newness)
Scientific integrity		Mixed / Yes
Corporate Standard GHG accounting and reporting principles	Relevance	Yes
	Completeness	Mixed
	Consistency	Yes
	Transparency	Yes
	Accuracy	Yes
	Comparability	Mixed / Yes
Supports decision making that drives ambitious global climate action		Yes
Supports programs based on GHG Protocol and uses of GHG data		Mixed
Feasibility to implement		Mixed / No

TWG Member Assessment

TWG Majority Assessment	TWG Alternative Assessments (ranked by count)				
	Mixed / Yes	Mixed / No	No	Yes	Yes / No
Mixed / Yes (18/26)	Mixed (4)	Mixed / No (2)	No (1)	Yes (1)	
Yes (17/26)	Mixed / Yes (3)	Mixed (3)	Mixed / No (2)	No (1)	
Mixed (20/26)	Mixed / Yes (2)	Mixed / No (2)	Yes (1)	No (1)	
Yes (21/26)	Mixed (3)	Mixed / Yes (1)	No (1)		
Yes (21/26)	Mixed (3)	Mixed / Yes (1)	No (1)		
Yes (15/26)	Mixed / Yes (4)	Mixed (3)	Mixed / No (3)	No (1)	
Mixed / Yes (20/26)	Mixed (3)	Mixed / No (2)	No (1)		
Yes (16/26)	Mixed / Yes (5)	Mixed (2)	Mixed / No (2)	No (1)	
Mixed (22/26)	Mixed / No (2)	Mixed / Yes (1)	No (1)		
Mixed / No (19/26)	No (4)	Mixed (2)	Mixed / Yes (1)		

Options A-C discussion questions (1/2)

- What, if any, of the *current purposes* need to change with the current market-based method?
 1. **Estimating emissions based on contractual relationships to electricity supply**
 2. **Influencing electricity suppliers and generation resource supply mix across the grid**
 3. **Risk and opportunity assessment related to contractual relationships**
 4. **Enabling decision-making for consumers and companies**
- Are there other purposes that should be listed?
- What, if any, *methodology or calculation requirements* need to change with the current market-based method?

Matrix for categorizing feedback:

<u>Keep current purposes</u>	<u>Keep current methodology</u>
<u>Revise purposes</u>	<u>Revise methodology</u>

Options A-C discussion questions (2/2)

- Does hourly time and location matching provide a better allocation of emissions based on contractual relationships to electricity supply.
- Are **capacity expansion models** valuable for assessing if an option recognizes activities that in aggregate change global emissions over time?
- Is a modeled causal relationship between energy procurement decisions and changes on the grid a sufficient way to test if an option supports **decision-making** that drives ambitious global climate action?
- Is there research showing the current market-based method is more/less aligned with the GHGP Decision-making hierarchy in regions of the world outside of North American and European markets?
- How would “newness” be implemented in a scope 2 standard? What length of time is sufficient?
- What data or evidence exists that can comprehensively and objectively assess the global **feasibility** of market-based emission calculations for Options A-C?

Matrix for categorizing feedback:

<u>Keep current purposes</u>	<u>Keep current methodology</u>
<u>Revise purposes</u>	<u>Revise methodology</u>

Day 2: Options D and E

Draft for TWG discussion



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Agenda

Day 1: December 17th, 2024

- Welcome
- Goal and structure of today's discussion
- Current purposes of the market-based method
- Discussion on market-based method purposes
- Background on hydrogen research and related studies on C&I load
- Secretariat assessment of proposed options A, B and C
- Options A-C discussion: status quo, time and location matching, and three pillars

Day 2: December 18th, 2024

- Option D discussion: additionality or causality test
- Option E discussion: induced – avoided emissions
- Plan for proposing redline changes to the Scope 2 Guidance
- Next steps

Draft for TWG discussion



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Goals of Day 1 & Day 2 meetings

1. Hear TWG members' perspectives on potential changes to the market-based method's
 - Stated purposes & uses
 - Methodology
2. Begin process for conceptualizing what a revised market-based method looks like based on TWG consensus
3. Identify initial TWG ideas, road-blocks, and questions for ISB awareness

Due to the number of options being considered, the options are being divided across two days. Each day will focus on a discussion of a subset of the proposed changes as follows:

Day 1:

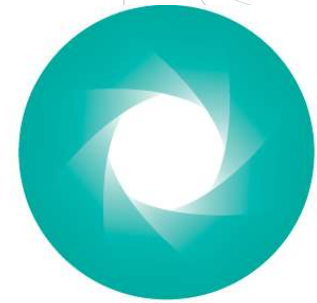
- Focus on market-based method Options A, B, and C

Day 2:

- Focus on market-based method Options D and E
- Discuss redline changes planning moving forward

Option D discussion: additionality or causality test

Draft for TWG discussion



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Option D: Introduce additionality or causality test in the Scope 2 Quality Criteria

Change Scope 2 Quality Criteria to require that contractual instruments demonstrate additionality or causality

- New criteria: add language to require additionality or causality

Table 7.1 Scope 2 Quality Criteria

Further explanation on select Scope 2 Quality Criteria can be found in Section 7.5.

All contractual instruments used in the market-based method for scope 2 accounting shall:

1. Convey the direct GHG emission rate attribute associated with the unit of electricity produced.
2. Be the only instruments that carry the GHG emission rate attribute claim associated with that quantity of electricity generation.
3. Be tracked and redeemed, retired, or canceled by or on behalf of the reporting entity.
4. Be issued and redeemed as close as possible to the period of energy consumption to which the instrument is applied.
5. Be sourced from the same market in which the reporting entity's electricity-consuming operations are located and to which the instrument is applied.

In addition, utility-specific emission factors shall:

6. Be calculated based on delivered electricity, incorporating certificates sourced and retired on behalf of its customers. Electricity from renewable facilities for which the attributes have been sold off (via contracts or certificates) shall be characterized as having the GHG attributes of the residual mix in the utility or supplier-specific emission factor.

In addition, companies purchasing electricity directly from generators or consuming on-site generation shall:

7. Ensure all contractual instruments conveying emissions claims be transferred to the reporting entity only. No other instruments that convey this claim to another end user shall be issued for the contracted electricity. The electricity from the facility shall not carry the GHG emission rate claim for use by a utility, for example, for the purpose of delivery and use claims.

Finally, to use any contractual instrument in the market-based method requires that:

8. An adjusted, residual mix characterizing the GHG intensity of unclaimed or publicly shared electricity shall be made available for consumer scope 2 calculations, or its absence shall be disclosed by the reporting entity.

Scope 2 Guidance, pg. 60

Secretariat assessment – Option D

		DAY ONE			DAY TWO	
		Option A: Maintain the Current Market- Based Method Accounting and Reporting Requirements	Option B: Time and Location Matching	Option C: Three Pillars (Time and Location Matching Plus Resource Newness)	Option D: Introduce additionality or causality test in the Scope 2 Quality Criteria	Option E: Induced – avoided emissions
Scientific integrity		Mixed	Mixed / Yes	Mixed / Yes	Mixed	Mixed
Corporate Standard GHG accounting and reporting principles	Relevance	Mixed	Mixed / Yes	Yes	Mixed	N/A
	Completeness	Yes	Yes	Mixed	Mixed	N/A
	Consistency	Mixed	Yes	Yes	Mixed	N/A
	Transparency	Yes	Yes	Yes	Mixed	N/A
	Accuracy	Mixed	Mixed / Yes	Yes	Mixed	N/A
	Comparability	Mixed	Mixed / Yes	Mixed	Mixed	N/A
Supports decision making that drives ambitious global climate action		Mixed	Mixed / Yes	Yes	Mixed	Mixed
Supports programs based on GHG Protocol and uses of GHG data		Mixed	Mixed	Mixed	Mixed	Mixed / No
Feasibility to implement		Mixed / Yes	Mixed	Mixed / No	Mixed	Mixed

Secretariat initial observations on Option D

- Difficult to fully assess this option due to differing definitions of "additionality" or "causality."
- The Secretariat could not find credible research/modeling on the impact of a pure additionality requirement.
- Proxies for additionality, such as limiting procurement to newer resources, did not result in changes in generation grid mix absent time and location matching requirements.
- Auditability, and therefore transparency, of the approach depends on the criteria for determining additionality and thus requires more information to comprehensively assess.
- Option D's ability to meeting the Completeness principle remains unclear.
- Calculating a supplier-specific rate or residual mix based on the proposed option may add significant complexity, which impacts its feasibility.

TWG feedback on Option D assessment

Secretariat assessment

		Option D: Introduce Additionality or Causality Test in the Scope 2 Quality Criteria
Scientific integrity		Mixed
Corporate Standard GHG accounting and reporting principles	Relevance	Mixed
	Completeness	Mixed
	Consistency	Mixed
	Transparency	Mixed
	Accuracy	Mixed
	Comparability	Mixed
Supports decision making that drives ambitious global climate action		Mixed
Supports programs based on GHG Protocol and uses of GHG data		Mixed
Feasibility to implement		Mixed

TWG Member Assessment

TWG Majority Assessment	TWG Alternative Assessments (ranked by count)			
Mixed (19/26)	Mixed / No (2)	No (2)	Mixed / Yes (2)	Yes (1)
Mixed (21/26)	Mixed / No (2)	Mixed / Yes (1)	Yes (1)	No (1)
Mixed (22/26)	No (2)	Yes (1)	Mixed / Yes (2)	
Mixed (22/26)	Mixed / No (2)	Mixed / Yes (1)	No (1)	
Mixed (22/26)	Mixed / Yes (2)	Mixed / No (1)	No (1)	
Mixed (20/26)	Mixed / No (3)	Mixed / Yes (1)	Yes (1)	No (1)
Mixed (24/26)	Mixed / No (1)	No (1)		
Mixed (22/26)	Yes (2)	Mixed / Yes (1)	Mixed / No (1)	
Mixed (22/26)	No (2)	Mixed / No (1)	Mixed / Yes (1)	
Mixed (20/26)	Mixed / No (3)	No (2)	Mixed / Yes (1)	

Option D discussion questions (1/2)

- What, if any, of the *current purposes* need to change with the current market-based method?
 1. **Estimating emissions based on contractual relationships to electricity supply**
 2. **Influencing electricity suppliers and generation resource supply mix across the grid**
 3. **Risk and opportunity assessment related to contractual relationships**
 4. **Enabling decision-making for consumers and companies**
- Are there other purposes that should be listed?
- What, if any, *methodology or calculation requirements* need to change with the current market-based method?

Matrix for categorizing feedback:

<u>Keep current purposes</u>	<u>Keep current methodology</u>
<u>Revise purposes</u>	<u>Revise methodology</u>

Option D discussion questions (2/2)

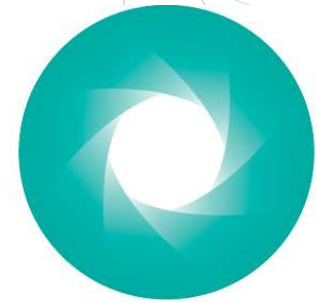
- What definition(s) of additionality or causality are available, and which would be most appropriate for use within the market-based method?
- Is there research available comprehensively assessing the impact of additionality or causality tests for electricity projects?
- How feasible would an additionality or causality requirement be to implement at scale, how would a residual mix be calculated?
- Are the terms “additionality” and “causality” equivalent?

Matrix for categorizing feedback:

<u>Keep current purposes</u>	<u>Keep current methodology</u>
<u>Revise purposes</u>	<u>Revise methodology</u>

Option E discussion: induced – avoided emissions

Draft for TWG discussion



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Option E: Induced – avoided emissions

Adjust Scope 2 market-based emissions calculation approach to the following:

- Scope 2 = induced – avoided emissions
- Induced emissions = electricity load MWhs * marginal emission factor of load
- Avoided emissions = electricity project MWhs * marginal emission factor of project

6.7 Calculate emissions

To calculate scope 2 emissions according to one or both methods, the following procedure applies:

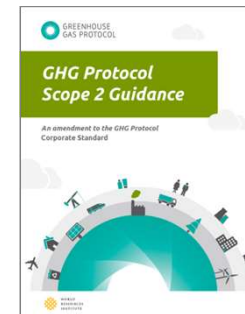
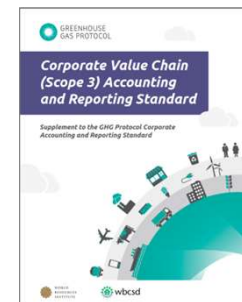
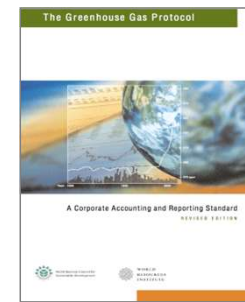
1. Multiply activity data from each operation by the emission factor for that activity for each applicable GHG. Some electricity emission factor sets may include emission rates for CO₂, CH₄, and N₂O; others may only provide CO₂ emission rates (see Box 6.1)
2. Multiply global warming potential (GWP) values by the GHG emissions totals to calculate total emissions in CO₂ equivalent (CO₂e).
3. Report final scope 2 by each method in metric tons of each GHG (where available) and in metric tons of CO₂e.

Example calculations are provided for the location-based method and market-based method in Table 6.4 and Table 6.5, respectively.

Scope 2 Guidance, pg. 49

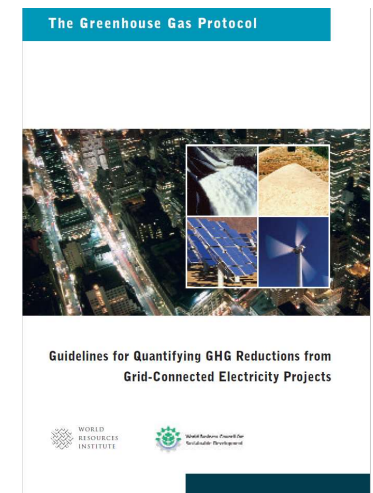
Background: Inventory (attributional) accounting

- Tracks the physical emissions and removals of GHGs to and from the atmosphere from sources and activities within a defined inventory boundary over time
- Main accounting method used by corporations, organizations, cities, and governments to quantify and report emissions
- Rules and procedures outlined in the GHG Protocol Corporate Standard, Scope 2 Guidance, Corporate Value Chain (Scope 3) Standard, and upcoming Land Sector Guidance



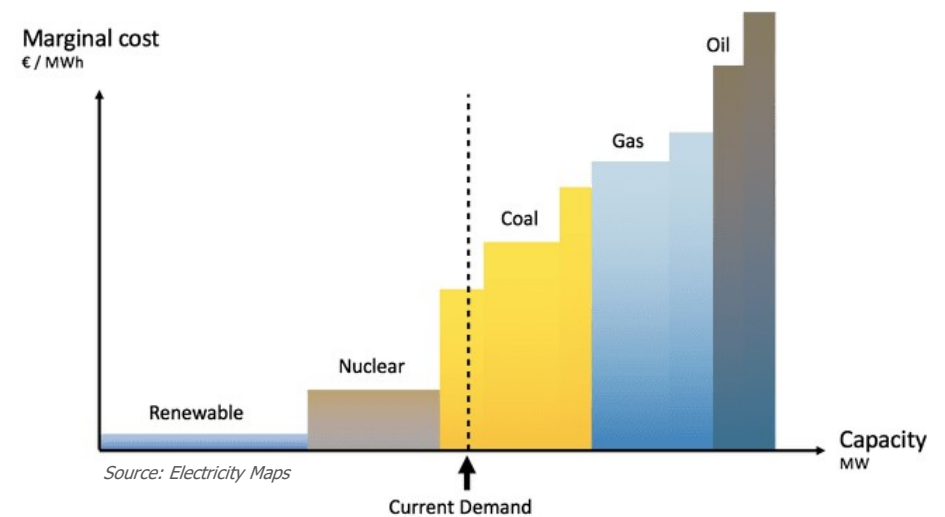
Background: Project (consequential) accounting

- Estimates the emissions effects from projects, actions, or interventions relative to a counterfactual baseline
- Used to evaluate the global emissions impact of projects
- Rules and procedures outlined in the GHG Protocol for Project Accounting (2005) and Guidelines for Grid-Connected Electricity Projects (2007)



Background: Project accounting approach for electricity projects

- Based on a GHG Project (e.g., specific projects, actions, or interventions)
- Requires the establishment of a baseline scenario (counterfactual) and a project scenario (observed)
- Calculating the baseline scenario requires determining the sources of electricity that the project displaces
- Project activities can avoid existing electricity sources (**operating margin**) and/or the construction of new power projects (**build margin**)
- Short-run marginal emission factors are useful in estimating the operating margin for a project
- Build margin emission rates require assessments of the load profile of the project, economics of various types of projects in the grid region, etc.



In many markets, generation resources are called upon in a specific order of increasing cost.

Background: Scope 2 Standard Development Plan's *Scope of Work* on project accounting

Regarding updates to electricity sector project accounting and relevant consequential accounting methodologies, the Scope 2 Standard Development Plan (SDP) states the following in the list of topics to be considered during the standard revision process:

4. Role of project-based accounting methodology relative to scope 2 accounting

- a) Clarify the relationship between scope 2 inventory accounting and electricity sector project accounting methodologies such as the GHG Protocol *Guidelines for Quantifying GHG Reductions from Grid-Connected Electricity Projects*
- b) Determine how and to what extent the quantification and reporting of GHG emission impacts of grid-connected electricity projects using the project method is required by the standard
- c) Clarify potential interactions between carbon credits sourced from carbon-free generation facilities and EACs from the same resource

Secretariat assessment – Option E

		DAY ONE			DAY TWO	
		Option A: Maintain the Current Market- Based Method Accounting and Reporting Requirements	Option B: Time and Location Matching	Option C: Three Pillars (Time and Location Matching Plus Resource Newness)	Option D: Introduce additionality or causality test in the Scope 2 Quality Criteria	Option E: Induced – avoided emissions
Scientific integrity		Mixed	Mixed / Yes	Mixed / Yes	Mixed	Mixed
Corporate Standard GHG accounting and reporting principles	Relevance	Mixed	Mixed / Yes	Yes	Mixed	N/A
	Completeness	Yes	Yes	Mixed	Mixed	N/A
	Consistency	Mixed	Yes	Yes	Mixed	N/A
	Transparency	Yes	Yes	Yes	Mixed	N/A
	Accuracy	Mixed	Mixed / Yes	Yes	Mixed	N/A
	Comparability	Mixed	Mixed / Yes	Mixed	Mixed	N/A
Supports decision making that drives ambitious global climate action		Mixed	Mixed / Yes	Yes	Mixed	Mixed
Supports programs based on GHG Protocol and uses of GHG data		Mixed	Mixed	Mixed	Mixed	Mixed / No
Feasibility to implement		Mixed / Yes	Mixed	Mixed / No	Mixed	Mixed

Secretariat initial observations on Option E

- The use of consequential accounting to quantify and report the broader system-wide impacts and emission *changes* resulting from specific actions or decisions is supported and encouraged by the GHG Protocol, including:
 - 2005 – GHG Protocol for Project Accounting
 - 2007 – Guidelines for Grid-Connected Electricity Projects
 - 2015 – Scope 2 Guidance (e.g., section 6.9 Optional: Calculate any avoided emissions and report separately)
- Use of marginal emission factors may be a valuable means to provide decision-making value in addition to other approaches. Additional research may be necessary to comprehensively assess grid dynamics and use of short-run marginal emission factors.
- Applying consequential accounting methods to all activities within an inventory boundary while also relying on counterfactuals introduces numerous challenges as discussed in this resource: *Inventory and Project Accounting: A Comparative Review*.¹⁸
- Option E represents a fundamentally different accounting method that is grounded in consequential accounting as opposed to attributional accounting.
- Further discussion with TWG members is necessary to determine the most effective path forward that appropriately balances distinct Corporate Standard and Protocol for Project Accounting principles while also enabling the objectives of both frameworks.

¹⁸ <https://ghgprotocol.org/blog/inventory-and-project-accounting>

TWG feedback on Option E assessment

Secretariat assessment

		Option E: Option E: Replace Existing Market-Based Method with a Formula: 'Scope 2 Emissions = Induced – Avoided Emissions'
Scientific integrity		Mixed
Corporate Standard GHG accounting and reporting principles	Relevance	N/A
	Completeness	N/A
	Consistency	N/A
	Transparency	N/A
	Accuracy	N/A
	Comparability	N/A
Supports decision making that drives ambitious global climate action		Mixed
Supports programs based on GHG Protocol and uses of GHG data		Mixed / No
Feasibility to implement		Mixed

TWG Member Assessment

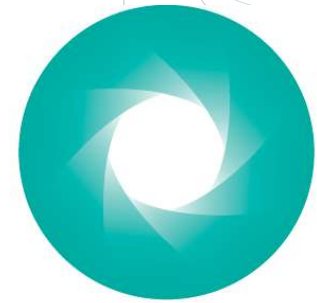
TWG Majority Assessment	TWG Alternative Assessments (ranked by count)				
	Mixed / No	Mixed / Yes	Yes	No	
Mixed (12/26)	Mixed / No (5)	Mixed / Yes (3)	Yes (3)	No (3)	
N/A (18/26)	No (3)	Mixed / Yes (3)	Yes (2)		
N/A (19/26)	Mixed / Yes (3)	Yes (2)	No (2)		
N/A (18/26)	Mixed (3)	Mixed / Yes (2)	Yes (1)	Mixed / No (1)	No (1)
N/A (18/26)	Mixed / Yes (4)	Yes (1)	Mixed (1)	Mixed / No (1)	No (1)
N/A (17/26)	No (3)	Yes (3)	Mixed / Yes (2)	Mixed / No (1)	
N/A (18/26)	Mixed / Yes (5)	No (2)	Mixed / No (1)		
Mixed (14/26)	Mixed / No (6)	Yes (4)	Mixed / Yes (2)		
Mixed / No (22/26)	No (3)	Mixed (1)			
Mixed (16/26)	Mixed / No (4)	Mixed / Yes (3)	No (2)	Yes (1)	

Option E discussion questions

- Can Option E be evaluated relative to the Corporate Standard accounting and reporting principles, and consistent with how scope 1 and 3 are calculated?
- Does the calculation of 'induced minus avoided' emissions require the use of a baseline, and can this be achieved if applied to all activities within an inventory boundary rather than to a "GHG Project" as described in the Project Accounting Standard? Absent a baseline, how is "induced" or "avoided" assessed?
- What is the purpose of reporting 'induced minus avoided' emission impacts, as described by Option E?
- If the standard for a scope 2 inventory also recommended or required the reporting of avoided emissions in addition to the location and/or market-based methods:
 - What potential interactions might there be between carbon credits sourced from carbon-free generation facilities and EACs from the same resource?
- What role should reporting on electricity-related interventions play within scope 2 inventory reporting? Outside of scope 2 inventory reporting?
- How can the prominence of reporting on electricity-related interventions be appropriately elevated with target-setting and mandatory disclosure programs?

Plan for proposing redline changes to the scope 2 standard

Draft for TWG discussion



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Following the evaluation of proposed revisions, TWG focus will shift to development of interim guidance

- **Output of Phase 1:** Development of draft interim guidance for public consultation through TWG process with review and approvals by the Independent Standards Board.
- Content will focus on Phase 1 topics as identified in the Standard Development Plan.
- To assist with this revision process, the secretariat will provide a synopsis of key sections of the existing standard.
- TWG members are asked to develop both redline revisions to the relevant sections of the standard and supporting rationale consistent with the Decision-Making Criteria and Hierarchy.

#	Date	Topic
1	16-Oct	SDP & workplan review
2	6-Nov	Changes to required reporting methods
3	26-Nov	Improvements to location-based method
4-5	17 & 18-Dec	Improvements to market-based method
6	16-Jan	Project accounting interactions with scope 2
7	29-Jan	Reviewing location-based method changes
8	19-Feb	Reviewing market-based method changes
9-13	5-Mar to 30-Apr	Continued discussion of location- and market-based method changes
14	14-May	Send recommendation(s) on interim guidance for ISB feedback

Next steps

Draft for TWG discussion



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Next steps

Developing revisions to the market-based method

- TWG members should begin development of initial revisions to the market-based method
- TWG members are encouraged to work in groups to develop proposed changes
- First draft of market-based revisions are due by January 29th

Developing revisions to the location-based method

- First draft of location-based revisions are due by January 14th

Next meeting

- Electricity sector project accounting interactions with scope 2
 - January 16th*, 17:00-19:00 EST/ 23:00 CET / 6:00 CST (following day)
 - No survey

**Note that the first January meeting has been moved 5 business days from what was shared in the kick-off meeting*



Thank you!

If you'd like to stay updated on our work, please [subscribe](#) to GHG Protocol's email list to receive our monthly newsletter and other updates.

Draft for TWG discussion



Option A. Criterion for discussion: Scientific integrity

Decision-making criterion	Secretariat assessment	NA	No (does not align)	Mixed/no	Mixed	Mixed/yes	Yes (align)
Scientific integrity	Mixed	0	2	9	14	0	1

Reasons for **lower ratings**

- Deficiencies have been demonstrated in peer-reviewed literature and other robust empirical evidence
- REC purchasing decisions are often made under the rationale of "finance-ability" and "fiduciary duty"
- Scientific integrity is not relevant because these are transactional/commercial claims

Reasons for **higher ratings**

- Not an estimation method. Accurately describes the emissions associated with the purchasing organization's activities with scientific integrity.
- An organization's actions are fully reflected in inventory changes over time.

Option A. Criterion for discussion: Accuracy

Decision-making criterion	Secretariat assessment	NA	No (does not align)	Mixed/no	Mixed	Mixed/yes	Yes (align)
Accuracy	Mixed	0	1	10	13	1	1

Reasons for **lower ratings**

- Clear from research that option has significant deficiencies
- A '0' inventory suggests that the company's environmental goals are met despite their continued reliance on fossil resources
- CFE is not allocated properly to those who pay for it
- Neglects infrastructural constraints and storage requirements
- Allows for inaccurate use claims
- Changes in inventory emissions do not correspond to changes in atmospheric emissions

Reasons for **higher ratings**

- Neither over nor under allocates total emissions unless a residual mix is unavailable
- Accuracy should not be evaluated based on the impact of actions incentivized by this method.
- Scope 2's total reflects the allocation of energy generation attributes that do occur, it does not measure emission reductions; thus, reductions in inventories may not match reductions in emissions on the grid

Option A. Criterion for discussion: Feasibility

Decision-making criterion	Secretariat assessment	NA	No (does not align)	Mixed/no	Mixed	Mixed/yes	Yes (align)
Feasibility	Mixed/yes	0	0	1	1	10	14

Reasons for **lower ratings**

- Feasibility to act on the results are still limited because most grids (and their market boundaries) do not have the wholesale market structures to enable voluntary, long-term EAC offtake agreements.

Reasons for **higher ratings**

- Lower precision forms of data (i.e. utility/supplier-specific and residual mix emission factors) enable feasibility
- Well-established methodology that organizations have been practicing for a decade
- Widely implemented by organizations large and small in both mature and immature markets
- The full market-based hierarchy is relevant to the method and needs to be taken into consideration together

Option B. Criterion for discussion: Accuracy

Decision-making criterion	Secretariat assessment	NA	No (does not align)	Mixed/no	Mixed	Mixed/yes	Yes (align)
Accuracy	Mixed/yes	0	2	1	4	15	4

Reasons for **lower ratings**

- Does not reflect a traditional (physical) inventory nor consequential impact (absent some proxy for additionality)
- Accounting accuracy does not depend on assessing how incentivized actions change aggregate emissions
- Accuracy on alignment between scope 2 market-based inventory reductions and reductions to the atmosphere depends on detail not covered, like order of operations & CFE baseline
- Excessive emphasis was placed on capacity expansion models, which rely on broad assumptions that often fail in practice

Reasons for **higher ratings**

- The secretariat's assessment of accuracy focuses on a consequential argument: how accurately does this method reflect changes in emissions. However, the more appropriate question is how accurately does this represent allocation of emissions to load via claims flow. This option does reflect a more accurate allocation of supply to demand due to the fundamentals of power system operations
- Accuracy depends on the purpose of the metric
- Reductions in attributional inventories should NOT be equated with consequential impacts
- Market-based inventories should be about attributing emissions properly to end-users; thus, always matching deliverable clean MWh with load
- If you want to measure impact, then do so directly with impact accounting

Option B. Criterion for discussion: Feasibility

Decision-making criterion	Secretariat assessment	NA	No (does not align)	Mixed/no	Mixed	Mixed/yes	Yes (align)
Feasibility	Mixed	0	3	4	15	4	0

Reasons for **lower ratings**

- Inaccessible to SMEs and organizations located outside of North America and Europe/AIB
- Few companies have hourly load data
- EAC procurement is unavailable in most markets without wholesale and or competitive choice features
- Need large data management systems

Reasons for **higher ratings**

- For the majority of large consumers, the basic data needed to do this is standard across much of the world for billing of electricity and PPAs
- If option allows monthly temporal matching if hourly load or emissions data is not available, the feasibility of this option would increase since monthly data is more widely available and matches the current period of most EACs today
- Even if one single boundary definition doesn't have global applicability, this doesn't decrease the feasibility. It just requires the GHG Protocol to define general criteria that can be applied globally or prescriptive boundaries tailored to a handful of geographies and situations
- Assuming synthetic profiles could be used, hourly certificates remain the only gap for full, global feasibility
- The feasibility could be improved by defining cases where time and location matching is only recommended, but not required, e.g. developing countries, SMEs, public institutions

Option C. Criterion for discussion: Relevance

Decision-making criterion	Secretariat assessment	N/A	No (does not align)	Mixed/no	Mixed	Mixed/yes	Yes (align)
Relevance	Yes	0	1	2	3	3	17

Reasons for **lower ratings**

- Challenges differentiating between newness and additionality
- Unclear definition and how to operationalize any “newness” requirements
- Uncertainty if “newness” requirements are consistent with attributional accounting frameworks
- Need for clarity on how existing generation is allocated

Reasons for **higher ratings**

- n/a

Option C. Criterion for discussion: Accuracy

Decision-making criterion	Secretariat assessment	N/A	No (does not align)	Mixed/no	Mixed	Mixed/yes	Yes (align)
Accuracy	Yes	0	1	3	3	4	15

Reasons for **lower ratings**

- Further clarification of newness and additionality are necessary
- Skepticism on accuracy of accounting for an organization's emissions
- Newness is an insufficient proxy for direct causality
- Need for clarity on how existing generation is allocated
- Unclear definition and how to operationalize any "newness" requirements
- Uncertainty & criticism of modeling methods & results

Reasons for **higher ratings**

- n/a

Option C. Criterion for discussion: Supports decision-making

Decision-making criterion	Secretariat assessment	N/A	No (does not align)	Mixed/no	Mixed	Mixed/yes	Yes (align)
Supports decision-making	Yes		1	2	2	5	16

Reasons for **lower ratings**

- Need for clarification on “newness” criteria, concerns with implications for long-term contracting
- Uncertainty if “newness” is a sufficiently robust proxy for additionality
- Evidentiary basis in scientific literature inconsistent or insufficient to affirm method’s ability to support decision making
- Uncertainty if “newness” requirements are consistent with attributional accounting frameworks
- Unclear definition and how to operationalize any “newness” requirements
- Limitation of the inventory as a comprehensive and robust tool for all decision-making related to decarbonization

Reasons for **higher ratings**

- n/a

Option D. Criterion for discussion: Scientific integrity

Decision-making criterion	Secretariat assessment	N/A	No (does not align)	Mixed/no	Mixed	Mixed/yes	Yes (align)
Scientific integrity	Mixed	0	2	2	19	2	1

Reasons for **lower ratings**

- Assessing additionality or causal links is highly assumption-dependent
- Does not consider a move toward more granular data
- Mixing attributional and consequential methods has little to no scientific integrity

Reasons for **higher ratings**

- Helps address criticism that changes in corporate inventories don't correspond to changes in atmospheric emissions.
- Research suggest time and location matching + additionality is necessary for accurate value chain GHG inventories

Option E. Criterion for discussion: Scientific integrity

Decision-making criterion	Secretariat assessment	N/A	No (does not align)	Mixed/no	Mixed	Mixed/yes	Yes (align)
Scientific integrity	Mixed	0	3	5	12	3	3

Reasons for **lower ratings**

- Uncertainty & criticism of modeling methods & results
- Concern over ability to use fossil-fuel based resources to produce avoided emission credits
- Confusion on relationship with offsets and allowing the use of netting
- Need for clarification on the role of additionality or baseline tests to determine both induced and avoided emissions
- Use of marginal emission rates for load results in mismatch between scope 2 totals and power sector scope 1 total

Reasons for **higher ratings**

- Supportive of consequential methodologies, noting it is convoluted to include in an attributional framework
- Project accounting methodologies can have high scientific integrity as a consequential, impact-based metric, while appropriate for use outside of attributional inventories
- Consequential accounting could align with inventory accounting if its role in influencing decisions and driving change is clarified and integrated into Scope 2's purpose

Option E. Criterion for discussion: Comparability

Decision-making criterion	Secretariat assessment	N/A	No (does not align)	Mixed/no	Mixed	Mixed/yes	Yes (align)
Comparability	N/A	18	2	1	0	5	0

Reasons for 'Mixed / No' to 'No' ratings

- Unclear how to establish comparability for project accounting
- Misalignment with definition of a scope 2 inventory and related methodology

Reasons for 'Mixed / Yes' ratings

- Project accounting could be done in a way that produces comparable results

Option E. Criterion for discussion: Supports decision making

Decision-making criterion	Secretariat assessment	N/A	No (does not align)	Mixed/no	Mixed	Mixed/yes	Yes (align)
Supports decision making that drives ambitious global climate action	Mixed	0	0	6	14	2	4

Reasons for lower ratings:

- Would incentivize investments to all go to the same location based on fixed marginal emission factors, rather than to the dirtiest grids
- While theoretically could reduce emissions in the short-term, long-term it would perpetuate continued reliance on fossil fuel generation
- Given no restrictions on an EAC supply pool, would lead to even lower prices and less new clean power than Option A
- Without an additionality requirement, unlikely to cause reductions in emissions/achieve impact

Reasons for higher ratings:

- Most directly targeted to climate impact
- When paired with additionality requirement, organizations would be incentivized to direct their investment to projects that reduce global emissions
- Without this metric, likely that energy storage facilities will be incentivized to operate in a way that increases emissions
- 80% of corporate RE procurement has happened in Europe and North America, and this method overcomes the current barriers to investment

Option E. Criterion for discussion: Feasibility

Decision-making criterion	Secretariat assessment	N/A	No (does not align)	Mixed/no	Mixed	Mixed/yes	Yes (align)
Feasibility	Mixed	0	2	4	16	3	1

Reasons for **lower ratings**

- Project accounting assessments are highly resource intensive
- Use of counterfactuals creates feasibility hurdles

Reasons for **higher ratings**

- Data availability of marginal emission rates is increasing
- Annual marginal emission rates could be used in the absence of hourly data
- Consequential assessments should be required alongside scope 2 inventories using a market-based method

Table 6.3 Market-Based Emission Factor Hierarchy

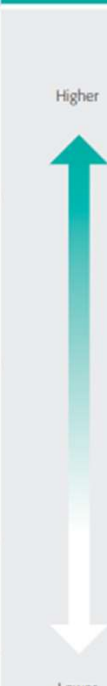
Emission factors	Indicative examples	Precision
Energy attribute certificates or equivalent instruments (unbundled, bundled with electricity, conveyed in a contract for electricity, or delivered by a utility)	<ul style="list-style-type: none"> Renewable Energy Certificates (U.S., Canada, Australia and others) Generator Declarations (U.K.) for fuel mix disclosure Guarantees of Origin (EU) Electricity contracts (e.g. PPAs) that also convey RECs or GOs Any other certificate instruments meeting the Scope 2 Quality Criteria 	<p style="text-align: center;">Higher</p>  <p style="text-align: center;">Lower</p>
Contracts for electricity, such as power purchase agreements (PPAs) ^a and contracts from specified sources, where electricity attribute certificates do not exist or are not required for a usage claim	<ul style="list-style-type: none"> In the U.S., contracts for electricity from specified nonrenewable sources like coal in regions other than NEPOOL and PJM Contracts that convey attributes to the entity consuming the power where certificates do not exist Contracts for power that are silent on attributes, but where attributes are not otherwise tracked or claimed 	
Supplier/Utility emission rates , such as standard product offer or a different product (e.g. a renewable energy product or tariff), and that are disclosed (preferably publicly) according to best available information	<ul style="list-style-type: none"> Emission rate allocated and disclosed to retail electricity users, representing the entire delivered energy product (not only the supplier's owned assets) Green energy tariffs Voluntary renewable electricity program or product 	
Residual mix (subnational or national) that uses energy production data and factors out voluntary purchases	<ul style="list-style-type: none"> Calculated by EU country under RE-DISS project^{b,c} 	
Other grid-average emission factors (subnational or national) – see location-based data	<ul style="list-style-type: none"> eGRID total output emission rates (U.S.)^d In many regions this approximates a consumption-boundary, as eGRID regions are drawn to minimize imports/exports Defra annual grid average emission factor (UK) IEA national electricity emission factors^e 	

Table 6.3 Market-based scope 2 data hierarchy example

Data forms listed here should convey combustion-only (direct) GHG emission rates, expressed in metric tons per MWh or kWh. Reporting entities should ensure that market-based method data sources meet Scope 2 Quality Criteria. Instruments listed here are not guaranteed to meet Scope 2 Quality Criteria, but are indicative of instrument type.

Notes:

^a Because PPAs are the primary example of this type of instrument used in the markets consulted in this TWG process, this class of instrument may be referred to in shorthand as “PPAs” with the recognition that other types of contracts that fulfill a similar function may go by different names.

^b See: http://www.reliable-disclosure.org/static/media/docs/RE-DISS_2012_Residual_Mix_Results_v1_0.pdf.

^c The Norwegian authority also publishes a residual mix emission factor that can be found here: <http://www.nve.no/en/Electricity-market/Electricity-disclosure-2011/>.

^d See: <http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html>.

^e See: <http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html>.