



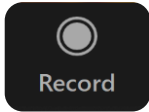
Draft for TWG discussion

Scope 2 Technical Working Group Meeting

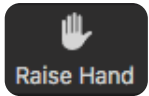
Meeting #7

January 29, 2025

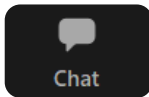




This meeting is recorded.



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.

Agenda

1. Housekeeping & goals for meeting
2. Context for consideration
 - Summary of feedback on LBM purposes (Mtg. 6)
 - Decision Making Criteria assessments on LBM improvements (Mtg. 3)
3. Summary of key issues raised in revisions
4. **Issue 1:** Necessary criteria for LBM emission factor selection
5. **Issue 2:** Using hierarchies for criteria or a single requirement
6. **Issue 3:** Defining the hierarchies
7. **Issue 4:** Requiring, recommending, or allowing the most precise data
8. **Issue 5:** Using estimated vs. actual activity data
9. Next steps



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Goals of today's meeting



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Goals of today's meeting

- 1. Poll the group on key issues to identify areas of convergence**

- 2. Gather feedback on areas of convergence and divergence to**
 - a. Inform next iteration of revisions to be made by proposal author groups
 - b. Provide awareness to the rest of TWG on location-based revisions under development in working toward consensus
 - c. Encourage further collaboration

Summary of feedback on location-based method purposes



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TWG feedback on location-based method purposes from Meeting 6

TWG support	Purposes discussed in Meeting 6
Most support	<ul style="list-style-type: none"> • Reflecting the 'GHG intensity of grids where operations occur, regardless of market type [<i>or contractual instruments/arrangements</i>]'. (Section 4.1.1, p. 26) • Providing a method of estimating emissions based on 'statistical emissions information and electricity output aggregated and averaged within a defined geographic area and time period' (Section 4.1.1, p. 25-26) • <i>Allocating emissions inventory based on average grid emissions intensity data where companies operate assuming a company consumes the shared, undifferentiated mix of generation on the local grid irrespective of their procurement actions.</i> • <i>Allocating emissions associated with physically consumed electricity.</i> • Improving 'comparability across multiple markets over time' (Section 6.4.1, p. 45) • <i>Facilitate comparability among emission reporters on the grid (and regardless of reporting entity's market choices).</i> • Showing risks/opportunities that are better evaluated based on average emissions in a grid (Section 6.4.1, p. 45; Section 2.2, p. 15-17)
Some support and some opposition	<ul style="list-style-type: none"> • <i>Estimating and reflecting emissions associated with physically consumed purchased electricity.</i> • <i>Inventory of emissions caused by contribution to aggregate electricity usage on the grid.</i> • <i>Reflects the average direct emissions intensity of all generation within a geographic area or electricity grid region that includes the consumer. The average direct emissions intensity will be the same for all customers located in an area or region regardless of their supplier or purchases.</i> • <i>Use in hot spot identification</i> • <i>Use in reduction target-setting and tracking progress</i> • <i>Possible input to climate-related risk assessment</i>
Least support	<ul style="list-style-type: none"> • Serving the decision-making needs of users (Section 4.3, p. 28) • Reflecting the 'cumulative effect of consumer or supplier choices over time that change the grid-average emission factor' (Section 4.3, p. 31) • <i>Can help track the impacts of energy efficiency projects, especially projects that might help reduce need for polluting, peaking resources</i> • <i>Will show where an energy user is successfully working with their utility/policy makers to clean up the local grid</i>

Italicized text = Text suggested by TWG members in whiteboarding exercise in Meeting 6

Decision Making Criteria assessment of location- based improvement options



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Lookback at TWG feedback from Meeting 3 on stakeholder proposals submitted related to the location-based method

TWG Majority Assessment

GHG Protocol Decision Making Criteria and Hierarchy		Option A: Maintain the Current Location-Based Method Accounting and Reporting Requirements	Option B: Refine Reporting Requirements for the Location-Based Method to Require Temporal and Geographic Granularity
Scientific integrity		Mixed (25/35)	Mixed / Yes (27/35)
Corporate Standard GHG accounting and reporting principles	Relevance	Mixed (31/35)	Mixed / Yes (25/35)
	Completeness	Yes (31/35)	Yes (32/35)
	Consistency	Yes (32/35)	Yes (29/35)
	Transparency	Yes (25/35)	Mixed / Yes (29/35)
	Accuracy	Mixed (24/35)	Mixed / Yes (26/35)
	Comparability	Mixed (29/35)	Mixed / Yes (29/35)
Supports decision making that drives ambitious global climate action		Mixed / No (28/35)	Mixed (23/35)
Supports programs based on GHG Protocol and uses of GHG data		Mixed (33/35)	Mixed / Yes (27/35)
Feasibility to implement		Yes (33/35)	Mixed / No (20/35)

Lookback at TWG feedback on location-based options from Meeting 3

Results from initial poll on members' interest in revisions to the temporal and spatial granularity requirements of the location-based method:

- 5/37 members supported keeping the **current** temporal and geographic boundary requirements
- 9/37 supported **requiring** more granular time and location matching
- 14/37 supported **recommending** more granular time and location matching
- 4/37 indicated **more discussion** was needed

Summary of key issues raised in revisions



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Summary of several key issues raised in revisions

Proposal 1

1. Delineate 3 key aspects of average emission factors:
 - (1) consumption-based vs. production-based,
 - (2) spatial granularity,
 - (3) temporal granularity
2. Update emission factor hierarchy
3. Open to requirement to use best widely available data for each region if guidance and datasets are available
4. Update language about "certificate sale scenarios"
5. Remove language about "advanced grid studies"

Proposal 2

1. Define geographic and temporal granularity hierarchies
2. Update activity data and emission factor hierarchies
3. The most appropriate, accurate, precise, and highest quality location data **shall** be used consistent with the emission factors hierarchy.
4. Revise requirements about "certificate sale scenarios"
5. Update guidance for allocating emissions to energy storage
6. Update guidance on target setting using location-based method
7. Introduce 'carbon intensity metric' and 'carbon exposure' by geographic region

Proposal 3

1. Define temporal granularity hierarchy, and spatial granularity and flow tracing hierarchy.
2. Update activity data and emission factor hierarchies
3. Companies **shall** use the most appropriate, accurate, precise, and highest quality emission factors available.
4. Reporters **shall** use the smallest accounting interval for which both activity data and emission factor data are available for each facility or group of facilities.
5. Revise requirements about "certificate sale scenarios"
6. Remove language about "advanced grid studies"
7. Update guidance on target setting using location-based method

Proposal 4

1. If more granularity is added to the location-based method, it should be a "**may**" (i.e., not should or shall requirement).
2. If added, guidance should be provided on how to address lack of granular data and restatements of prior years

Key questions from revisions to address today

- **Issue 1:** Defining the necessary criteria for location-based emission factor selection
- **Issue 2:** Using hierarchies for emission factor selection criteria or a single requirement
- **Issue 3:** Defining the location-based emission factor hierarchies
- **Issue 4:** Within hierarchies, requiring, recommending, or allowing the most precise data available
- **Issue 5:** Using estimated vs. actual activity data

Issue 1: Defining the necessary criteria for location-based emission factor selection



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Key criteria for selecting location-based emission factors identified across revisions

Proposal 1

- Temporal boundaries
- Spatial boundaries
- Consumption vs production based

Proposal 2

- Temporal boundaries
- Spatial boundaries

Proposal 3

- Temporal boundaries
- Spatial boundaries
- Consumption vs production based

Proposal 4

- Temporal boundaries
- Spatial boundaries

Poll 1: What are the necessary criteria for emission factors for the location-based method?

1. Temporal boundaries (e.g., hourly, yearly, etc.)

- a. Yes
- b. No
- c. Need more info

2. Spatial boundaries (e.g., grid, sub-grid, etc.)

- a. Yes
- b. No
- c. Need more info

3. Consumption vs. production

- a. Yes
- b. No
- c. Need more info

4. Anything else?

Issue 2: Using hierarchies for emission factor selection criteria or a single requirement



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Several revisions submitted proposed hierarchies with requirements on specific levels of precision

Proposal 1

- **Hierarchy:** Temporal boundaries
- **Hierarchy:** Spatial boundaries
- **Hierarchy:** Consumption vs production for grid and national spatial boundary
 - **Requirement** to use consumption-based for sub-grid spatial boundary

Proposal 2

- **Hierarchy:** Temporal boundaries
- **Hierarchy:** Spatial boundaries

Proposal 3

- **Hierarchy:** Temporal boundaries
- **Hierarchy:** Spatial boundaries
- **Hierarchy:** Consumption vs production for grid balancing area boundary
 - **Requirement** to use consumption-based for nodal and local spatial boundary
 - **Requirement** to use production-based for interconnect/synchronous grid spatial boundary

Poll 2: Should there be a requirement to use one specific level of precision or should there be a hierarchy?

1. Temporal boundaries

- a. Hierarchy depending on data availability
- b. Requirement to use one specific level of precision, regardless of more or less precise data availability
- c. Needs more information

2. Spatial boundaries

- a. Hierarchy depending on data availability
- b. Requirement to use one specific level of precision, regardless of more or less precise data availability
- c. Needs more information

3. Consumption vs. production

- a. Hierarchy depending on data availability
- b. Requirement to use either only consumption-based or only production-based
- c. Needs more information

Issue 3: Defining the location-based emission factor hierarchies



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Location-based emission factor selection hierarchies proposed

Proposal 1		
Emission Factor Type	Spatial Boundary	Temporal Boundary
Consumption-Based	Sub-grid	Hourly
Consumption-Based	Grid	Hourly
Production-Based	Grid	Hourly
Consumption-Based	Grid	Annual
Production-Based	Grid	Annual
Consumption-Based	National	Hourly
Production-Based	National	Hourly
Consumption-Based	National	Annual
Production-Based	National	Annual

Proposal 2	
Emission Factors Hierarchy	Temporal Granularity
<u>Regional or Subnational Emission Factors</u> Average emission factors representing all electricity production occurring in a defined grid distribution region that approximates a geographically precise energy distribution and use area. Emission factors should reflect net physical energy imports/exports across the grid boundary.	Hourly
	Daily
	Monthly
<u>National Production Emission Factors</u> Average emission factors representing all electricity production information from geographic boundaries that are not necessarily related to dispatch region, such as state or national borders. No adjustment for physical energy imports or exports, not representative of energy consumption area.	Annually
	Hourly
	Daily
	Monthly
	Annually

Proposal 3	
Spatial granularity and flow tracing hierarchy	
Spatial granularity	For this type of emission factor
Nodal	Consumed
Local (Subregion / county / city / etc)	Consumed
Grid balancing area (in some cases may be the same as nation or state)	Production or consumed
Interconnect / synchronous grid	Production
Temporal granularity hierarchy	
Hourly/subhourly with storage flow tracing	
Hourly/subhourly (excluding storage)	
Monthly (excluding storage)	
Annual (excluding storage)	

Poll 3: For each criterion, which level(s) of precision should be included?

1. Temporal boundaries

- a. Sub-hourly
- b. Hourly
- c. Daily
- d. Monthly
- e. Annually

2. Spatial boundaries

- a. Nodal
- b. Sub-Grid (e.g., local, county, city)
- c. Grid balancing area
- d. Regional or subnational
- e. Interconnect/synchronous grid
- f. National

**Issue 4: Within hierarchies,
requiring, recommending, or
allowing the most precise data
available**



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“Should,” “Shall,” or “May”: Revisions provided several options for how the use of data precision is required, recommended, or optional

Proposal 1

- Open to requirement to use best widely available data for each region if guidance/datasets are available

Proposal 2

- The applicable grid-average emission factors **shall** be applied to consumption using the most appropriate, accurate, precise, and highest quality temporal data available (i.e., hourly, daily, monthly, annually) when both the appropriate granular grid-average emission factor and consumption data are available.
- The most appropriate, accurate, precise, and highest quality location data **shall** be used per the hierarchy for geographic granularity. Then the highest quality temporal data **shall** be used for the applicable emission factors considering the availability of temporal consumption data.

Proposal 3

- Companies **shall** use the most appropriate, accurate, precise, and highest quality emission factors available.
- For each accounting interval, activity data occurring in that interval **shall** only be matched to emission factors occurring in that same interval.
- Reporters **shall** use the smallest accounting interval for which both activity data and emission factor data are available for each facility or group of facilities.

Proposal 4

- If more granularity is added to the location-based method, it should be a “**may**” (not should or shall requirement).

Poll 4: Within an emission factor hierarchy, should using the most precise data available be required, recommended, or optional (“should” “shall” or “may”)?

1. **Spatial boundaries:** The most precise spatial boundary for which emission rate data are available...
 - a. ...**shall** be used.
 - b. ...**should** be used.
 - c. ...**may** be used.
 - d. Only [data with specific precision] **shall** be used. Other spatially granular emission rate data, (even if more precise) **shall not** be used.
 - e. Need more information.

2. **Temporal boundaries:** The most precise temporal boundary for which both activity data and emission rate data are available...
 - a. ...**shall** be used.
 - b. ...**should** be used.
 - c. ...**may** be used.
 - d. Only [data with specific precision] **shall** be used. Other temporal boundaries (even if more precise) **shall not** be used.
 - e. Need more information.

Issue 5: Using estimated vs. actual activity data



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For activity data, some revisions proposed to estimate the hourly profile of less precise data to enable use of higher-precision emission factors

Proposal 2	
Reporting entities shall use the most accurate, precise and highest quality temporal consumption activity data (as shown in the table below) available, while also considering the availability of temporal emission factor data.	
Consumption data (activity data)	Indicative examples
Actual Hourly (or Sub-Hourly) Metered Consumption	Metered electricity consumption or supplier bills specifying consumption in MWh or kWh units provided by supplier or reporting entity
Estimated Hourly Consumption Based on Supplier Load Profiles	Based on actual company monthly meter reads or supplier bills and load profiles used by supplier to determine hourly retail supply obligations provided by supplier
Estimated Hourly Consumption Based on Standard Load Profiles	Based on actual company metered monthly or annual data and standardized load profiles for customer type and location (e.g., NREL End-Use Load Profiles for the U.S. Building Stock ; DOE Load Profiles data, etc.)
Actual Monthly Consumption	From reporting entity supplier bills (or estimated if utility bills not available)
Actual Annual Consumption	From reporting entity supplier bills (or estimated if utility bills not available)

Proposal 3
If temporally granular (i.e., hourly) activity data is not available, but the reporter wishes to use an hourly accounting interval, the reporter may estimate the hourly profile of the lower granularity data using one of the following approaches:
<ul style="list-style-type: none"> Hourly profile of a similar facility within the reporter's organizational boundary Hourly profile of a similar type of facility (e.g. based on standard load profiles) Divide total activity evenly among all hours (flat profile)

Poll 5: Should estimated hourly profiles of less precise activity data be used where available to enable use of higher-precision emission factors?

When actual hourly activity data is not available, activity data estimates using hourly profiles...

- a. ... **shall** be used to allocate less precise actual activity data (e.g., monthly or annual) to enable use of higher-precision emission factors.
- b. ...**should** be used to allocate less precise actual activity data (e.g., monthly or annual) to enable use of higher-precision emission factors.
- c. ...**may** be used to allocate less precise actual activity data (e.g., monthly or annual) to enable use of higher-precision emission factors.
- d. ...**shall not** be used, even if it prevents use of higher-precision emission factors.
- e. Need more information.

Next Steps



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Next steps

- **Posting revisions:** Suggested redlines and rationale slides will continue to be posted to SharePoint on a rolling basis as they are received, allowing TWG members to both submit and refine revisions over time.
- **Initial market-based revisions submission date extended to January 31st:** Market-based method revisions submitted after January 31st will still be equally considered but may not be directly reflected in the meeting materials distributed on the 12th for the February 19th TWG meeting.
- **Review expectations:** TWG members should review all posted market-based method revision materials before the February 19th meeting. In addition to engaging during TWG calls, members are encouraged to discuss feedback with proposal authors outside of formal meetings.
- **Facilitated discussions:** The Secretariat will identify emerging consensus and areas needing further collaboration. We welcome input on these considerations.
- **Ongoing review:** Meetings through June will provide ongoing opportunities to further develop and refine content.
- **Next meeting:** First review of market-based method changes on Wednesday, **February 19th**, 09:00 EST/15:00 CET/22:00 CST
- **Next iteration of location-based revisions:** Updates or new location-based revisions are requested **by February 12th**
- **Looking forward on market-based:** Second iteration of market-based revisions are requested **by March 5th**

Thank you!

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Addendum



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Background: Scope 2 survey feedback on Production and Consumption based emission factor calculations

- **Using consumption-based emission factors instead of production-based**
 - The Scope 2 Guidance section 6.5 states that grid-average emission factors should convey combustion-only (direct) GHG emission rates, representing electricity production occurring in a defined grid distribution region.
 - They should also reflect net physical energy imports/exports across the grid boundary. Some respondents suggested that electricity consumption emission factors, as opposed to production, need to be required to appropriately reflect potentially significant impacts of net physical energy imports and exports across a grid boundary instead of only using local generation within a given grid territory. This is necessary to accurately represent the emissions associated with an end user's consumed electricity.
 - However, it was also stated that consumption-based emission factor datasets are not widely published by governments nor by international agencies, unlike production-based emission factors, which are typically used in location-based inventories.

Page 34, *Detailed Summary of Survey Responses on Scope 2 Guidance* (November 2023)

https://ghgprotocol.org/sites/default/files/2023-11/Scope%20%20Survey%20Summary_Final_0.pdf

Phase 1 Scope of Work related to location-based method

1) Clarify objectives and consider any changes to the accounting and reporting requirements of the Scope 2 Standard

- a) Clarify the objectives and purpose of the scope 2 location-based and market-based methods
- b) Clarify the objectives and purpose of dual reporting of the location-based and market-based methods in scope 2
- c) Clarify the relationship between scope 2 inventory accounting and electricity sector project accounting methodologies such as in the GHG Protocol Guidelines for Quantifying GHG Reductions from Grid-Connected Electricity Projects
- d) Explore whether alternative or additional scope 2-related metrics should be included in a GHG emissions report

2) Location-based method technical improvements

- a) Determine whether to require or recommend more accurate data than currently required, such as hourly data or consumption-based grid average emissions data
- b) Clarify how to account for electricity generated and consumed from on-site projects within the reporting company's organizational boundary using the location-based method
- c) As needed, evaluate technology-specific implications of location-based method technical improvements

3) Market-based method technical improvements

- a) Review the Scope 2 Quality Criteria to consider revisions to the market boundary and vintage criteria requirements
- b) Review the Scope 2 Quality Criteria to consider new requirements related to impact, additionality, or resource newness
- c) Clarify how to account for carbon-free electricity and renewable power supplied under utility programs or regulatory compliance schemes in the market-based method and what information must be included in a supplier- or utility-specific emission factor
- d) Evaluate if updates to the emission factor data hierarchy and order of operations in applying emission factors, energy attribute certificates, etc. are appropriate
- e) As needed, evaluate technology-specific implications related to market-based method technical improvements

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

5) Guidance for regional variation in energy markets

- a) Consider the development of guidance and additional examples of scope 2 calculations for the location-based and market-based methods for various energy markets globally
- b) Create additional guidance for accounting for the purchase and sale of energy associated with "off-grid" energy generating installations, including microgrids

6) Interaction with policies and programs

- a) Clarify what each scope 2 accounting method/metric represents and provide directions and recommendations for their use by mandatory disclosure rules, target-setting programs, and for individual reporters