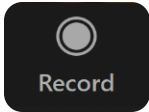


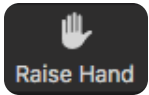
Scope 2 Technical Working Group Meeting

Meeting #13

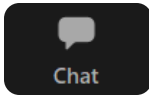
April 30, 2025



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 and goals for meeting**
2. **Overview of consolidated draft**
3. **Thresholds and profiled load for MBM time-matching requirement**
4. **Defining deliverability for MBM**
5. **Standard Supply Service (SSS) allocation overview**
6. **Data accessibility for LBM reporting with increased granularity**
7. **Next steps**



GREENHOUSE
GAS PROTOCOL

Goals of today's meeting



GREENHOUSE
GAS PROTOCOL

Goals of today's meeting

1. Overview of big picture changes thus far in the Scope 2 Revision Guide Framework consolidated draft.
2. Ensure TWG understanding of key market-based method (MBM) concepts outlined in the Scope 2 Revision Guide Framework consolidated draft.
 - a. Differentiated time-matching requirements for MBM
 - b. Deliverable market boundaries for MBM
3. Ensure TWG understanding of the concept of Standard Supply Service (SSS) allocation and provide opportunity to discuss and identify any remaining questions on SSS allocation
4. Ensure TWG understanding of proposal for defining accessible data in location-based method (LBM).

Overview of the consolidated proposal draft



GREENHOUSE
GAS PROTOCOL

Overview of several changes for TWG members to consider in the Revision Guide Framework consolidated draft

Market-based method

- Purposes and uses
- Distinguishing between requirements for *Matched* and *Unmatched* activity data
 - Time matching
 - Deliverable market boundaries
 - Allocation of Standard Supply Service
 - Updated Residual Mix Factors

Location-based method

- Purposes and uses
- “Accessible” time matching
- “Accessible” deliverability

Across Scope 2 Standard

- Recommended disclosures
- Target-setting

Scope 2 calculation equation remains unchanged. Revisions introduce clarifications and new requirements within each step.

Market-based method matching to supply sources – Distinguishing between requirements for *Matched* and *Unmatched* activity data

Matched Activity Data

Portion of a company's electricity use that is matched to a specific source of electricity supply, either from standard supply service or a voluntary purchase that meets the timing and deliverability criteria.

The emissions factor is based on the characteristics of that specific source.

Unmatched Activity Data

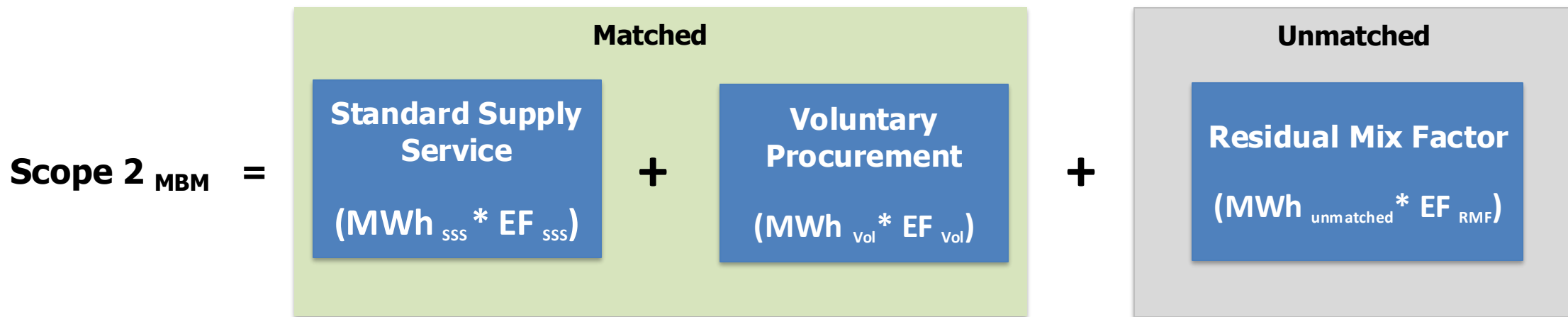
Portion of a company's electricity use that is not matched to any specific supply source that meets the timing and deliverability criteria.

An emissions factor representing the remaining, unmatched electricity in the grid is applied to this portion.

Combined, these cover 100% of a company's electricity use

Scope 2 calculation equation remains unchanged; revisions introduce clarifications and new requirements within each step

$$\text{Scope 2} = \Sigma (\text{Activity Data} * \text{Emission Factor}) = \Sigma (\text{MWh} * \text{kg CO}_2\text{e} / \text{MWh})$$



Propose to use above equation in place of equation provided in MBM consolidated revision draft.

$$\text{Scope 2 (tCO}_2\text{)} = (\text{Consumption} - \text{CFE}_{\text{SSS}} - \text{CFE}_{\text{Contract}}) * \text{Unmatched EF}$$

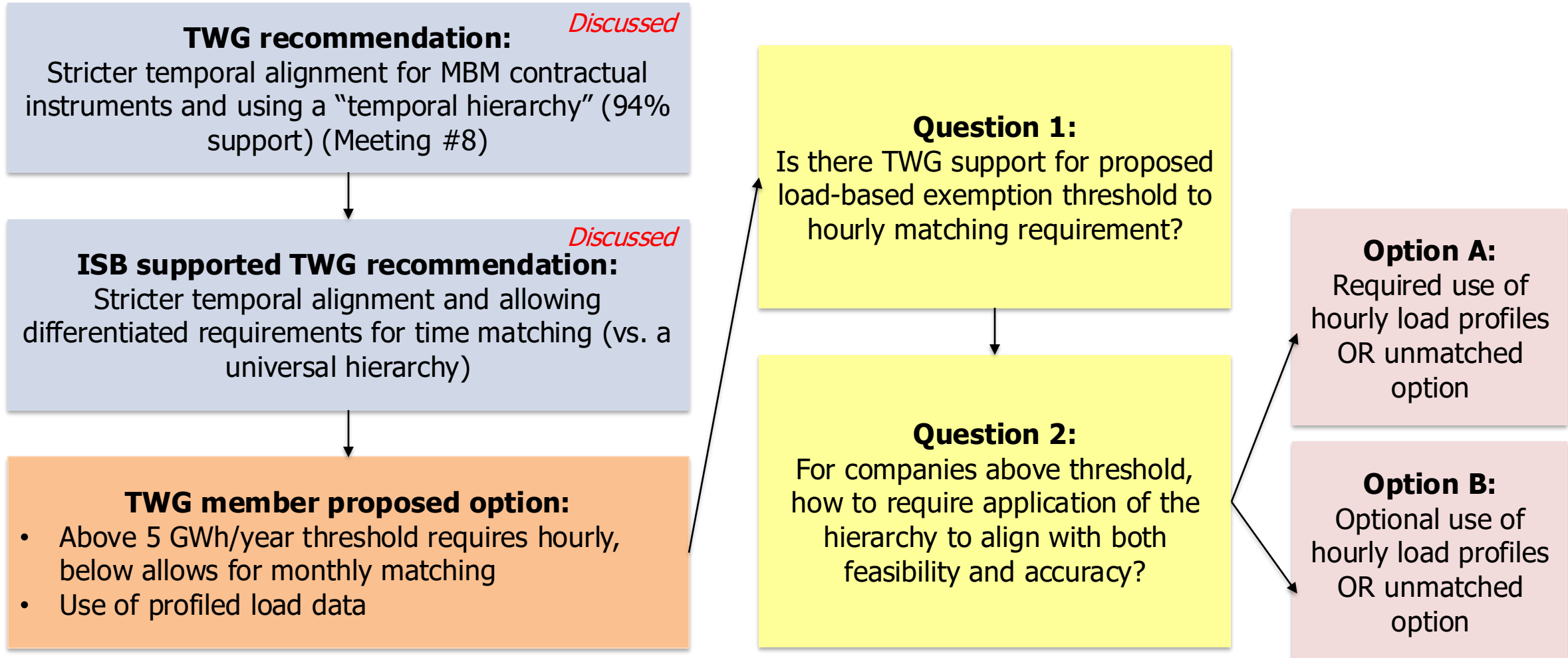
(Repeat per hour and per market boundary for global Scope 2)

Thresholds and profiled load for MBM time- matching requirement



GREENHOUSE
GAS PROTOCOL

Discussed and remaining questions for MBM temporal hierarchy



Question 1: Evaluating a threshold for matching requirements

What's proposed:

- All sites with annual consumption more **than 5 GWh/year** shall claim Matched Consumption by **hour**.
- All sites with annual consumption up **to 5 GWh/year** may claim Matched Consumption at a **monthly or annual granularity** regardless of the organization's total consumption in that boundary, provided such claims are transparently disclosed and consistently applied.
- Individual sites cannot be split between hourly and monthly or annual accounting.

Why this was proposed:

- Creates a *differentiated hierarchy* that reflects feasibility constraints for smaller electricity consumers.
- Aims to support broad participation in MBM without compromising integrity for the majority of global electricity consumption.

Decision-making criteria (DMC) alignment & polling results:

- Hourly matching enables alignment with decision-making criteria: Integrity and Impact. This proposal enables feasibility.
- TWG and ISB supported differentiated requirements for organizations rather than a universal requirement.

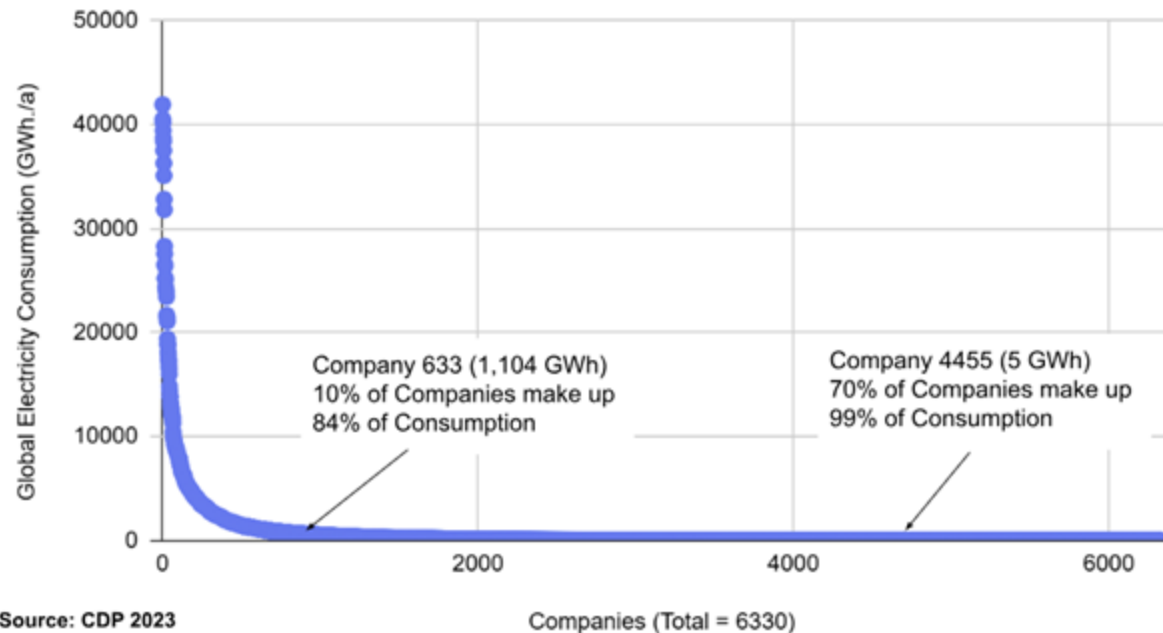
Discussion questions for TWG:

- Are there alternative ways to define a threshold or differentiate the requirement consistent with Integrity, Impact and Feasibility?
- If thresholds for applying the requirement are the best option, is 5 GWh/year/site the right threshold?
 - Too high and many large loads get exceptions.
 - Too low and small users may struggle with feasibility.

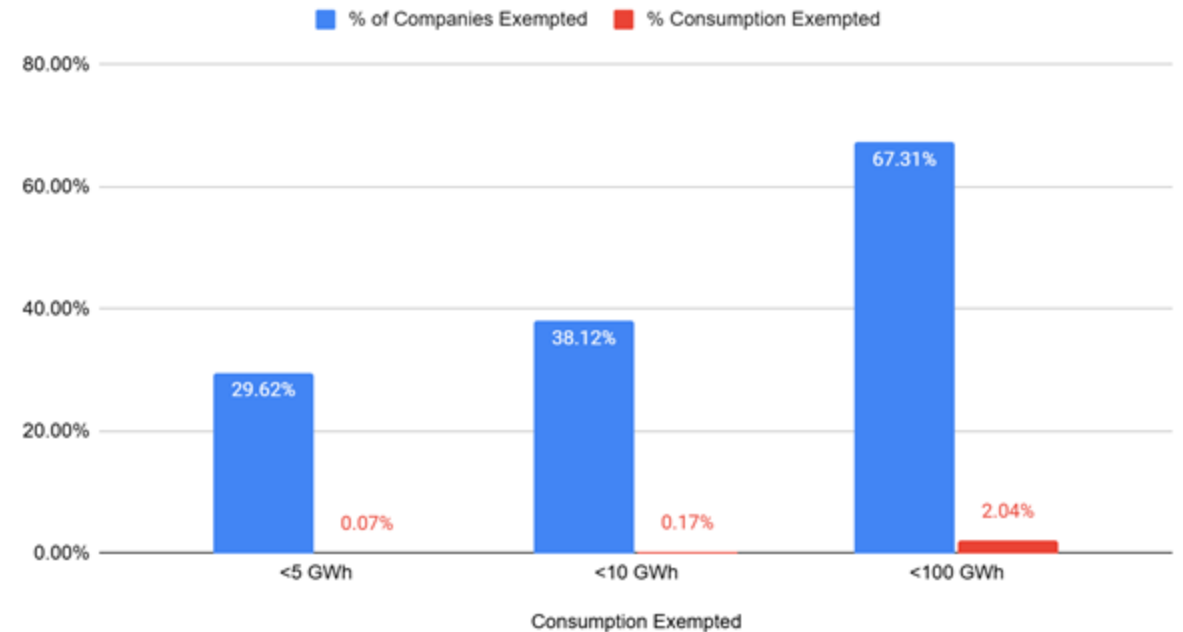
TWG proposal creates load-based threshold for hourly matching requirement that exempts smaller loads to enable Feasibility while preserving Integrity and Impact at scale

- “67% of companies that report to CDP consume less than 100 GWh of electricity globally”
- Organizations under the 5 GWh/year/site threshold would not be required to match hourly but are encouraged to do so when feasible.

Electricity Consumption of Companies (CDP 2023)



Smaller Consumers Can Be Exempted with Little Accuracy Impact



Evaluating options for matching requirements using the DMC

GHG Protocol Decision-Making Criteria (DMC) and Hierarchy	TWG-proposed option Threshold-based hourly requirement; monthly allowed below threshold	Alternative option Hourly matching required to claim; no threshold	Status quo Allows monthly/annual matching; no hourly requirement
Integrity	Supports integrity, but allows some annual/monthly (low-integrity) claims below threshold	Strongest integrity—only allows claims to emissions from deliverable electricity at time of consumption.	Lacks integrity by allowing claims that may not reflect emissions from deliverable electricity at time of consumption.
Impact	Encourages ambition but includes some flexibility that may limit impactful actions that lead to system-wide decarbonization.	Supportive of impactful system-wide decarbonization, but limited market participation could hinder action.	Weakens ability to support impactful actions that lead to system-wide decarbonizations
Feasibility	Balances feasibility and rigor, allows simplified approaches (flat load profiles) and exemptions for smaller users while advancing systems and service models to support hourly matching at scale.	Hourly matching introduces complexity but is not inherently infeasible. Flat load profiles and evolving registry/broker services can streamline implementation for most organizations.	Highest feasibility; enables market participation for all organizations

Question 2: Why profiled data matters for hourly matching

What's proposed:

- To make a **matching claim** under the MBM, load and supply data must align **by hour** and **by region**.
- Organizations use **profiled data** when actual hourly data is unavailable.

Why this was proposed:

- Many reporting organizations **may lack hourly metered load data**.
- **Profiled load data** presents a Feasibility solution while maintaining Integrity by allowing hourly matching even without metered hourly data.

Decision-making criteria alignment & polling results:

- TWG supported hourly matching as a requirement for Integrity and Impact. This proposal enables feasibility.
- ISB supported more aligned time-matching.
- TWG supported enabling profiled data use when actual hourly data is unavailable; opinions split on whether use should be optional or required.

Discussion question for TWG:

- When actual hourly data is unavailable, should the use of profiled data be framed as a should or shall requirement?

Enabling hourly matching with profiled data: two paths to the same outcome

- Both options support the same outcome: hourly data is required to make a matching claim.
- The difference is only in how the use of profiled data is framed: required (Option A), or optional but necessary to match (Option B). This reflects the mixed feedback in TWG polling.

Option A – Shall Use Profiled Data if Hourly Metered Data Not Available

(Activity MWh * Emission Factor)

Hourly Activity Data

Shall use highest precision hourly activity data available:

- hourly metered data
- facility specific load profile
- market-boundary load profile
- time of use average
- flat average

Hourly Supply EF

Shall use highest precision hourly EF available:

- hourly EACs
- monthly EACs + hourly production data
- hourly meter data from contract
- hourly profiled data

Option B – Profiled Data Optional, But Matching Requires Hourly

(Activity MWh * Emission Factor)

Hourly Activity Data

- Shall use hourly metered data when available
- May use profiled data:
 - facility specific load profile
 - market-boundary load profile
 - time of use average
 - flat average
- If no hourly data, matching claim shall not be made

Hourly Supply EF

- Shall use highest precision of:
 - hourly EACs/production data
 - monthly EACs + hourly production data
 - hourly meter data from contract
- May use hourly profiled data
- If no hourly data, matching claim shall not be made

Are there material feasibility risks unaddressed in this proposal?

Defining deliverability for the MBM



GREENHOUSE
GAS PROTOCOL

Discussed and remaining questions for MBM deliverability

TWG recommendation: *Discussed*
Requiring contractual instruments to be sourced from generation that is “deliverable” (78% support; definition to be refined) (Meeting #8)

ISB support of TWG recommendation: *Discussed*
Requiring evidence of deliverability, without necessarily proof of delivery in every hour.

TWG discussion on how to apply a deliverability requirement: *Discussed*
Support for combined approach using geographic definitions *and* specific conditions to determine deliverability (66% support) (Meeting #8)

Question 3:
Does the proposal appropriately define **geographic boundaries** to enable reporting organizations to identify an appropriate deliverability boundary for their country/region?

Question 4:
Does the proposal appropriately define a clear **list of conditions** that would let reporting organizations use power from outside their usual market area—only if they can show that the power is deliverable to their operations?

Key considerations for setting market boundaries

Deliverability requirements must balance Integrity and Feasibility. Examples on this spectrum include:

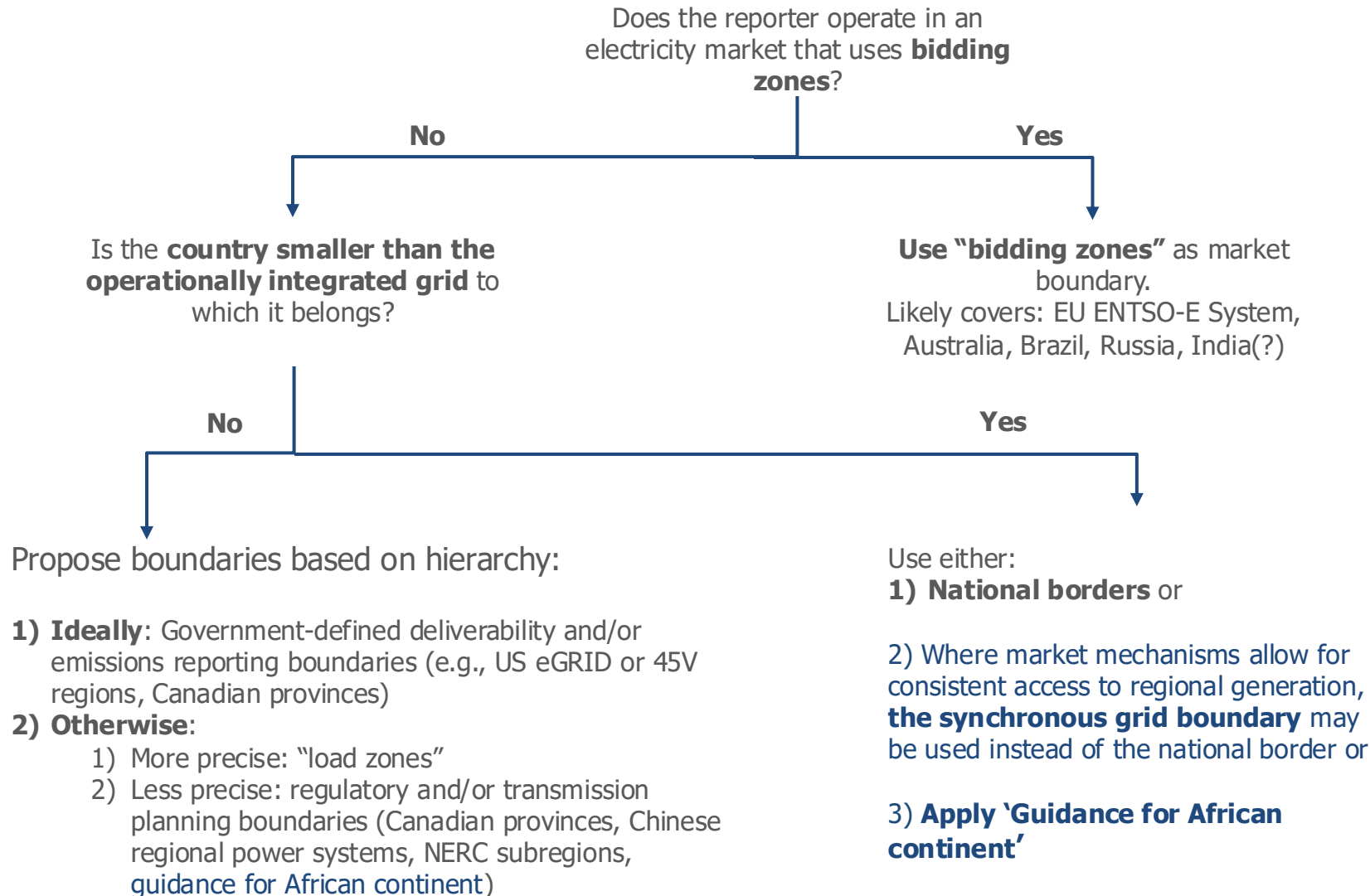
Integrity ↔ Feasibility

- Physical interconnection
- Impact of transmission congestion on plausible deliverability
- Alignment with grid operator-defined zones of physical deliverability
- Consistency with system operations and regulatory frameworks
- Consideration of routine cross-border power flows and system balancing
- Region-specific guidance where operational data or interconnection is limited

Emerging questions for TWG consideration

- Could geographically smaller countries be disproportionately limited by more restrictive boundaries?
- Are there regions that would benefit from additional or alternative guidance to ensure feasibility?

Question 3: Proposed decision-tree for identifying the applicable market boundary



Guidance for African continent

Companies with demand located in countries across the African continent should prioritize demonstrating deliverability based on physical interconnection where possible. Where such demonstration is not feasible, companies shall use the borders of the applicable regional power pools as the market boundaries within which electricity is considered deliverable to this demand. Although physical interconnectivity may be limited in some cases, the existence of operational regional governance structures supports the treatment of these power pools as unified electricity markets for the purposes of defining deliverability.

In cases where a country participates in more than one regional power pool, organizations may align with any of the recognized power pools that include the demand location, provided claims are consistently applied and transparently disclosed.

Recognized power pools include:

- East African Power Pool (EAPP)
- Southern African Power Pool (SAPP)
- West African Power Pool (WAPP)
- Central African Power Pool (CAPP)
- North African Power Pool (NAPP)

Question 4: Proposed conditions that support deliverability when the generation supply is located outside the applicable market boundary

A reporter may source contractual instruments outside of their applicable market boundary if they can demonstrate that it meets conditions for deliverability.

Two proposed methodologies for demonstrating deliverability:

1. Attributes paired with demonstration of excess transmission capacity via electricity price differentials between adjacent markets; or
2. Attributes paired with contracts or market instruments demonstrating physical delivery from the point of generation to the point of consumption

Full description of methodologies in the *Revision Guide Framework consolidated draft*.

Note: These approaches may be most applicable to organizations with advanced market expertise or access to specialized market data and contracts.

Standard Supply Service (SSS) allocation overview



GREENHOUSE
GAS PROTOCOL

Recap of previous TWG discussion on SSS and goal for today

Summary of TWG alignment thus far on SSS:

- **Claiming SSS** – reporting company may claim SSS up to their pro-rata share.
- **Beyond SSS** – companies may only make voluntary claims for generation from facilities that are not claimable as SSS by other reporters.
- **Opt-outs** – if a company opts out of claiming their pro-rata share of SSS, that generation is ineligible for claims by others.

Goal of today's discussion:

- Ensure full TWG understanding of the concept of SSS allocation
- Provide an opportunity for TWG and Secretariat to discuss and identify any remaining questions on SSS allocation

Summary of concept of SSS allocation

Definition

SSS refers to cases when there is a traceable and mandated financial relationship between customers of a supplier/utility and the electricity and/or contractual instruments from deliverable generation resources used to supply their load.

- **Passive Procurement** – SSS is not actively or voluntarily procured by buyers. Instead, it is delivered by default without company action. Often, SSS is **required** by regulations and government policies.
- **Meaningful, Traceable Financial Relationship** – SSS typically applies to situations when a company **must** pay “non-bypassable” charges incorporated in a monopoly or competitive supplier bill without selection of a supplier-specific product. It **may** also reflect customer taxpayer funding / subsidies of government-owned resources in a region used to serve load in that region.

Under the current Scope 2 Guidance, SSS-related emission factors may be reflected in retired EACs, supplier/utility emission rates (e.g., standard product offer), residual mix, and grid average.

Purpose

Primary purpose: Prevent “resource shuffling” of existing SSS resources to those interested in climate targets

Other purposes:

- Clarify the order of operations,
- Prevent “double counting”,
- Align mandatory / compliance programs and voluntary procurement efforts (avoid need for over procurement and “double paying”),
- Improve allocation with link to traceable financial relationship (avoid “cost shifting” or misallocation),
 - Allow companies to claim what they purchase; not claim what they do not purchase, and
 - Avoid harm to non-participating customers.

Methods of claiming allocated share of SSS

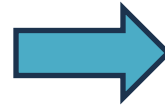
Possible methods to allocate SSS:

Supplier Allocation – Preferred

- Supplier uses actual generation and load data to allocate customer's pro rata share.

Use of 3rd Party Data (SSS resource registry)

- When supplier allocation not available* reporter uses credible third-party proxy based on public data capturing SSS-CFE



Suggested hierarchy for claiming SSS:

1. **EAC tracking and retirement** should be used whenever possible to substantiate ownership rights and claims & prevent double counting
2. **Supplier attestations** in markets w/o contractual instruments
3. **SSS Resource Registry – a credible third-party database that:**
 - Identifies SSS generation, including legacy SSS nuclear and hydro and other registered SSS resources
 - Provides information on which reporting companies can claim SSS resources, and at what quantities of their load
 - Note: this may risk double counting, but may enhance feasibility

* e.g., monopoly supplier does not allocate SSS resources, supplier does not publish a supplier-specific mix, or government-owned company within competitive electricity markets does not allocate EACs for SSS resources.

TWG Proposal on the need for an SSS Resource Registry to enhance feasibility for SSS allocation

Similar to other databases GHG Protocol provides and references, some TWG members have proposed GHG Protocol support development of and provide a global registry of SSS resources for monopoly suppliers and public ownership.

Purpose: To help ensure all reporting companies have access to information on the sources of SSS generation.

TWG proposal for how a resource registry could work:

- Credible third-party data on SSS designation for existing clean energy (e.g., nuclear and hydro) assets can feasibly be developed. Hydro and nuclear resources that fall into one of the three categories of SSS are easily identifiable and unlikely to change.
- Any resource, regardless of generation type, can be “registered” as SSS within the database
- Suppliers can submit resources to the registry with SSS designation to enable better tracking and more completeness across resource types
- Resources on this list would not necessarily be exhaustive of all SSS that a customer may be able to claim, and additional SSS designation for other resources (wind, solar, etc.) would need to come directly from a supplier to enable claims.
- Registry will need to include information that identifies the population of reporting companies that can claim the resource (e.g., must be a customer of the SSS asset owner to claim).

Supplier example

1. Identify mix of resources used to serve customer load
2. Use decision trees to determine which resources fall into SSS
3. Identify % of load served by each SSS resource type (solar, wind, nuclear, fossil, etc.) for each hourly interval as well as % of load served by non-SSS resources (e.g., fossil residual mix and imports)
4. Issue supplier fuel mix disclosure, including SSS designation where applicable

Example of a Retail Supplier in a competitive merchant market in the United States

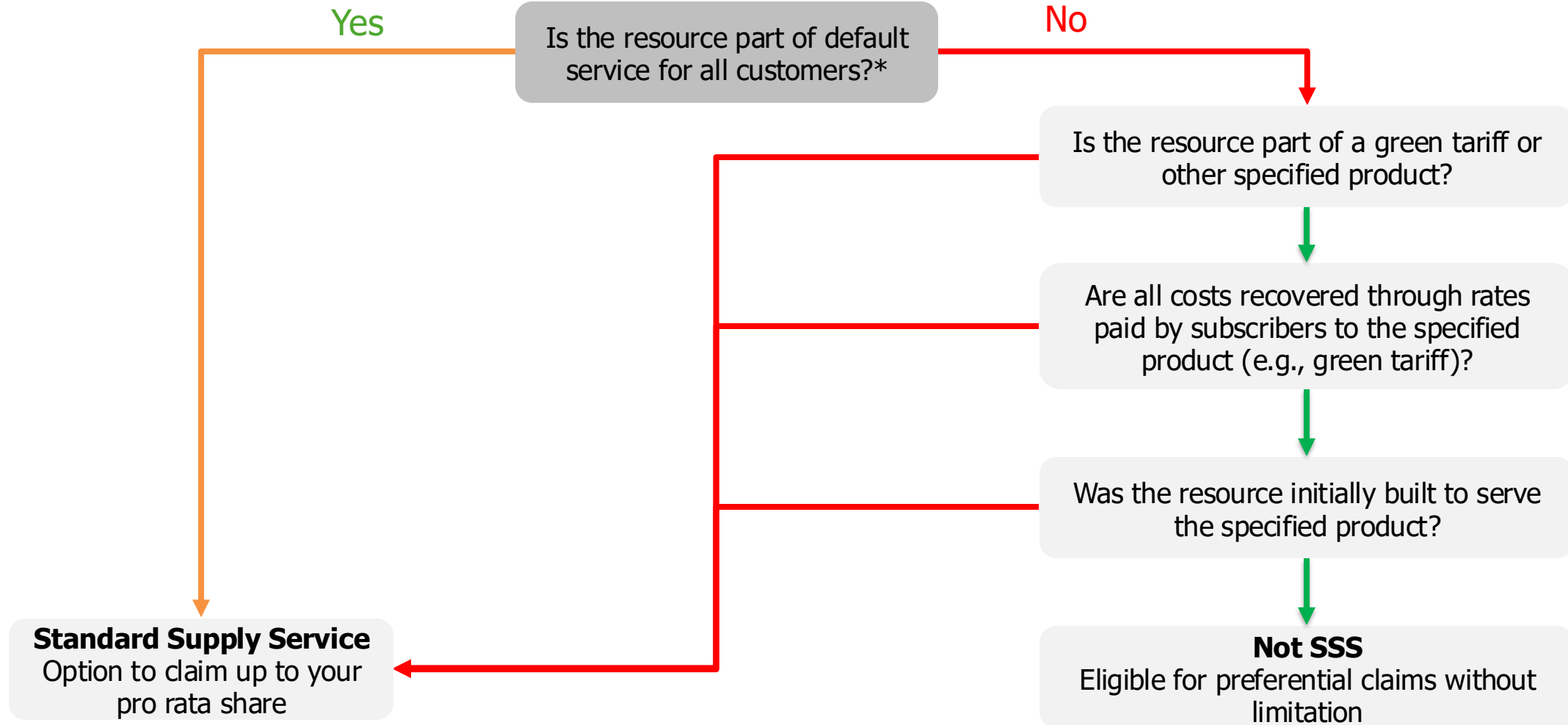
Designation	Fuel Type	% of Load
SSS	Hydro ¹	14%
	Wind ²	1%
	Nuclear ³	23%
	Solar	0%
	Fossil	0%
Residual	Fossil	60%

1: Hydro resources are a combination of publicly owned assets and RECs retired for RPS compliance

2: Wind resources are RECs retired for RPS compliance

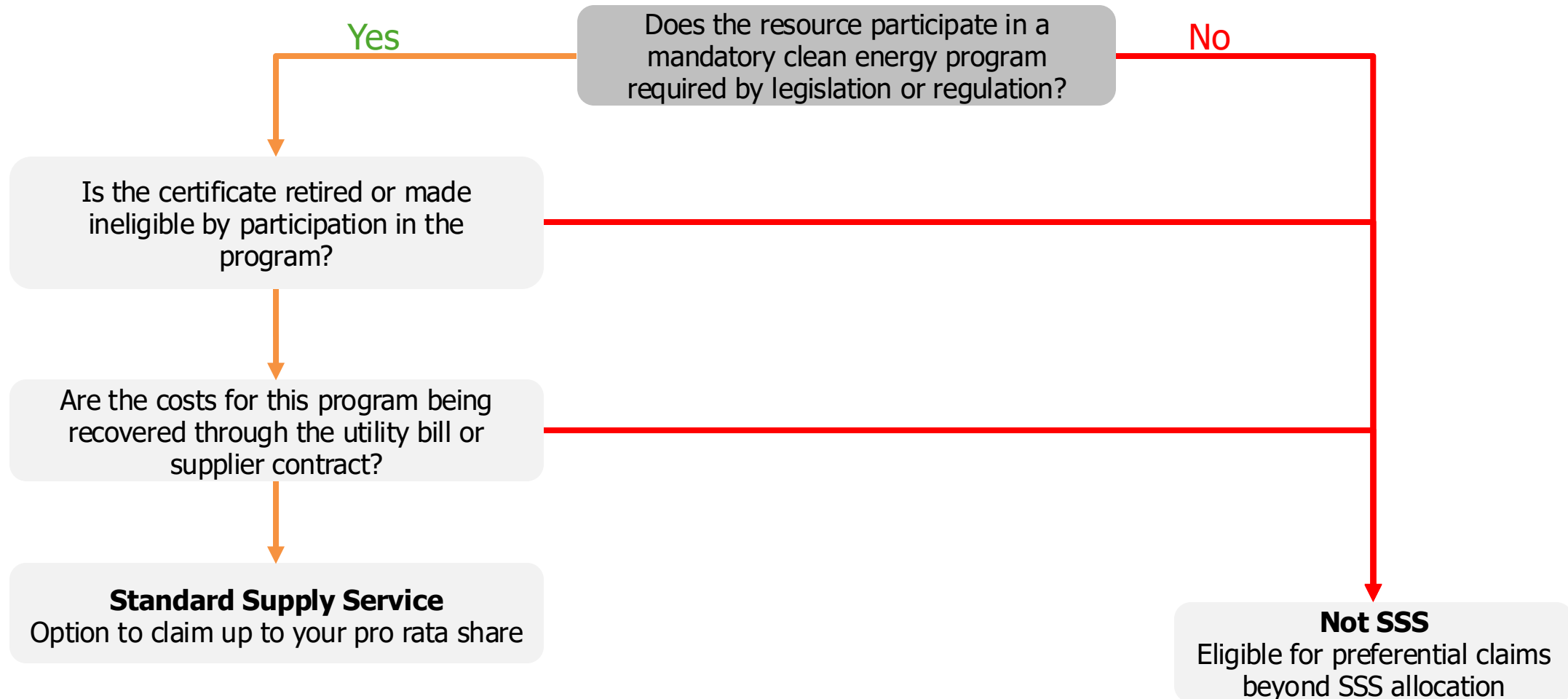
3: Nuclear resources are from state nuclear life extension programs which currently fall into the residual mix, but would be part of SSS

SSS Designation Decision Tree: Monopoly supplier or facilities with regulated cost recovery

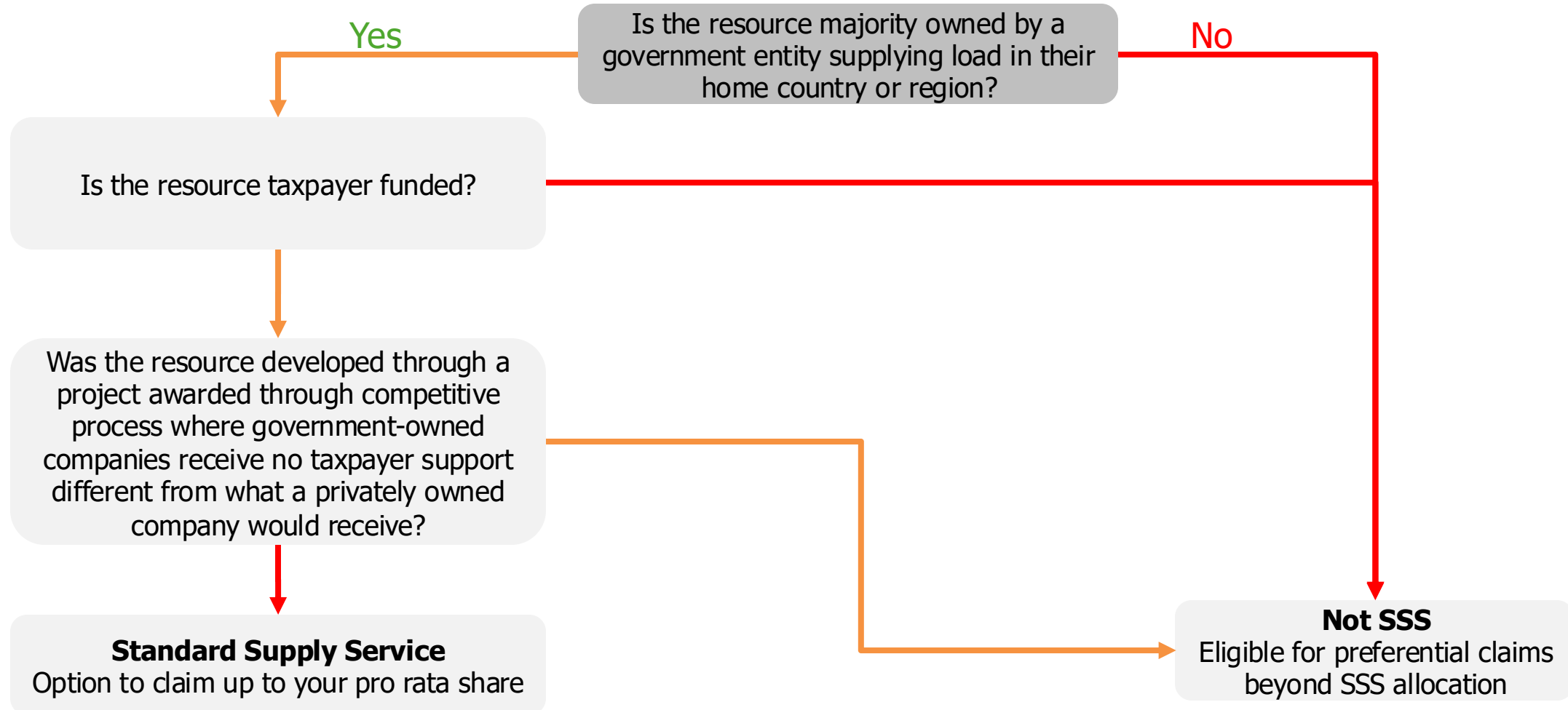


* Some territories with monopoly suppliers also have publicly owned and/or policy mandates, compliance programs or subsidies. In these cases, the fact that the resource is part of default service from a monopoly supplier and is therefore SSS supersedes any exceptions to a SSS designation.

SSS Designation Decision Tree: Policy Mandates / Compliance Programs



SSS Designation Decision Tree: Publicly owned



Example scenario 1: Supplier provides SSS information to customer

Customer receives utility standard product with disaggregated SSS information for each hour. Customer independently purchases CFE for the remainder of their load using hourly matching.

Step 1: Collect activity data

Customer collects hourly activity data

Step 2: Allocate SSS

Customer receives information from their supplier outlining hourly allocation of SSS

Step 3: Claim SSS

Customer claims SSS either by:

1. In a market with EACs:
Retirement of relevant EACs (either by the reporter or by supplier on their behalf).
2. In a market without EACs:
Supplier attestation that the utility has allocated the relevant attributes to the reporter.

Step 4: Match remaining activity data

Customer matches remaining activity data with deliverable CFE using hourly matching

Example scenario 2: Supplier does not provide SSS information to customer

Customer receives utility standard product, but supplier does not provide information about SSS allocation. Customer identifies allocation of hourly SSS using publicly available resources and then voluntarily purchases CFE for the remainder of their load using hourly matching.

Step 1: Collect activity data

Customer collects hourly activity data

Step 2: Allocate SSS

Customer reviews 3rd party database to identify which SSS resources they can claim.

Customer uses the database or uses facility/ regional hourly production profile data to estimate the hourly allocation of SSS resources identified in the 3rd party database.

Step 3: Claim SSS

Customer claims SSS either by:

1. In a market with EACs: Procurement of EACs from the supplier to match estimated SSS allocation for each hourly interval.
2. In a market without EACs: Supplier attestation that the utility has allocated attributes to the reporter to match estimated SSS allocation for each hourly interval.
3. In a market where option 1 or 2 are not possible: Claim SSS as allocated in Step 2 without further action and disclose risk of double counting.

Step 4: Match remaining activity data

Customer matches remaining activity data with deliverable CFE using hourly matching.

Data accessibility for LBM reporting with increased granularity



GREENHOUSE
GAS PROTOCOL

Discussed and remaining questions for LBM data granularity requirements

TWG recommendation: *Discussed*
Defining hierarchies for grid-average data that addresses temporal and spatial precision as well as consumption versus production data types.
(Meeting #7)

TWG recommendation: *Discussed*
~66% supported requiring use of the most precise data available in the hierarchy.
(Meeting #7)

Question 5:
Does the proposal appropriately define “the most precise EF data available?”

Question 6:
Does the proposal appropriately define “the most precise consumption data available”?

Question 5: Proposed solution for location-based emission factor “accessibility”

*"Companies **shall** use the most appropriate, accurate, precise, and highest quality emission factors accessible for each method"*

*"Emission factors are considered "accessible" only if they are both **1) publicly available and 2) free to use**. Emission factors that require payment to access or are not published publicly may be used, but are not required, even if they are higher on the hierarchy than the best accessible data."*

- Defines 'accessible' to ensure companies have a feasible option for reporting
- Allows for continued use of current LBM emission factor datasets, while encouraging use of more accurate data.
- Some regions of the world may have more/less "accessible" emission factors under this definition, noting the landscape of "accessible" emission factors evolve in the coming years.

Question 6: Proposed solution for location-based activity data availability

*"If hourly activity data is not available, the reporter **may** estimate an hourly activity profile in order to use an hourly accounting interval. When actual hourly data is not available, use of load profiles **may** be used as an interim step but should not serve as a replacement for hourly (or sub-hourly) accounting based on actual hourly data. Estimated hourly profiles **may** be useful if it is believed that lower resolution data may misrepresent the reporter's inventory total (e.g. if the reporter mostly uses electricity during a certain time of day)."*

If a reporter chooses to not use estimated load profiles, the "most precise consumption data available" is the most precise actual activity data.

Are there material feasibility risks unaddressed in this proposal?

Next steps



GREENHOUSE
GAS PROTOCOL

Next steps

- **Next meeting: May 14th**, 09:00 EDT/15:00 CEST/ 23:00 CST
- **Location- & Marked-based revision proposals:**
 - Feedback on Secretariat-provided consolidated draft should be submitted via the shared document comment process through **May 2nd**. Proposals should:
 - Build on directional polling results from the TWG and ISB.
 - Align with the GHG Protocol Decision-Making Criteria and Hierarchy.
 - See slide 14 of Meeting #12 for instructions.
- **April–May will focus on clarifying and refining the draft proposal.** With alignment to the DMC, TWG polling, and early ISB input, this is a critical window to shape a clear, implementable outcome.
- **A final recommendation will be prepared for a TWG vote on June 25th**

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.



Appendix



GREENHOUSE
GAS PROTOCOL

Timeline check-in: Plan for final Phase 1 meetings through June

	Apr 30	May 2	May 14	Jun 4	June 11	Jun 25
Meeting #	13		14	15		16
Topics planned	Consolidated draft discussion • Deep dive on unresolved issues • Feasibility discussion	TWG submit comments on Secretariat–provided consolidated draft	Consolidated draft discussion • Deep dive on unresolved issues across both methods • Polling on feedback to inform final edits	Review of ISB feedback and finalization of location- and market-based recommendations • Deep dive on unresolved issues across both methods	Secretariat share final version of consolidated draft including any amendments or options	Voting on Phase 1 Final Recommendation for ISB

Phase 1 Scope of Work

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