GREENHOUSE GAS PROTOCOL

Scope 3 Technical Working Group Meeting

Working draft, do not cite

Full TWG
Phase 2, Meeting 12

Attribution to intermediate products and digital products, AMI and circularity introduction

April 30th, 2026

WORLD RESOURCES INSTITUTE

World Business Council for Sustainable Development

(Draft; for discussion)

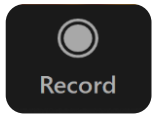
Agenda

- Housekeeping (5 mins)
- Attribution to components (30 mins)
- Digital products (30 mins)
- Actions and market instruments Secretariat presentation (15-20 mins) – 10-15 mins for Q&A
- Introduction to circularity topics (25 mins)

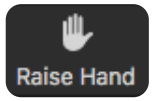
(Draft; for discussion)

Housekeeping and decision-making criteria

Welcome and Meeting information



This meeting is recorded.



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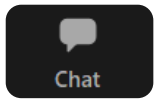
Please use the Raise Hand function to speak during the call.



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

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

Housekeeping

- TWG members should **not disclose any confidential information** of their employers, related to products, contracts, strategy, financials, compliance, etc.

- In TWG meetings, **Chatham House Rule** applies:
  - "When a meeting, or part thereof, is held under the Chatham House Rule, participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed."

- **Compliance and integrity** are key to maintaining the credibility of the GHG Protocol
  - Specifically, all participants need to follow the **conflict-of-interest policy**
  - **Anti-trust rules** have to be followed; please avoid any discussion of competitively sensitive topics*

- Maintain a respectful approach to communicating by:
  - Assuming positive intent; making space for different perspectives; and defaulting to curiosity

* Such as pricing, discounts, resale, price maintenance or costs; bid strategies including bid rigging; group boycotts; allocation of customers or markets; output decisions; and future capacity additions or reductions

Decision-Making Criteria

- Evaluating options: Describe pros and cons of each option relative to each criterion. Qualitatively assess the degree to which an option is aligned with each criterion through a green (most aligned), yellow (mixed alignment), orange (least aligned) ranking system. Some criteria may be not applicable for a given topic; if so, mark N/A.
- Comparing options: The aim is to advance approaches that ideally meet all decision criteria (i.e. maximize pros and minimize cons against all criteria). If options present tradeoffs between criteria, the hierarchy should be generally followed, such that, for example, scientific integrity is not compromised at the expense of other criteria, while aiming to find solutions that meet all criteria.

Illustrative example	**Option A: Name**	**Option B: Name**	**Option C: Name**
1A. Scientific integrity	• Pros • Cons	• Pros • Cons	• Pros • Cons
1B. GHG accounting and reporting principles	• Pros • Cons	• Pros • Cons	• Pros • Cons
2A. Support decision making that drives ambitious global climate action	• Pros • Cons	• Pros • Cons	• Pros • Cons
2B. Support programs based on GHG Protocol and uses of GHG data	• Pros • Cons	• Pros • Cons	• Pros • Cons
3. Feasibility to implement	• Pros • Cons	• Pros • Cons	• Pros • Cons

Note: This is a summary version. For further details, refer to the full decision-making criteria included in the annex to the Governance Overview, available at https://ghgprotocol.org/our-governance.

(Draft; for discussion)

2026 workplan

GREENHOUSE GAS PROTOCOL

Pre-read

Full Scope 3 TWG Meetings - 2026

Meeting #	Date	Time	Topic
7	*Jan 15*	*9-11 AM ET*	• *EOY Survey review & Phase 2 (2026) SoW and Timeline review*
8	*Feb 5*	*9-11 AM ET*	• *Phase 1 review, Category 10/11 considerations*
9	*Feb 26*	*9-11 AM ET*	• *Phase 1 survey review, Category 10/11 considerations*
ISB Meeting	*Mar 12*	*n/a*	• *Approval of Phase 1 Revisions to-date and/or Progress Update for public disclosure*
10	*Mar 19*	*9-11 AM ET*	• *Category 10/11 (continued)*
11	Apr 9	9-11 AM ET	• Category 10/11 (continued)
12	Apr 30	9-11 AM ET	• Category 10/11, Circularity, recycling, second-hand, and waste incineration
13	May 21	9-11 AM ET	• Circularity (continued)
14	Jun 11	9-11 AM ET	• Circularity (continued)
ISB Meeting	*Jun 29*	*n/a*	• *Review and Approval of Phase 2 Revisions*
15	Jul 2	9-11 AM ET	• **Review draft text and/or ISB comments**
16	July 23	9-11 AM ET	• Review draft text and/or ISB comments (continued)

Target deadline for public consultation: **October 20th, 2025** *

** This is the target deadline for public consultation is being reviewed by the Secretariat and may change in the coming months.*

(Draft; for discussion)

E1.6 Attribution to intermediate products (30 mins)

E1.6 | Original feedback under consideration

- Some sold intermediate products are associated with **mechanical energy and energy losses during operation** that do not directly result in useful output (e.g., mechanical energy losses, heat energy losses, inefficiencies in energy conversion)
  - Stakeholders have raised questions about how emissions associated with energy (**useful energy** and **energy losses**) should be treated in scope 3 accounting for these intermediate products

- In some cases, indirect contributions (e.g., software enabling system performance such as navigation or operational systems in aviation) are difficult to map to physical or economic allocation approaches at the component level. However, there is no way to **allocate indirect emissions to upstream software providers**.
  - Typical allocation approaches are more difficult to apply in this situation.
    - Physical allocation approaches don't make sense here
    - Economic allocation approaches are very difficult for the intangible product provider
    - Question over whether said emissions are even category 11 (or are facilitated – category 16)

E1.6 | Existing guidance

pg. 123 Technical Guidance

- "When a company sells an **intermediate product** that directly emits GHGs in its use phase, it is required to account for **direct use-phase emissions of the intermediate product** by the end user, (i.e., the emission resulting from: the use of sold intermediate product that directly consumes fuel or electricity during use; fuels and feedstocks; GHGs released during product use)."
- "Companies may optionally include the indirect use-phase emissions of sold intermediate products."

Footnote 9, Ch5 *Scope 3 Standard*

- "In the case of a motor (an intermediate product) that becomes part of an automobile (a final product), the direct use phase emissions of the intermediate product by the end consumer are the emissions resulting from use of the motor, not the emissions resulting from use of the automobile."

The rules / guidance explicitly addresses intermediate products that consume energy and emit GHGs in use directly.

It is not directly explicit regarding:

- Accounting or reporting requirements for emissions from components that **do not emit direct use-phase emissions**
- Accounting or reporting requirements for emissions associated with **energy losses in the final product**

E1.6 | Examples of energy loss

1. Electric motor bearings:

Case description:

- Manufacturer produces bearings (an intermediate product) used in industrial electric motor driving a pump.
- Friction in bearings contributes to energy losses

Current guidance interpretation:

- The sold intermediate product does not consume energy or directly emit GHGs during use <- no direct use-phase emissions
- No indirect use-phase emissions (as the bearing does not indirectly require energy during use)

2. Insulation materials:

Case description:

- Manufacturer produces insulation (intermediate product) used industrial equipment
- Inefficiencies in the insulation increases the energy demand for that equipment

Current guidance interpretation:

- As with #1, there are no direct- and no indirect use-phase emissions in current guidance

For discussion

E1.6 | Questions to resolve

Discussion points

- **Should intermediate product manufacturers account for any portion of final product's use-phase emissions?**
  e.g., piston in an engine (itself in a car). The engine itself burns fuel during use, and the piston is a component to that engine
  - What emission sources (if any) should be included?
    - Fuel combustion in the engine?
    - Other vehicle emissions (e.g., air conditioning refrigerant leakage)?
    - Encourage either of the above when deemed relevant?
  - If included, where should emissions be reported?
    - Direct use-phase (i.e., required)
    - Indirect use-phase (i.e., optional)
    - Facilitated emissions (in category 16)
  - Does the response differ depending on the type of component under consideration?

- **Should the rules differ for useful energy and energy losses?**
  e.g., if the piston is responsible for some frictional loss of energy?
  - If energy losses are relevant for a manufacturer:
    - What calculation methods could be used? *<- particularly if required*
    - How would a component manufacturer get appropriate data? *<- particularly if required*
    - Does this differ from the general attribution approach and reporting requirements for components?

E1.6 | Options for accounting and reporting

What isn't being decided on here:

- Intermediate products that themselves consume energy or emit GHGs during use in the final product will continue to report emissions as direct use-phase

Options for intermediate products that are parts to final products with direct use-phase emissions:

1. **No attribution of final product use-phase to intermediate product**
   - Emissions are outside of the boundary for category 11 and 16
2. **Required attribution to intermediate products**
   - Intermediate manufacturers **shall** account for and report final product direct use-phase emissions, reporting as 'direct use-phase emissions' in category 11
     - *In this case, what allocation rules should be used? What about for digital products?*
3. **Optional attribution to intermediate products**
   - Intermediate manufacturers **may/should** account for and report final product direct use-phase emissions, reporting as [indirect use-phase / facilitated emissions]

E1.6 | Decision-making criteria

Criteria	Excluded emissions (no attribution)	Required inclusion (as direct use-phase)	Optional inclusion (as [indirect/facilitated])
1A. Scientific integrity	**Pros:** Avoids speculative attribution of system-level inefficiencies (for energy losses). For most, aligns with physical causality (no direct emissions pathway at component level) **Cons:** May under-represent system interdependencies	**Pros:** Reporting (for some) reflects contribution to system level emissions **Cons:** Requires strong modelling assumptions and so may be uncertain and inaccurate. Risk of signaling causality of emissions where there is none (for many)	**Pros**: Reporting (for some) reflects contribution to system level emissions **Cons**: Requires strong modelling assumptions and may be uncertain and inaccurate. Risk of signaling causality of emissions where there is none (for many)
1B. GHG accounting and reporting principles	**Pros:** Good for consistency, comparability **Cons:** Lower completeness and potential relevance	**Pros:** Higher completeness. May be more relevant reporting for some. Same scope means comparability is improved. **Cons:** Allocation method application will reduce accuracy and consistency.	**Pros**: Higher completeness and ensures relevance of reporting **Cons:** Allocation methods will reduce accuracy and consistency. Optionality reduces comparability.
2A. Support decision making that drives ambitious global climate action	**Pros:** Clear boundary reduces misinterpretation risk **Cons:** May reduce visibility of efficiency improvements at component level. Less information for system optimization	**Pros:** Potentially high support for decision making as links between component and system efficiency are made **Cons:** Inaccurate methodologies could push misdirected incentives	**Pros:** Potentially high support for decision making as links between component and system efficiency are made. **Cons:** Inaccurate methodologies could push misdirected incentives. Optionality may risk selective reporting and action
2B. Support programs based on GHG Protocol and uses of GHG data	**Pros:** May align with current reporting practices. Consistent boundary promotes interoperability **Cons:** May under-represent causality for some	**Pros:** Consistent boundary promotes interoperability **Cons:** Expected to differ from current practices	**Pros**: More adaptable approach for different frameworks. May align with current reporting practices
3. Feasibility to implement	**Pros:** Very easy to implement (no burden)	**Cons:** Accessing data is demanding. High modelling burden and verification complexity	**Pros**: Balanced approach, encouraging reporting when relevant **Cons:** High modelling burden and verification complexity

(Draft; for discussion)

E1.7 Accounting for digital products or services (30 mins)

E1.7 | Problem statement

- Category 11 can be more clearly and consistently applied to physical (tangible) products, rather than non-physical products such as software and digital services.
  - Digital products, in particular, have become more prevalent since the original *Scope 3 Standard* was published

- There is some ambiguity about how downstream emissions should be attributed to products and the data storage, network transfers, and computational requirements of digital products in particular
  - Web-based software is included as a 'type of product' in category 11 for direct use-phase emissions but there is unclear methodological direction

- Ambiguities may lead to inconsistent interpretations and application across reporting companies, limiting comparability and reducing confidence in reported downstream emissions for software and other digital products

- **Objective of this revision is to provide more clarity on rules for reporting emissions that occur due to the use of non-physical products, clarify where to report said emissions (if relevant), and appropriate attribution rules**

* Note that focus of discussions will be on digital products. Other intangible products use-phase (e.g., services) are likely to be already in a company's scope 1 and 2, and downstream emissions defined as a facilitated activity.

E1.7 | Emissions accounting in digital products

- There is **no standardized approach for quantifying the environmental impact of digital products**. Several standards or guidance methodologies exist, but aren't consistent in approach and aren't well suited for AI systems.
  - Some guidance exists
    - Greenpixie cloud emissions methodology
    - GeSI ICT guidance (already linked to on the GHG Protocol website)
    - ITU-T L. 1410
    - GSMA, GeSi, ITU-T Scope 3 Guidance for Telecommunication Operators
    - Decarbonising the use-phase of connected devices (*uses an annualised approach to reporting – not intended to represent solely digital products*)

- In general, emissions are related to how data is handled:
  - **Data storage** (e.g., storing data in cooled server rooms will require continuous energy input).
    - *May be fully accounted for in category 1 (Purchased goods and services) if a company purchases storage from third-parties*
  - **Transfers of data over networks** (the utilization of data networks requires energy – the amount of energy can vary depending on the network utilization at a point in time)
    - *May be fully accounted for in category 1 (Purchased goods and services)*
  - **Computation** (e.g., the CPU/GPU operations on an end-users computer for downloadable software, or energy consumed per AI token, or per FLOP, to actually perform the calculations necessary). AI workloads dramatically increase computation energy and may require separate more detailed methods.
    - *Note most AI integration into software will use purchased tokens / services (i.e. category 1).*

- Which, if any, are included in our current definitions of direct use-phase and indirect use-phase emissions?

E1.6 | Attribution to digital intermediate products

Example:

Reporting company provides software on a hybrid vehicle's ECU that controls and toggles fuel modes, including fuel/air mixing and gear shifting. The software also sends and stores data in the cloud.

Note that web-based software is provided as an example of a product with 'direct use-phase' emissions in the existing Scope 3 Standard

Emission sources are:

1) Cloud data **storage**
   - *Likely in category 1 of reporting company*
2) Network **transfers** between vehicle and cloud data store
   - *Often a paid service (cat 1)*
3) ECU **computation** *due to the software* (and associated energy consumption)
4) Other ECU **computation** *due to background operations and other software* (and associated energy consumption)
5) Fuels/energy consumed by the vehicle's engine
6) Other emissions from the vehicle (e.g., refrigerant leakage from AC)

Which of these emissions, if any, should be considered attributable to the software product in category 11?
Are any more relevant for category 16 (facilitated emissions)?

E1.7 | Case study of accounting in a software company

- In calculating corporate scope 3 inventory, SAP distinguished between:
  - **Category 11: On-customer-premises software sold** (i.e., the software is hosted by customer's servers)
  - **Category 1: cloud-based software sold** (i.e., the software is hosted by cloud servers)

- **'On-customer-premises' software approach:**
  - Calculations are based on the storage, network, and compute resources required to operate SAP systems and assumption based on usage rates for on-premises software (including CPU, memory, storage and data center efficiency overheads)
  - Lifetime based on announced "end of maintenance" data for each on-premises product in category 11

- **'Cloud-based' software approach:**
  - If SAP operates cloud-based infrastructure, emissions from operation are in scope 1 and 2
    - Storage, network, and computation activities are all paid for via cloud provider
  - If third-parties operate the infrastructure, it is a purchased service (category 1)
  - If SAP leases space or equipment without operational control, included in category 8

* Source of case study information: https://www.bsr.org/reports/BSR-Accounting-for-Scope-3-Use-Phase-Emissions-for-Software-Companies.pdf

E1.7 | Potential options*

Problem to solve: Lack of clarity on accounting and reporting rules for digital products

Note that the TWG has already indicated that examples for software should be added. No option presented below removes that need and it is still intended that such examples will be drafted

1. **Continue to use existing classification and add examples**
   - Address emissions accounting through example boxes + guidance only. Encourage the use of sector-specific guidance instead.
   - Map life cycle stages (e.g., storage, network, compute) onto direct use-phase and indirect use-phase classification more explicitly.
   - Apply the same rules to digital products as to physical products

2. **Create separate reporting structure within cat 11 for digital products and treat it as a subcategory** *(In the same way that employee commuting distinguishes between physical commuting and telecommuting).*

   Rules would then:
   - Define life cycle stages to include and where to report them (e.g., storage, network, and compute)
   - Define the optionality [should/shall/may] for emissions to be included for each of these types
   - Define the types of products that are subject to these rules, and any exceptions
   - Allow annualized quantification methods

* The options and preliminary comparisons herein are not designed to be final, complete, or all-encompassing.

E1.6 | Decision-making criteria

Criteria	Maintain existing classification with examples	Add new subclassification for digital products
1A. Scientific integrity	No clear evidence for or against either method – it is more about defining a classification system	No clear evidence for or against either method – it is more about defining a classification system
1B. GHG accounting and reporting principles	**Pros:** Maintains consistency with today's reporting structure. Examples will help clarify intent of rules **Cons:** Still exposes potential for inconsistent interpretation (affects comparability more).	**Pros**: Potentially offers a more consistently applied and transparent framework **Cons:** Not relevant for many users. May create apparent discrepancies in rules between physical and digital products
2A. Support decision making that drives ambitious global climate action	**Pros:** Current approach not necessarily bad for decarbonization action spotting **Cons:** Current classification doesn't clearly apply to digital products which may obscure mitigation action opportunities	**Pros:** More transparent framework may help illustrate potential emission sources and relevant mitigation actions more clearly
2B. Support programs based on GHG Protocol and uses of GHG data	**Pros:** Maintains consistency with today's classification **Cons**: Doesn't provide needed guidance for downstream users of data on emission sources and classification systems that are more common in the digital sector	**Pros:** Helps align classification system which reflects the logic established in other digital product guidance **Cons:** Downstream users with targets that include category 11 emissions may need to re-baseline if classification introduces fundament changes in how rules are interpreted
3. Feasibility to implement	**Pros:** No change means companies can continue to operate as they have been **Cons:** Lack of clarity may continue to confuse (even with the introduction of examples)	**Pros**: Transparent framework outlines expectations more clearly **Cons**: May require adaptation of calculation approaches current used in cat 11

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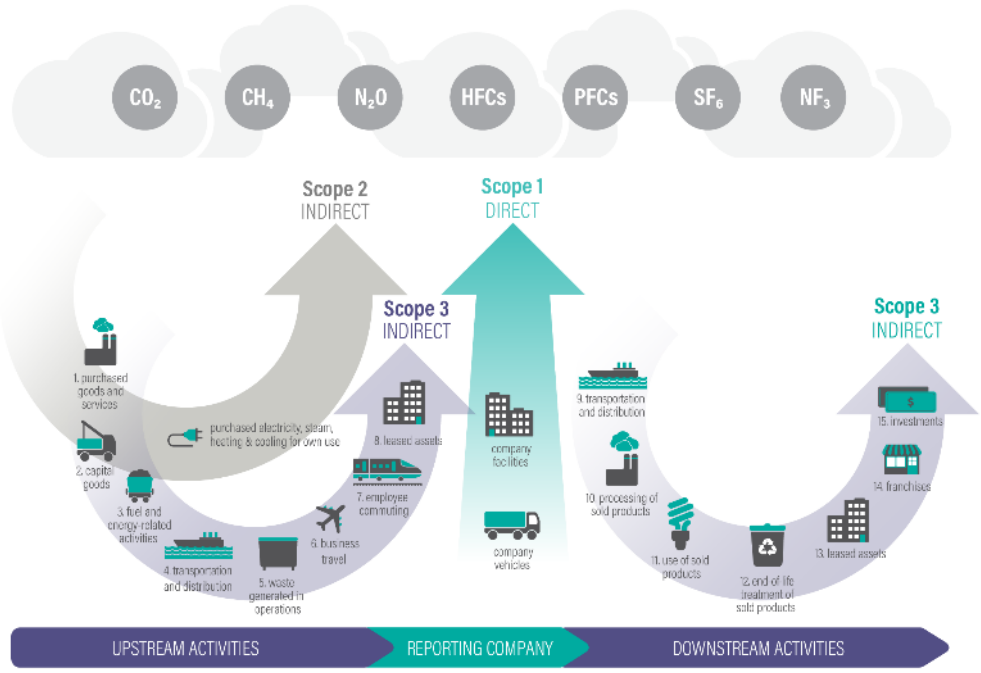
(Draft; for discussion)

Action and market instruments

AMI to provide options to account for and report on corporate actions and market-based instruments, driving credible decarbonization

Current GHG Protocol standards with strong focus on physical inventory across Scope 1-3



New instruments and initiatives are out there

- New market-based approaches have been proposed for a **variety of applications and for several different sectors**, including natural gas/biomethane, aviation fuels (SAF), agricultural commodities, freight transport, maritime shipping, steel, aluminum, and others.
- These approaches include **value chain interventions** (e.g. supply shed), **project-based crediting** (e.g. offsets), and **chain of custody models** (e.g. mass balance and book-and-claim).
- Market-based approaches have **typically arisen in cases where companies purchase** products or commodities **from common pools** or distribution systems and **direct contracting with suppliers or traceability to individual points of origin is not feasible**
- There is currently **no opportunity for corporates to report on avoided emissions** related to their products and services

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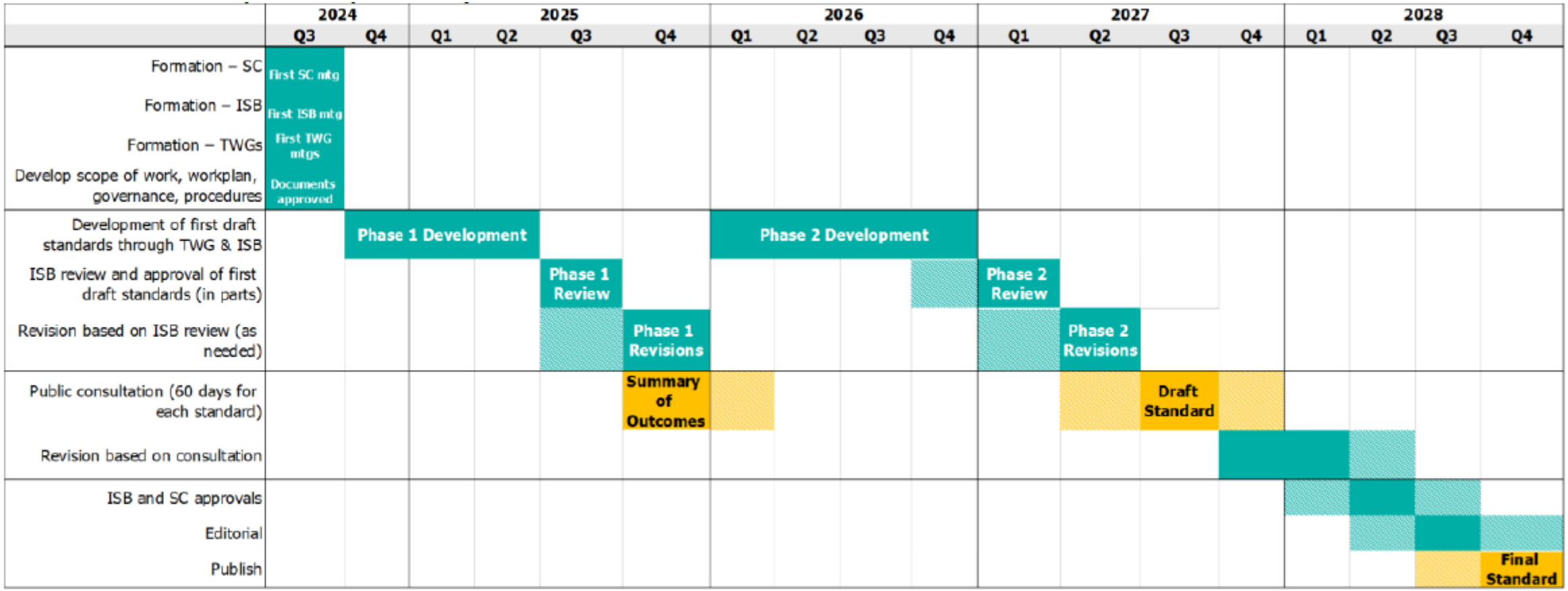
AMI: Scope of work overview – *currently subject to review*



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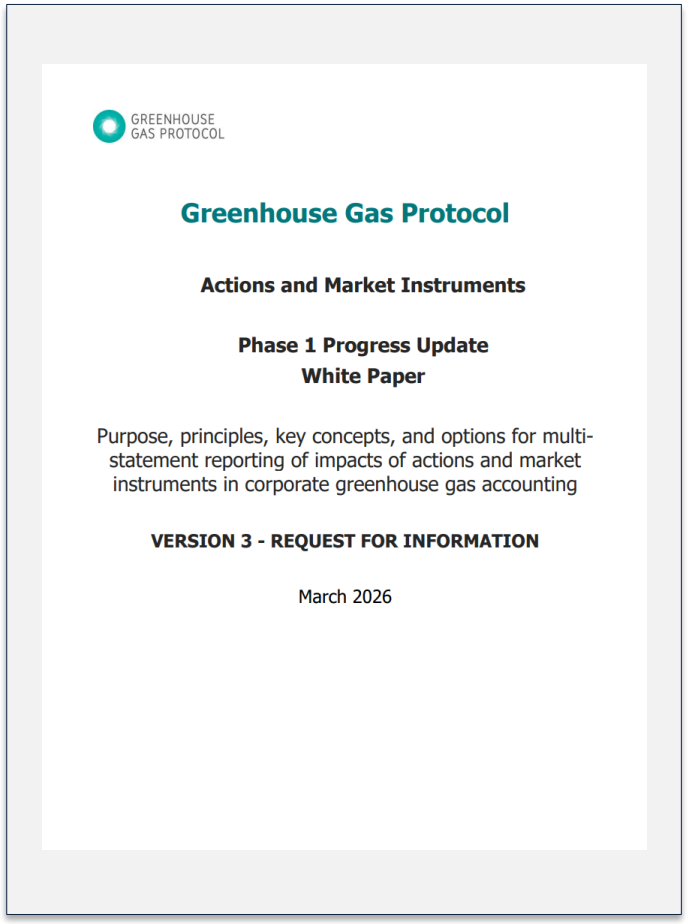
Phase 1 White Paper describes purpose, key concepts and outline options for multi statement reporting


GREENHOUSE GAS PROTOCOL

Greenhouse Gas Protocol

Actions and Market Instruments

Phase 1 Progress Update
White Paper

Purpose, principles, key concepts, and options for multi-statement reporting of impacts of actions and market instruments in corporate greenhouse gas accounting

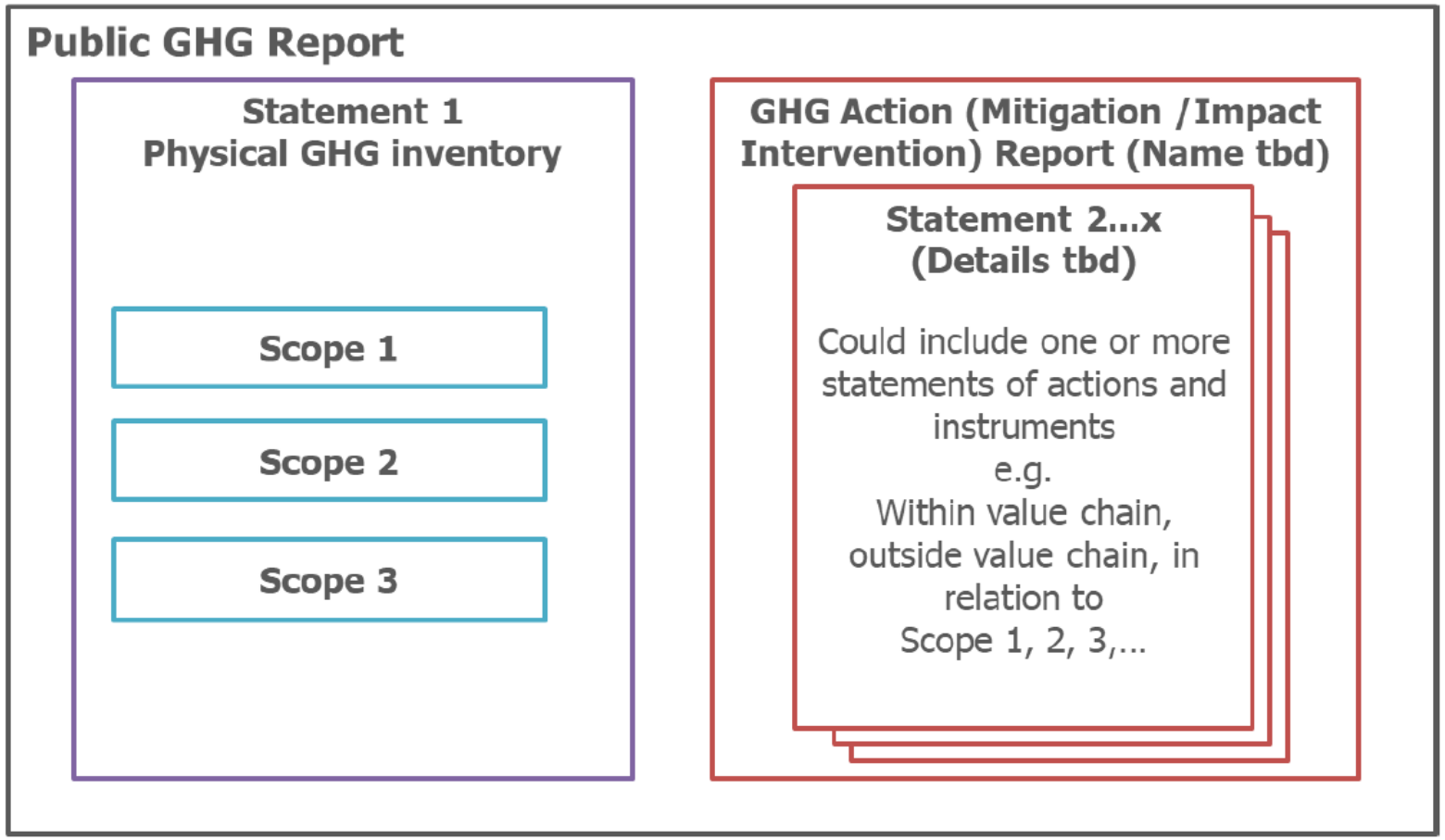
VERSION 3 - REQUEST FOR INFORMATION

March 2026

- **Purpose and objectives** of accounting for and reporting on impacts of actions and market instruments in GHG reports
- **Key concepts, terms and definitions** for actions and market instruments
- **Reporting principles** (transparency, completeness, accuracy, conservativeness, consistency, relevance, permanence)
- **Reporting structure** (disaggregated, transparent multi-statement reporting structure) with currently four statement options under discussion in addition to physical inventory)
- **Accounting and reporting specification per statement** (Definition, purpose, claims, boundaries, calculation methods, quality and safeguard criteria etc.)

* The options and preliminary comparisons herein are not designed to be final, complete, or all-encompassing.

Key concept: disaggregated reporting through multi-statement reporting structure



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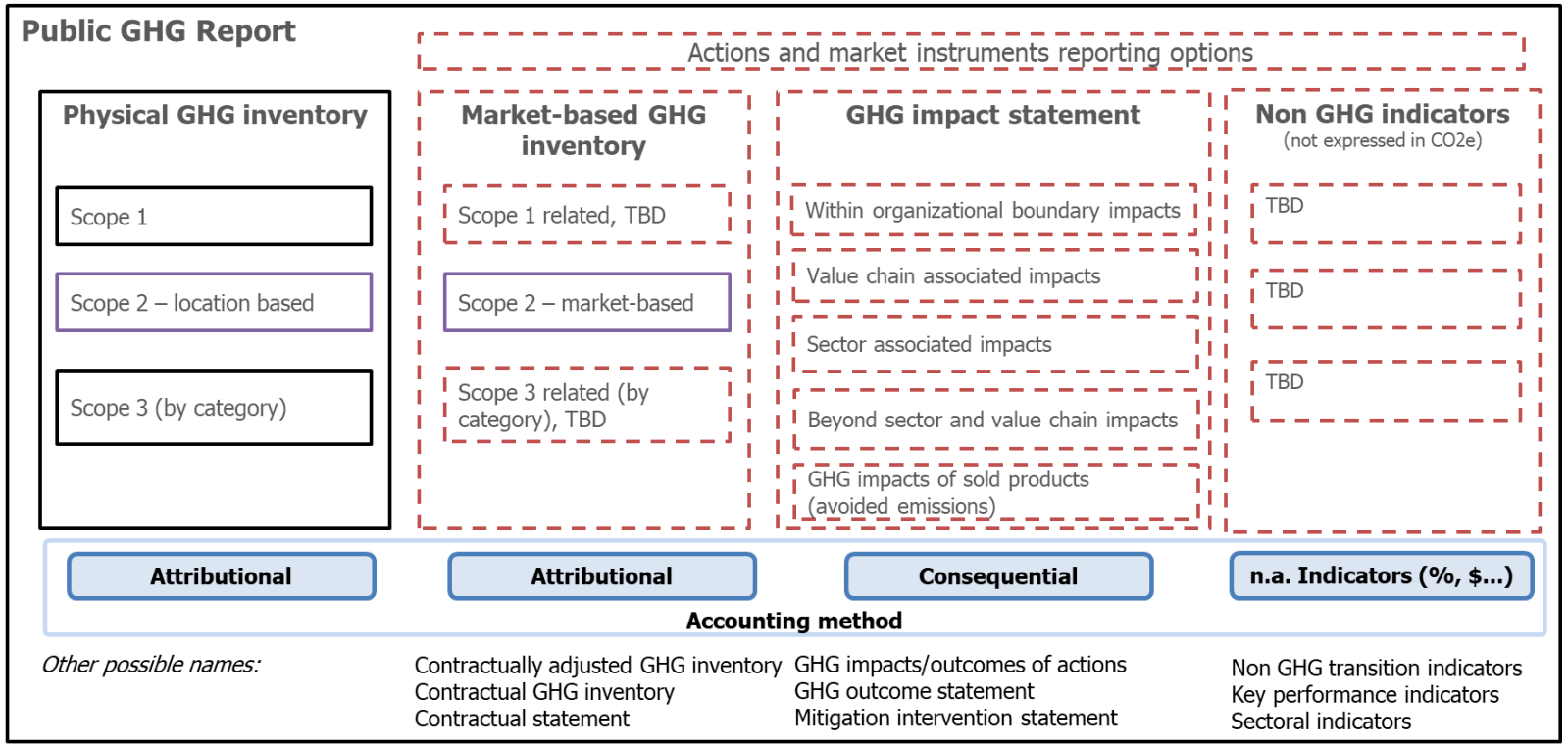
Three statement options beyond physical inventory under discussion to enable disaggregated reporting (multi-statement reporting structure)

Objective is to define differentiated accounting statements that allow for reporting of all quality instruments, providing clarity for users which kind of market instrument goes into which statement.



← Statements with specific sub-structures

← Type of accounting

* The options and preliminary comparisons herein are not designed to be final, complete, or all-encompassing.

A (partial) list of open topics for further development in 2026:

- Define physical traceability and draw the line between statement 1 and 2, e.g. for mass balance approaches
- Define how can statement 2 look in practice (accounting method, completeness, residual emission factors, etc.)
- Define which sub-elements should be included in statement 3 and which tests can be applied between reporting elements
- Define the structure and key elements of statement 4
- Explore and discuss more practical examples and case studies
- Establish quality criteria, eligibility criteria, and safeguards for individual statements and/or instruments
- Further explore the scope 2 consequential accounting method proposal / MIM
- Explore whether statements are mutually exclusive
- Define whether each statements are optional or required

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(Draft; for discussion)

Circularity introduction (25 mins)

Summary of stakeholder feedback on circularity

- Several respondents asserted that the *Scope 3 Standard* needs **new or updated rules** to account for emissions attributable to activities **associated with circular production and consumption**

- Some assert that the **cut-off rules for virgin versus recycled materials are inconsistent**: for virgin materials, cradle-to-gate emissions are included while for recycled materials, pre-recycling cradle-to-gate emissions are excluded
  - Some said that the 'Recycled Content Method' lets waste-producing companies 'off-the-hook' by letting them zero out their emissions by diverting waste to recyclers or third-party waste-to-energy operators

- Several respondents asserted that the **current scope 3 rules and requirements disincentivize the use of recycled materials** between buyer(s), processor(s), and seller(s) of recycled materials.
  - Rules are also unclear in some situations. E.g., companies that perform recycling in-house and sell recycled feedstock, unclear whether emissions should be deducted from category 1, accounted for in category 5, or accounted for as a sold product (category 10, 11, 12)

- A group of proposal submitters asserted that the current method of accounting for scope 2 emissions associated with district heat generated from waste incineration with energy recovery does not incentivize waste reduction. Waste generating companies are not incentivized to reduce, repurpose, or recycle waste

Please refer to summary of survey responses document for further information:
https://ghgprotocol.org/sites/default/files/2024-06/Scope%203%20Survey%20Summary%20-%20Final%20%281%29.pdf

Note that the term "circular" here is used to refer to activities that divert products, components, and/or materials away from being permanently disposed of or discarded (as waste).

For discussion

Stakeholder recommendations

- **Minimum boundary**:
  - ~~*Require inclusion of emissions associated with transportation of waste*~~ *<- already revised*
  - Provide clearer guidance regarding excluding emissions related to municipal solid waste and specify that avoided emissions associated with diverted landfill waste is not in scopes
- **Cut-off approach**:
  - Review the Recycled Content Method and Closed Loop Approximation Method
  - Revise the Recycled Content Method or create a new 'lifetime extension' method that reallocates cradle-to-gate emissions attributable to a physical product when it is re-used or re-purposed
  - Review possible inconsistencies in allowing the double counting of emissions associated with virgin goods, but not recycled or resold goods.
  - Several respondents propose methods to allocate or attribute emissions from (i) virgin waste that is recycled and sold; (ii) recycling processes; and (iii) use of waste as feedstock
- **Waste-to-energy (WTE):**
  - Develop allocation guidance for WTE
  - Consider proposals to allocate emissions from waste combustion to waste originator, and not the waste combustor or final energy user

Note that the term "circular" here is used to refer to activities that divert products, components, and/or materials away from being permanently disposed of or discarded (as waste).

Proposed topics in Series F

Based on topics outlined in the Scope 3 Standards Development Plan.

Topic code	Description	Proposed approach
F1	Establishing or revising relevant **circular economy definitions**	*Subgroup or Secretariat asynchronous proposal*
F2	Consideration of **recycling cut-off approach**. Subtopics may include: • Whether to standardize any particular cut-off approach, or approaches, for recycled, reused, and refurbished materials. • Develop additional guidance, as needed, to interpret system allocation rules	*TBD. Depends on TWG opinion on likelihood of agreeing one standardized approach*
F3	**Waste-to-energy allocation** rules, including: • Consideration of approach • Strengthening of surrounding documentation to reduce misinterpretation	*TWG discussion*
F4	Establish circular economy **accounting examples for circular economy activities** (including reuse, refurbishment, regenerative production)	*Subgroup*
F5	Identify and **establish circular economy accounting rules/recommendations** for non-virgin material inflows, by-products, repurposing activities, non-virgin material outflows that emerge from conversations on F1-F4 *(unless already handled elsewhere)*	*Subgroup to discuss options to present to TWG.*

(Draft; for discussion)

F1: Circular economy definitions

F1 | Existing definitions across GHG Protocol standard suite

Term	Definition	Source
Life cycle	The consecutive and interlinked stages of a product system, from raw material acquisition or generation of natural resources to end of life.	Scope 3 Standard (2011); Scope 2 Standard (2015); ISO 14044
Recycling	Recycling occurs when a product or material exits the life cycle of one product to be reused or recycled as a material input in another product's life cycle.	LSR (2026)
Recycling processes	Processes that occur as a result of a product or material being reused or recycled as a material input into another product's life cycle.	Product Standard (2011)
Use stage	A life cycle stage that begins when the consumer takes possession of the product and ends when the used product is discarded for transport to a waste treatment location or recycled into another product's life cycle.	Product Standard (2011)
Waste	An output of a process or system that has no market value.	LSR (2026); Scope 3 Standard (2011)
Service life	The amount of time needed for a product to fulfill the function defined in the unit of analysis.	Product Standard (2011)
End-of-life stage	A life cycle stage that begins when the used product is discarded by the consumer and ends when the product is returned to nature (e.g., incinerated) or allocated to another product's life cycle.	Product Standard (2011)

Amongst those that may need to be defined: refurbishment, reuse, regenerative agriculture, redistribution, repair. Each may then need consideration of how it generally applies.

F1 | Considerations

1) **Are the existing definitions related to circularity fit for purpose or do they need changing?**
   - Note that changing the definitions may cause changes in interpretation of other standards. Revisions will need to be considered holistically.

2) **Identify and define terms that are missing from this list**
   - e.g., circular economy; repair; refurbishment; redistribution; reuse; regenerative production; waste-to-energy; lifetime
   - With each definition, consider where in the Scope 3 Standard it applies most and propose how terminology and concepts can be integrated with text revisions and/or examples
     - e.g.,
       - refurbishment affects category 1 & 2, and use-phase emissions most – how can refurbishment logic be integrated into category 1, 2, and 9-12 text?

A starting resource could be EMF's glossary of terms: https://www.ellenmacarthurfoundation.org/topics/circular-economy-introduction/glossary

Definition of waste

The existing definition of waste is:

"An output of a process or system that has no market value"

Issues of definition in isolation:

- Outputs of no value may be redistributed and reprocessed into something with market value
  - *Scope 3 Standard - section 8.3 - states that in this case, 'the waste is no longer considered waste and should be treated like other outputs'*
- Outputs of value that are disposed of are not 'waste' under this definition.

Both *category 5* and *category 12* descriptions rely on the definition of waste…

Cat 5: "Disposal and treatment of **waste** generated in a reporting company's operations…"

Cat 12: "**Waste** disposal and treatment of products sold by the reporting company…

LSR (pg 36): "Companies **may** use the recycled content allocation method for post-consumer waste that is recycled (e.g., used cooking oil, recovered fiber) or reused (e.g., material/residue that is reused as a material input in another process) regardless of the market value of the waste."

Potential options for improvement include: (1) defining pre-consumer and post-consumer waste differently as per LSR; (2) defining co-products, by-products, determining products, and/or waste separately; (3) other ideas?

(Draft; for discussion)

Next Steps

Next steps

- GHG Protocol Secretariat:
  - Distribute the Recording
  - Distribute Meeting Minutes and the Feedback Form
  - Update and distribute meeting slides

- Next meeting:
  - **May 21st Meeting #13 at 9 - 11 AM ET**

GREENHOUSE GAS PROTOCOL

Thank you!

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