GREENHOUSE GAS PROTOCOL

Corporate Standard Technical Working Group

Full TWG Meeting #6

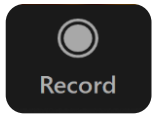
GHG Protocol Secretariat team:
Iain Hunt, Hande Baybar, Allison Leach

June 30th, 2026

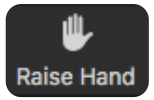
WORLD RESOURCES INSTITUTE

World Business Council for Sustainable Development

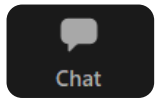
Meeting information



This meeting is **recorded**.



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

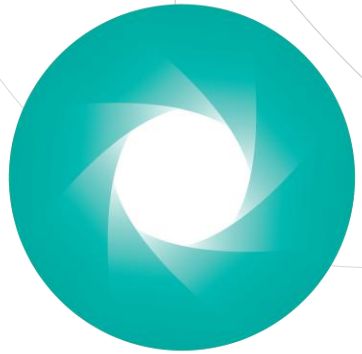


You can also use the **Chat** function in the main control.

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

Agenda

• Introduction and housekeeping	10 minutes
• Scope 1 disaggregation (Subgroup 3)	20 minutes
• Required GHGs (Subgroup 3)	10 minutes
• Global warming potential (Subgroup 3)	20 minutes
• Indirect climate forcers (Subgroup 3)	30 minutes
• GHG targets (Subgroup 1)	30 minutes
• Verification and assurance (Subgroup 2)	20 minutes
• Wrap up and next steps	10 minutes



GREENHOUSE GAS PROTOCOL

Agenda

Introduction and housekeeping	**10 minutes**
Scope 1 disaggregation (Subgroup 3)	20 minutes
Required GHGs (Subgroup 3)	10 minutes
Global warming potential (Subgroup 3)	20 minutes
Indirect climate forcers (Subgroup 3)	30 minutes
GHG targets (Subgroup 1)	30 minutes
Verification and assurance (Subgroup 2)	20 minutes
Wrap up and next steps	10 minutes

GREENHOUSE GAS PROTOCOL

Housekeeping: Guidelines and procedures

- We want to make **TWG meetings a safe space** – our discussions should be open, honest, challenging status quo, and 'think out of the box' in order to get to the best possible results for GHG Protocol
- Always **be respectful**, despite controversial discussions on content
- 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 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*

* 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

Zoom logistics and recording of meetings

Zoom Meetings

- All participants are muted upon entry
- Please turn on your video
- Please include your full name and company/organization in your Zoom display name

Raise your hand in the participants feature and unmute yourself to speak

Use the chat function to type in your questions

Meetings will be recorded and shared with all TWG members for:

- Facilitation of notetaking for Secretariat staff
- To assist TWG members who cannot attend the live meeting or otherwise want to review the discussions

Recordings will be available for a limited time after the meeting; ***access is restricted to TWG members only.***

UPDATE: Recordings will be available upon request only. Please email iain.hunt@wri.org or allison.leach@wri.org to request the recording.

GHG Protocol Decision-Making Criteria

1A. Scientific integrity	1B. GHG accounting and reporting principles	2A. Support decision making that drives ambitious global climate action	2B. Support programs based on GHG Protocol and uses of GHG data	3. Feasibility to implement
Ensure scientific integrity and validity, adhere to the best applicable science and evidence … and align with the latest climate science.	Meet the GHG Protocol accounting and reporting principles of **accuracy**, **completeness**, **consistency**, **relevance**, and **transparency**. Additional principles should be considered where relevant: conservativeness (for GHG reductions and removals), permanence (for removals), and comparability (TBD). …	Advance the public interest by informing and supporting decision making that drives ambitious actions by private and public sector actors to reduce GHG emissions and increase removals in line with global climate goals. …	Promote interoperability with key mandatory and voluntary climate disclosure and target setting programs … while ensuring policy neutrality. Approaches should support appropriate uses of the resulting GHG data and associated information by various audiences …	Approaches which meet the above criteria should be feasible to implement, meaning that they are accessible, adoptable, and equitable. … For aspects that are difficult to implement, GHG Protocol should aim to improve feasibility, for example, by providing guidance and tools to support implementation.

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.

Schedule of upcoming meetings

Meeting #	Date	Topics
6	June 30, 2026	**Subgroup 3 focus** • Subgroup 3: Scope 1 disaggregation, required GHGs, GWP values, indirect climate forcers • Subgroup 1: GHG targets • Subgroup 2: Verification and assurance
7	July 16, 2026*	**Subgroup 2 focus** • Subgroup 2: Leased assets, consolidation approaches • Subgroup 3: Data quality, scope 1 methods • Subgroup 1: GHG intensity metrics
8	August 4, 2026	**Subgroup 1 focus** • Subgroup 1: Tracking emissions over time, draft text review • Subgroup 3: Follow up on pending items, draft text review • Subgroup 2: Follow up on pending items, draft text review
9	September 1, 2026	*Tentative – review of revisions*
10	September 24, 2026*	*Tentative – review of revisions*
11	October 13, 2026	*Tentative – review of revisions*
12	November 3, 2026	*Tentative – review of revisions*

Meeting times (June-August meetings):

Option 1:

- 08:00-10:30 ET
- 14:00-16:30 CET
- 20:00-22:30 CHN

Option 2:

- 16:00-18:30 ET
- 22:00-00:30 CET
- 04:00-06:30 CHN

All meetings are scheduled for Tuesdays, with two exceptions indicated with an *, which will be held on Thursdays.

Today's objectives

- Scope 1 disaggregation
- Required GHGs
- Global warming potential values
- Indirect climate forcers

Primary objective: Review preliminary phase 2 outcomes from Subgroup 3

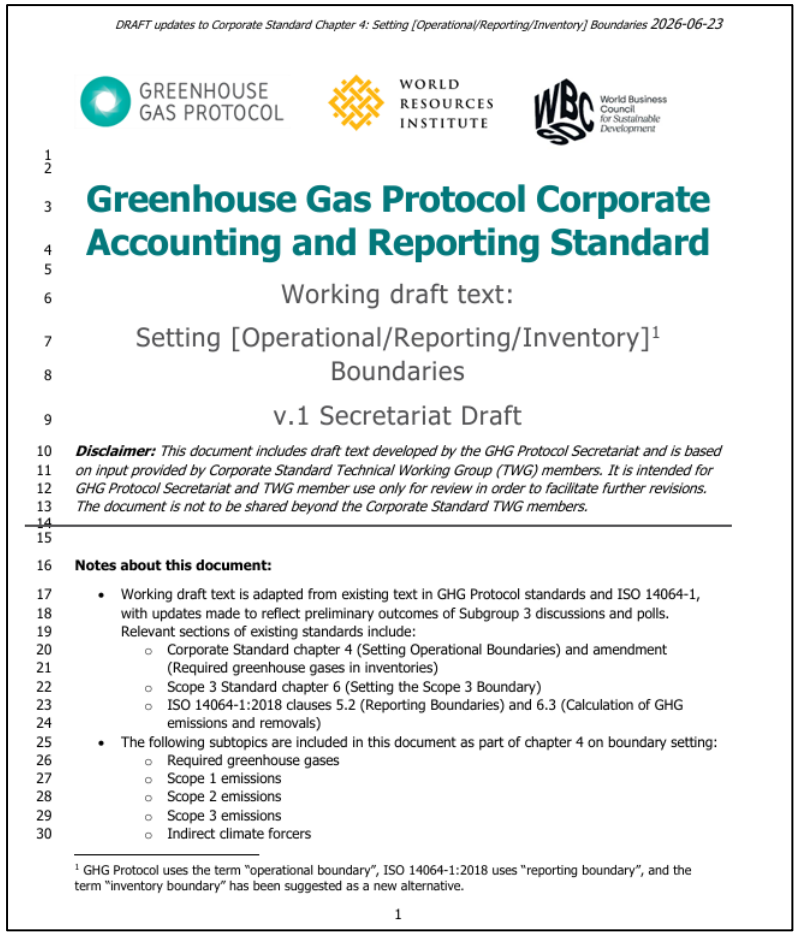
1

- Subgroup 1: GHG targets
- Subgroup 2: Verification and assurance

If time permits: Review preliminary outcomes on select Subgroup 1 and Subgroup 2 topics

2

Pre-read: Draft text on Setting Operational/Reporting/Inventory Boundaries



DRAFT updates to Corporate Standard Chapter 4: Setting [Operational/Reporting/Inventory] Boundaries 2026-06-23

GREENHOUSE GAS PROTOCOL · WORLD RESOURCES INSTITUTE · World Business Council for Sustainable Development

Greenhouse Gas Protocol Corporate Accounting and Reporting Standard

Working draft text:

Setting [Operational/Reporting/Inventory][1] Boundaries

v.1 Secretariat Draft

Disclaimer: *This document includes draft text developed by the GHG Protocol Secretariat and is based on input provided by Corporate Standard Technical Working Group (TWG) members. It is intended for GHG Protocol Secretariat and TWG member use only for review in order to facilitate further revisions. The document is not to be shared beyond the Corporate Standard TWG members.*

Notes about this document:

- Working draft text is adapted from existing text in GHG Protocol standards and ISO 14064-1, with updates made to reflect preliminary outcomes of Subgroup 3 discussions and polls. Relevant sections of existing standards include:
  - Corporate Standard chapter 4 (Setting Operational Boundaries) and amendment (Required greenhouse gases in inventories)
  - Scope 3 Standard chapter 6 (Setting the Scope 3 Boundary)
  - ISO 14064-1:2018 clauses 5.2 (Reporting Boundaries) and 6.3 (Calculation of GHG emissions and removals)
- The following subtopics are included in this document as part of chapter 4 on boundary setting:
  - Required greenhouse gases
  - Scope 1 emissions
  - Scope 2 emissions
  - Scope 3 emissions
  - Indirect climate forcers

[1] GHG Protocol uses the term "operational boundary", ISO 14064-1:2018 uses "reporting boundary", and the term "inventory boundary" has been suggested as a new alternative.

1

Pre-read: Subgroup 3 draft text

- Working draft text is **adapted from existing text in GHG Protocol standards and ISO 14064-1**, with updates to reflect preliminary outcomes of Subgroup 3. Relevant sections of existing standards include:
  - Corporate Standard chapter 4 (Setting Operational Boundaries) and amendment (Required greenhouse gases in inventories)
  - Scope 3 Standard chapter 6 (Setting the Scope 3 Boundary)
  - ISO 14064-1:2018 clauses 5.2 (Reporting Boundaries) and 6.3 (Calculation of GHG emissions and removals)
- The following subtopics* are included in this draft text on boundary setting:
  - Required greenhouse gases
  - Scope 1 emissions
  - Scope 2 emissions
  - Scope 3 emissions
  - Indirect climate forcers
  - Global warming potential (note: this topic is currently in Corporate Standard chapter 6 on "Identifying and Calculating GHG Emissions." Its final placement is TBD).
- **Feedback on draft text to be requested with meeting follow-up survey**

*Draft text includes Subgroup 3 Phase 1 topics (e.g., scope 3 requirement, justifiable exclusions)

Agenda

• Introduction and housekeeping	10 minutes
• **Scope 1 disaggregation (Subgroup 3)**	**20 minutes**
• Required GHGs (Subgroup 3)	10 minutes
• Global warming potential (Subgroup 3)	20 minutes
• Indirect climate forcers (Subgroup 3)	30 minutes
• GHG targets (Subgroup 1)	30 minutes
• Verification and assurance (Subgroup 2)	20 minutes
• Wrap up and next steps	10 minutes

GREENHOUSE GAS PROTOCOL

Scope 1 disaggregation: Key topics

- Scope 1 disaggregation by category
- Land emissions category
- Scope 1 disaggregation by subcategory
- Scope 1 biogenic CH4 and N2O

GHG Protocol context: Scope 1 reporting by activity type

Current requirements

Corporate Standard	**Required information:** • Report **TOTAL scope 1** emissions • Disaggregate scope 1 emissions by GHG **Optional information:** • *Emissions data **further subdivided,** where this aids transparency, by business units/facilities, country, **source types (stationary combustion, process, fugitive, etc.)**, and activity types (production of electricity, transportation, generation of purchased electricity that is sold to end users, etc.). –CS page 63*
Scope 3 Standard	**Required information:** • Companies are required to report emissions disaggregated **by scope 3 category**

Activity types

The Corporate Standard identifies the following types of activities that generate emissions:

- **Stationary combustion**
- **Mobile combustion**
- **Process emissions**
- **Fugitive emissions**

Note that these activity types are relevant for all scopes.

External programs

Total scope 1 required for most programs (IFRS S2, ESRS E1, GRI, SBTi)

ISO (14064-1:2018) **recommends scope 1 disaggregation** by the following example categories:

- Direct emissions from **stationary combustion**
- Direct emissions from **mobile combustion**
- Direct **process emissions** and removals from industrial processes
- Direct **fugitive emissions** from the release of GHGs in anthropogenic systems
- Direct emissions from **land** use, land use change and forestry (LULUCF)

Subgroup 3
Scope 1

Scope 1 disaggregation by category

Preliminary outcome

Require disaggregated reporting of scope 1 emissions

*The organization **shall** [report/disclose] the following information on its scope 1 emissions:*

- *Scope 1 emissions disaggregated by the following categories:*
  - *Stationary combustion*
  - *Mobile combustion*
  - *Process emissions*
  - *Fugitive emissions*
  - *Land emissions**

Rationale

- **Promotes transparency** of the scope 1 inventory
- Highlights opportunities for **decarbonization**
- Supports **users of the data** by allowing them to interpret emissions results
- **Alignment** with ISO 14064-1 and interoperability with other standards that require total scope 1

Level of support from Subgroup 3

Should companies be required to report scope 1 emissions disaggregated by activity type?

Meeting 13 (split opinions)

- **7 of 18: Shall**
- **9 of 18: Should**
- 2 of 18: May
- 0 of 18: Abstained

Meeting 14 (narrowed options)

- **11 of 18: Shall**
- 7 of 18: Should
- 0 of 18: Abstained

Implications and concerns

- **Feasibility concerns** for data management
- Some TWG members questioned whether the **decision-usefulness** of the information warranted the additional effort
- Other programs do not define scope 1 categories (e.g., IFRS S2, ESRS Eq)

For more information, see Subgroup 3 Meeting 13 and 14 minutes and slides
*Land emissions is a new category; see following slide

Subgroup 3
Scope 1

Scope 1 land emissions category

Preliminary outcome

Add "land emissions" category to scope 1

Land emissions = "The release of GHGs into the atmosphere from the land and biogenic products, including the sum of land use change GHG emissions, land management net biogenic CO_2 emissions, land management production GHG emissions, and biogenic product emissions" –*Land Sector and Removals (LSR) Standard*

Rationale

- **Alignment** with GHG Protocol Land Sector and Removals Standard and ISO 14064-1
- Recognizes important **source of emissions**
- **Promotes transparency** and **consistency** of the inventory
- Supports **users of the data** by allowing them to interpret emissions results

Level of support from Subgroup 3

Should the category "Land Emissions" be added to the activity types for scope 1 emissions?

- **15 of 18: Support** *(9 fully, 6 with edits)*
- 1 of 18: Opposed
- 2 of 18: Abstained

Implications and concerns

- Additional requirements in the LSR Standard are triggered when an organization has "significant" land emissions
- → Guidance will be needed for reporters with **non-significant land emissions**

For more information, see Subgroup 3 Meeting 13 and 14 minutes and slides

Subgroup 3
Scope 1

Scope 1 subcategories

Preliminary outcome

"May" statement on scope 1 subcategories (for orgs with non-significant land emissions)

*The organization **may** [report/disclose] the following information on its scope 1 emissions:*

- *Land emissions disaggregated by **subcategory** [as defined in the Land Sector and Removals Standard] [**and self-defined subcategories** for other scope 1 categories].*

Land emissions subcategories = Land use change, land management net biogenic CO2, land management production emissions, and biogenic product. *–LSR Standard*

Examples of fugitive emissions self-defined categories: Fugitive emissions from AC equipment, fire suppression equipment, purchase/release of industrial gases. *-EPA*

Rationale

- **Interoperability** with GHG Protocol Land Sector and Removals Standard
- **Promotes transparency** and **consistency** of the inventory
- Supports **users of the data** by allowing them to interpret emissions results
- **Feasibility** is supported with "may" statement

Level of support from Subgroup 3

Meeting 13: Land emissions subcategories (split opinions)

- 2 of 17: Shall
- 3 of 17: Should
- **9 of 17: May**
- 1 of 17: Stay silent
- 2 of 17: Abstain

Meeting 14: Do you support "may" (most supported outcome) for land emissions subcategories?

- **14 of 18: Support** (12 fully, 2 with edits)
- 0 of 18: Oppose
- 4 of 18: Abstain

Other self-defined subcategories not polled on

Implications and concerns

- Organizations with **significant land emissions** are required to follow the LSR Standard, which requires disaggregation by scope 1 land subcategories
- Guidance will be needed for reporters with **non-significant land emissions**

For more information, see Subgroup 3 Meeting 13 and 14 minutes and slides

Subgroup 3
Scope 1

Scope 1 biogenic CH4 and N2O – *for information only*

Preliminary outcome

With disaggregation of scope 1 emissions, guidance will be needed on how to categorize biogenic CH_4 and N_2O emissions

Two options:
1. Biogenic CH_4 and N_2O in land emissions category
2. Biogenic CH_4 and N_2O distributed across categories based on activity (e.g., biogas CH_4 in stationary emissions)

Level of support from Subgroup 3

Split opinions

Meeting 13
- 8 of 17: Option 1 (in land emissions)
- 5 of 17: Option 2 (distributed across categories)
- 4 of 17: Abstain

Meeting 14
- 8 of 17: Option 1 (in land emissions)
- 6 of 17: Option 2 (distributed across categories)
- 3 of 17: Abstain

Considerations

- Clear guidance would **promote consistency** across inventories
- Option 1 would be aligned with LSR Standard
- Option 2 would be aligned with ISO 14064-1:2018

Implications and concerns

- Biogenic product CO_2 is reported outside the inventory, so this topic is only relevant for biogenic CH_4 and N_2O
- This topic presents nuanced technical and interoperability considerations

- **Next step: Further discussion with LSR team**
- **No polling to be held on this topic today.**

For more information, see Subgroup 3 Meeting 13 and 14 minutes and slides

Scope 1 disaggregation: Polls

Do you support the following preliminary Subgroup 3 outcomes?

#	Preliminary outcome	Draft text	Options
1	**Require disaggregated reporting of scope 1 emissions**	*The organization **shall** [report/disclose] the following information on its scope 1 emissions:* • *Scope 1 emissions disaggregated by the following categories: Stationary combustion, Mobile combustion, Process emissions, Fugitive emissions, Land emissions*	A. Support B. Oppose C. Abstain
2	Add **"land emissions" category** to scope 1	**Land emissions =** "The release of GHGs into the atmosphere from the land and biogenic products, including the sum of land use change GHG emissions, land management net biogenic CO2 emissions, land management production GHG emissions, and biogenic product emissions." –LSR Standard	A. Support B. Oppose C. Abstain
3	**"May" statement on scope 1 subcategories**	*The organization **may** [report/disclose] the following information on its scope 1 emissions:* • *Land emissions disaggregated by **subcategory** [as defined in the Land Sector and Removals Standard] [**and self-defined subcategories** for other scope 1 categories].*	A. Fully support B. Support with minor edits C. Oppose D. Abstain

Agenda

• Introduction and housekeeping	10 minutes
• Scope 1 disaggregation (Subgroup 3)	20 minutes
• **Required GHGs (Subgroup 3)**	**10 minutes**
• Global warming potential (Subgroup 3)	20 minutes
• Indirect climate forcers (Subgroup 3)	30 minutes
• GHG targets (Subgroup 1)	30 minutes
• Verification and assurance (Subgroup 2)	20 minutes
• Wrap up and next steps	10 minutes

GREENHOUSE GAS PROTOCOL

Required GHGs: Key topics

- Required GHGs
- Other GHGs
- Separate reporting by GHG for scopes 1 and 2

Subgroup 3
Required GHGs

Required GHGs

Preliminary outcome

Require GHGs covered by UNFCCC – *status quo*

*The organization **shall** account for the emissions of all the GHGs required by the UNFCCC at the time the organization's inventory is being compiled. These GHGs are currently: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).*

Rationale

- **Balances completeness with feasibility** by requiring the most common GHGs
- **Promotes consistency** across inventories
- **Interoperability** with UNFCCC and other programs and standards

Level of support from Subgroup 3

Which GHGs should be required?

- **12 of 16: Require GHGs covered by UNFCCC** (status quo)
- 4 of 16: Define a specific list of GHGs beyond UNFCCC GHGs
- 0 of 16: Abstain

Implications and concerns

- Does not require **other GHGs** (e.g., CFCs and HCFCs covered by Montreal Protocol), which could be significant for some companies
- → **Recommendation** to report other GHGs separately (see following slide)

For more information, see Subgroup 3 Meeting 11 and 12 minutes and slides

Subgroup 3
Required GHGs

Other GHGs

Preliminary outcome

Recommend other GHGs, reported separately – *status quo*

*The organization **should** account for other GHGs identified by the IPCC including GHGs regulated by the Montreal Protocol on Substances that Deplete the Ozone Layer.*

*If other GHGs not covered by the UNFCCC are accounted for, the organization **shall separately report** the emissions from other GHGs.*

Level of support from Subgroup 3

Other GHGs
- **10 of 14: Recommend** (status quo)
- 3 of 14: Optional
- 0 of 14: Other
- 1 of 14: Abstain

Which other GHGs
- **10 of 14: All other GHGs** (status quo)
- 1 of 14: Montreal Protocol GHGs
- 2 of 14: Other
- 1 of 14: Abstain

Reporting
- **10 of 14: Separately** (status quo)
- 3 of 14: Within inventory
- 1 of 14: Abstain

Rationale

- Promotes **completeness** by continuing to recommend all other GHGs
- Maintains **consistency** across organizations through separate reporting of other GHGs
- **Interoperability** with other programs that are silent on other GHGs

Implications and concerns

- **Clear guidance** needed for separate reporting (for this and all separate reporting topics)

For more information, see Subgroup 3 Meeting 11 and 12 minutes and slides

Subgroup 3
Required GHGs

Separate reporting by GHG for scopes 1 and 2

Preliminary outcome

Require individual reporting by GHG for scopes 1 and 2 – *status quo*

*The organization **shall** [report/disclose] the following information on its **scope 1** emissions:*

- *Scope 1 emissions in [metric] tonnes of each GHG.*
- *Scope 1 emissions in [metric] tonnes of CO_2 equivalent.*

*The organization **shall** [report/disclose] the following information on its **scope 2** emissions:*

- *Scope 2 emissions in [metric] tonnes of each GHG.*
- *Scope 2 emissions in [metric] tonnes of CO_2 equivalent.*

Level of support from Subgroup 3

Should GHGs be required to be individually reported for **scope 1**?

- **15 of 16: Yes** – status quo
- 0 of 16: No
- 1 of 16: Abstain

Should GHGs be required to be individually reported for **scope 2**?

- **13 of 15: Yes** – status quo
- 1 of 15: No
- 1 of 15: Abstain

Rationale

- Promotes **transparency**
- Highlights opportunities for **decarbonization**
- **Aligned** with ISO 14064-1:2018 for scope 1 emissions
- **Interoperable** with programs that only require total GHGs in CO_2e (e.g., IFRS S2, ESRS E1)

Implications and concerns

- **Feasibility concerns** due to data management needs
- Other programs (e.g., IFRS S2) do not require emissions to be individually reported by GHG
- Note: Subgroup 3 had ***split opinions*** on separate reporting by GHG for scope 3, with the most support for NOT requiring it. **To be considered by Scope 3 TWG.**

For more information, see Subgroup 3 Meeting 11 minutes and slides

Required GHGs: Polls

Discussion

Polls

Do you support the following preliminary Subgroup 3 outcomes?

#	Preliminary outcome	Draft text	Options
1	**Require the GHGs covered by UNFCCC** (*status quo*)	*The organization **shall** account for the emissions of all the GHGs required by the UNFCCC at the time the organization's inventory is being compiled. These GHGs are currently: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).*	A. Support B. Oppose C. Abstain
2	**Recommendation for other GHGs, reported separately** *(status quo)*	*The organization **should** account for other GHGs identified by the IPCC including GHGs regulated by the Montreal Protocol on Substances that Deplete the Ozone Layer.* *If other GHGs not covered by the UNFCCC are accounted for, the organization **shall** separately report the emissions from other GHGs.*	A. Support B. Oppose C. Abstain
3	**Require individual reporting by GHG for scope 1 and scope 2** *(status quo)*	*The organization **shall** [report/disclose] the following information on its scope 1 emissions:* • *Scope 1 emissions in [metric] tonnes of each GHG.* • *Scope 1 emissions in [metric] tonnes of CO_2 equivalent.* {Same text for scope 2}	A. Support B. Oppose C. Abstain

Agenda

• Introduction and housekeeping	10 minutes
• Scope 1 disaggregation (Subgroup 3)	20 minutes
• Required GHGs (Subgroup 3)	10 minutes
• **Global warming potential (Subgroup 3)**	**20 minutes**
• Indirect climate forcers (Subgroup 3)	30 minutes
• GHG targets (Subgroup 1)	30 minutes
• Verification and assurance (Subgroup 2)	20 minutes
• Wrap up and next steps	10 minutes

GREENHOUSE GAS PROTOCOL

Required GHGs and GWP: Key topics

- 100-year GWP requirement
- 20-year GWP recommendation
- Other metrics (e.g., GTP, GWP*) option
- IPCC Assessment Report guidance

Global Warming Potential (GWP)

GWP = radiative forcing impact of one unit of a given GHG relative to one unit of CO_2 over a specific period of time

GHG	Atmospheric lifetime (years)	20-year GWP	100-year GWP	500-year GWP
CO_2	Multiple	1	1	1
CH_4 non-fossil*	11.8	**79.7**	**27.0**	7.2
CH_4 fossil*	11.2	**82.5**	**29.8**	10.0
N_2O	109	273	273	130

Time horizons published by IPCC

- **20-year**
- **50-year**
- **100-year**

The difference is more pronounced for shorter-lived GHGs (like methane)

20-year time horizon has been promoted because:

- Highlights the impact of **shorter-lived GHGs**
- Recognizes the **urgency** of climate action

Other metrics beyond GWP have been proposed, including:

- **GTP (Global Temperature change Potential)** = change in global mean surface *temperature* at a specific point in time in response to an emission pulse, *relative to* CO_2 –IPCC AR6 Chapter 7
- **GWP*** (pronounced GWP-star) = dynamic CO_2-equivalence metric designed to reflect short-lived climate pollutant emissions via changes in their emission rate –Lynch et al. 2020

Source: IPCC Sixth Assessment Report
** Subgroup 3 (meeting 13) indicated majority support for providing guidance in the on the use of fossil and non fossil methane GWP values. Draft text to be shared at later date.*

GWP: External programs – Summary

Name	100-year GWP	Latest IPCC GWP values	Other GWP time horizons and metrics	Notes
GHG Protocol Amendment	**Required**	**Recommended**	NA	NA
ISO (CCF) 14064-1:2018	**Required**	**Recommended**	• May be used but reported separately	NA
ISO (PCF) 14067:2018	**Required**	**Required**, if not otherwise stated and justified	• May be used but reported separately • Includes GTP	Notes that there is no scientific basis for choosing a 100-year time horizon
GRI *102 Climate Change 2025*	**Required**	**Required**	NA	NA
UNFCCC	**Required**	**IPCC Fifth Assessment Report**, or subsequent IPCC report		NA
IFRS S2	• Direct measurement: **Required** • Emission factors by GHG: **Required** • Aggregated (CO_2e) emission factors: **Not required**	• Direct measurement: **Required** • Emission factors by GHG: **Required** • Aggregated (CO_2e) emission factors: **Not required**	• Other metrics (including GTP) may be used	NA
ESRS E1	**Required**	**Required**	NA	Use of older GWPs must be justified

Note: California Health and Safety Code section 38532 does not appear to mention GWP

Subgroup 3
GWP

100-year GWP

Preliminary outcome

Require 100-year GWP (status quo)

*The organization **shall** use 100-year GWP values from the IPCC.*

Rationale

- Promotes **consistency** of the emissions results.
- **Aligned** with all relevant external programs, standards, and UNFCCC
- Supports **feasibility** since 100-year GWPs are widely available

Level of support from Subgroup 3

Should the 100-year GWP continue to be required?

- **15 of 16: Require 100-year GWP – status quo**
- 0 of 16: 100-year GWP should be reconsidered
- 1 of 16: Abstain

Implications and concerns

- Does not address **shorter term effects of GHGs** (see 20-year GWP recommendation on following slides)

For more information, see Subgroup 3 Meeting 12 minutes and slides

Decision-making criteria: 20-year Global Warming Potential

Note: All options are in addition to requiring the 100-year GWP

Criteria	A. **Require 20-year GWP** ("shall" statement)	B. **Recommend 20-year GWP** ("should" statement)	C. **Provide 20-year GWP as an option** ("may" statement)
Scientific integrity	**Pros**: Accounts for near-term effects of short-lived GHGs (e.g., CH4)	**Pros**: Accounts for near-term effects of short-lived GHGs (e.g., CH4)	**Cons**: Misses near-term effects of short-lived GHGs (e.g., CH4)
GHG accounting and reporting principles	**Pros**: Promotes relevance, transparency **Cons**: Could hinder consistency over time	**Pros**: Promotes relevance, transparency **Cons**: Could hinder consistency over time	**Pros**: Neutral **Cons**: Could hinder relevance, transparency
Support decision-making that drives ambitious global climate action	**Pros:** Encourages action that reduces short-term warming. Supports achievement of Global Methane Pledge.	**Pros:** Encourages action that reduces short-term warming. Supports achievement of Global Methane Pledge.	**Cons**: Disincentivizes actions that would reduce short-term warming but not long-term warming. Global Methane Pledge could be harder to achieve
Support programs based on GHG Protocol and uses of GHG data	**Pros**: Supports users of the data Interoperable with external programs.	**Pros**: Supports users of the data Interoperable with external programs.	**Pros**: Aligned with external programs **Cons**: Does not support users of the data
Feasibility to implement	**Cons**: Additional calculation step and reporting burden. May not be possible for aggregated scope 3 emission factors	**Cons**: Additional calculation step and reporting burden. Could be very challenging for aggregated scope 3 emission factors	**Pros**: Feasible for all companies

Majority support outcome proposed by Subgroup 3 members:
Recommend 20-year GWP for organizations with **significant methane emissions**

Subgroup 3
GWP

20-year GWP

Preliminary outcome

Recommend 20-year GWP for orgs with significant methane emissions

*If the organization has **significant methane emissions**, it **should** also use 20-year GWP values from the IPCC.*

*If 20-year GWP values are used, the organization **shall separately report** the emissions calculated with 20-year GWP values*

Significant = "When an estimated emission, removal, or other metric's value has a sufficiently large influence on a company's total inventory to be worthy of attention, considering their business goals and the intended uses of inventory data. This can be determined based on its magnitude relative to total emissions, removals, or other metrics in terms of the absolute level, the trend, or the uncertainty." – Land Sector and Removals Standard

Level of support from Subgroup 3*

- **11 of 18: Recommend for orgs with significant CH_4**
- 0 of 18: Recommend for all reporters
- 2 of 18: Recommend for specific reporters
- 5 of 18: Provide as an option
- 0 of 18: Abstain

94% support "significant" definition

Rationale

- Promotes **scientific integrity** by accounting for near-term effects of short-lived GHGs
- Supports **ambitious climate action** by encouraging action that reduces short-term warming
- Promotes **relevance** and **transparency**
- Manages **feasibility** with a recommendation for specific reporters

Implications and concerns

- **Interoperable** with other programs that have a "may" statement for other time horizons (e.g., ISO) or are silent on the topic (e.g., IFRS S2, ESRS E1)
- **Feasibility concerns**, especially for aggregated CO_2e emission factors for scope 3
- Identifying "significant methane emissions" **may create confusion**

For more information, see Subgroup 3 Meeting 12, 13, and 14 minutes and slides
**Final of multiple polls held on the topic of 20-year GWP*

Subgroup 3
GWP

Other metrics

Preliminary outcome

"May" statement for other metrics (e.g., GTP, GWP*)

*The organization **may** use **other metrics** such as Global Temperature Change Potential (GTP) and Global Warming Potential star (GWP*)*

If other metrics (e.g., GTP, GWP) are used, the organization **shall separately report** the emissions calculated with other metrics.*

Rationale

- Supports **accuracy** with alternative metrics
- **Aligned** with programs that have "may" statement on other metrics (e.g., IFRS S2, ISO 14067)
- Acknowledges **emerging research** on alternative metrics to GWP

Level of support from Subgroup 3

Split opinions at meeting 12

- 1 of 16: Require
- 3 of 16: Recommend
- **6 of 16: Provide as option**
- **6 of 16: Stay silent**
- 0 of 16: Abstain

Majority support at meeting 13

- **13 of 18: Provide as option**
- 5 of 18: Stay silent
- 0 of 18: Abstain

Implications and concerns

- **Feasibility concerns** addressed with "may" statement
- **Could create confusion** and reporting fatigue

For more information, see Subgroup 3 Meeting 12 and 13 minutes and slides

GWP: IPCC Assessment Reports

IPCC Global Warming Potential (GWP) values relative to CO_2

Common chemical name or industrial designation	Chemical formula	GWP values for 100-year time horizon		
		Fourth Assessment Report (AR4)	Fifth Assessment Report (AR5)	Sixth Assessment Report (AR6)
Major Greenhouse Gases				
Carbon dioxide	CO_2	1	1	1
Methane – non-fossil	CH_4	25	28	27.0
Methane – fossil	CH_4	N/A	30	29.8
Nitrous oxide	N_2O	298	265	273
Nitrogen trifluoride	NF_3	17,200	16,100	17,400
Sulfur hexafluoride	SF_6	22,800	23,500	24,300
Hydrofluorocarbons (includes unsaturated hydrofluorocarbons)*				
HFC-23	CHF_3	14,800	12,400	14,600
HFC-32	CH_2F_2	675	677	771
HFC-41	CH_3F	92	116	135
HFC-125	CHF_2CF_3	3,500	3,170	3,740
HFC-134	CHF_2CHF_2	1,100	1,120	1,260

Key changes across ARs:

Fluctuation in GWP values

- CH_4 changes by 12%
- N_2O changes by 11%

Disaggregation of CH_4 into **fossil and non-fossil** GWP

- Change made for AR5

Many **emission factor databases** continue to use past ARs for several years (e.g., UK DESNZ/DEFRA and EPA currently use AR5)

Source: IPCC GWP Values, compiled by GHGP

Subgroup 3
GWP

IPCC Assessment Report: Which report to use

Preliminary outcome

Recommend most recent IPCC Assessment Report (status quo)

*The organization **should** use GWP values from the **most recent IPCC Assessment Report**. [If not, justification **shall** be provided.]*

Rationale

- Promotes **accuracy** of the emissions results by recommending the most recent values
- Supports **feasibility** by acknowledging that many emission factor databases use outdated IPCC Assessment Reports
- **Aligned** with ISO 14064-1:2018 and interoperable with other programs

Level of support from Subgroup 3

Which IPCC Assessment Report (AR) should be used?

- **10 of 16: Should use most recent IPCC AR** – status quo
- 6 of 16: Shall use more recent IPCC AR
- 0 of 16: Abstain

Implications and concerns

- **Interoperable** with other programs that **require** GWP values from the most recent IPCC Assessment Report (e.g., ESRS E1, IFRS S2 except for aggregated CO_2e emission factors)

For more information, see Subgroup 3 Meeting 12 minutes and slides

IPCC Assessment Report: Specific topics

Topic	Preliminary outcome	Level of support	
Across the inventory	*The organization **shall** use GWPs from a single IPCC Assessment Report for any one inventory, where possible. (status quo)*	5 of 16: Shall **11 of 16: Shall, where possible** 0 of 16: Should 0 of 16: Abstain	
Base year*	*The organization **should** use the same GWPs for the current inventory period and for the **base year** [and other historical years reported] to maintain consistency across time and scopes.*	**Subgroup 3** ***Split opinions*** 7 of 16: Require 9 of 16: Recommend 0 of 16: Abstain	**Subgroup 1** **14 of 16: Support recommendation** 1 of 16: Oppose recommendation 1 of 16: Abstain
Aggregated CO_2e emission factors	*Aggregated CO_2-equivalent emission factors **should** use the same GWP values as the inventory.*	2 of 14: Shall **11 of 14: Should** 0 of 14: May 2 of 14: Abstain	
Reporting	*The organization **shall** [report/disclose] the following information on global warming potential values:* • *The source of the GWP values used.* • *Whether multiple IPCC Assessment Reports have been used.*	*Not applicable*	

For more information, see Subgroup 3 Meeting 12 minutes and slides
*Following split opinions in Subgroup 3, Subgroup 1 considered the topic of GWP values for the base year

Global warming potential: Polls

Discussion

Polls

Do you support the following preliminary Subgroup 3 outcomes?

#	Preliminary outcome	Draft text	Options
1	**Require 100-year GWP** *(status quo)*	*The organization **shall** use 100-year GWP values from the IPCC.*	A. Support B. Oppose C. Abstain
2	**Recommend 20-year GWP for organizations with significant methane emissions**	*If the organization has **significant methane emissions**, it **should** also use 20-year GWP values from the IPCC.* *If 20-year GWP values are used, the organization **shall separately report** the emissions calculated with 20-year GWP values*	A. Fully support B. Support with minor edits C. Oppose D. Abstain
3	**"May" statement for other metrics (e.g., GTP, GWP*)**	*The organization **may** use **other metrics** such as Global Temperature Change Potential (GTP) and Global Warming Potential star (GWP*)* *If other metrics (e.g., GTP, GWP*) are used, the organization **shall separately report** the emissions calculated with other metrics.*	A. Fully support B. Support with minor edits C. Oppose D. Abstain
4	**Recommend most recent IPCC Assessment Report** *(status quo)*	*The organization **should** use GWP values from the **most recent IPCC Assessment Report**. [If not, justification shall be provided.]*	A. Fully support B. Support with minor edits C. Oppose D. Abstain
5	**Other specific IPCC Assessment Report topics**	**Require** same AR across inventory, where possible *(status quo)* **Recommend** base year uses same AR as current year **Recommend** aggregated CO_2e EFs use same AR as inventory	A. Fully support B. Support with minor edits C. Oppose D. Abstain

Agenda

• Introduction and housekeeping	10 minutes
• Scope 1 disaggregation (Subgroup 3)	20 minutes
• Required GHGs (Subgroup 3)	10 minutes
• Global warming potential (Subgroup 3)	20 minutes
• **Indirect climate forcers (Subgroup 3)**	**30 minutes**
• GHG targets (Subgroup 1)	30 minutes
• Verification and assurance (Subgroup 2)	20 minutes
• Wrap up and next steps	10 minutes

GREENHOUSE GAS PROTOCOL

Indirect climate forcers: Key topics

- Aviation radiative forcing multiplier/index: Whether to use
- Aviation radiative forcing multiplier/index: Disclosure and separate reporting
- Other indirect climate forcers

Scope of work and background on indirect climate forcers

Scope of work: F.6. Accounting for indirect climate forcers including radiative forcing in aviation.

What are indirect climate forcers?

Gases and phenomena that are not themselves GHGs but have an impact on the climate, such as:

- Precursors to GHGs (e.g., NOx)
- Precursors to gases that have a climate cooling effect, such as through reflectivity

Examples of indirect climate forcers	Definition and climate effect	GWP-20	GWP-100	Effect
Contrails from aviation	Condensation trails that form behind aircraft cruising at altitude; absorb solar radiation	2.32	0.63	
Black carbon	Soot; particulate matter from incomplete combustion; absorbs solar radiation	4288	1166	
Nitrogen oxides	By-product of combustion that reacts to form ozone, which is a GHG	619	114	
Sulfur dioxide	Emitted from combustion; forms sulfate aerosols, which cause cooling through reflectivity	-832	-226	
Volatile organic compounds	Precursor to ground-level ozone. Sources vary, including fossil fuel combustion and household products.	*	*	
Albedo	Reflectivity, which causes cooling	*	*	

Source: GWPs from Lee et al. 2021 in aviation context; calculated from IPCC effective radiative forcing
*Not provided in Lee et al. 2021

Aviation and radiative forcing

GHG emissions

- CO_2 and N_2O emitted from combustion of jet fuel*

Contrails

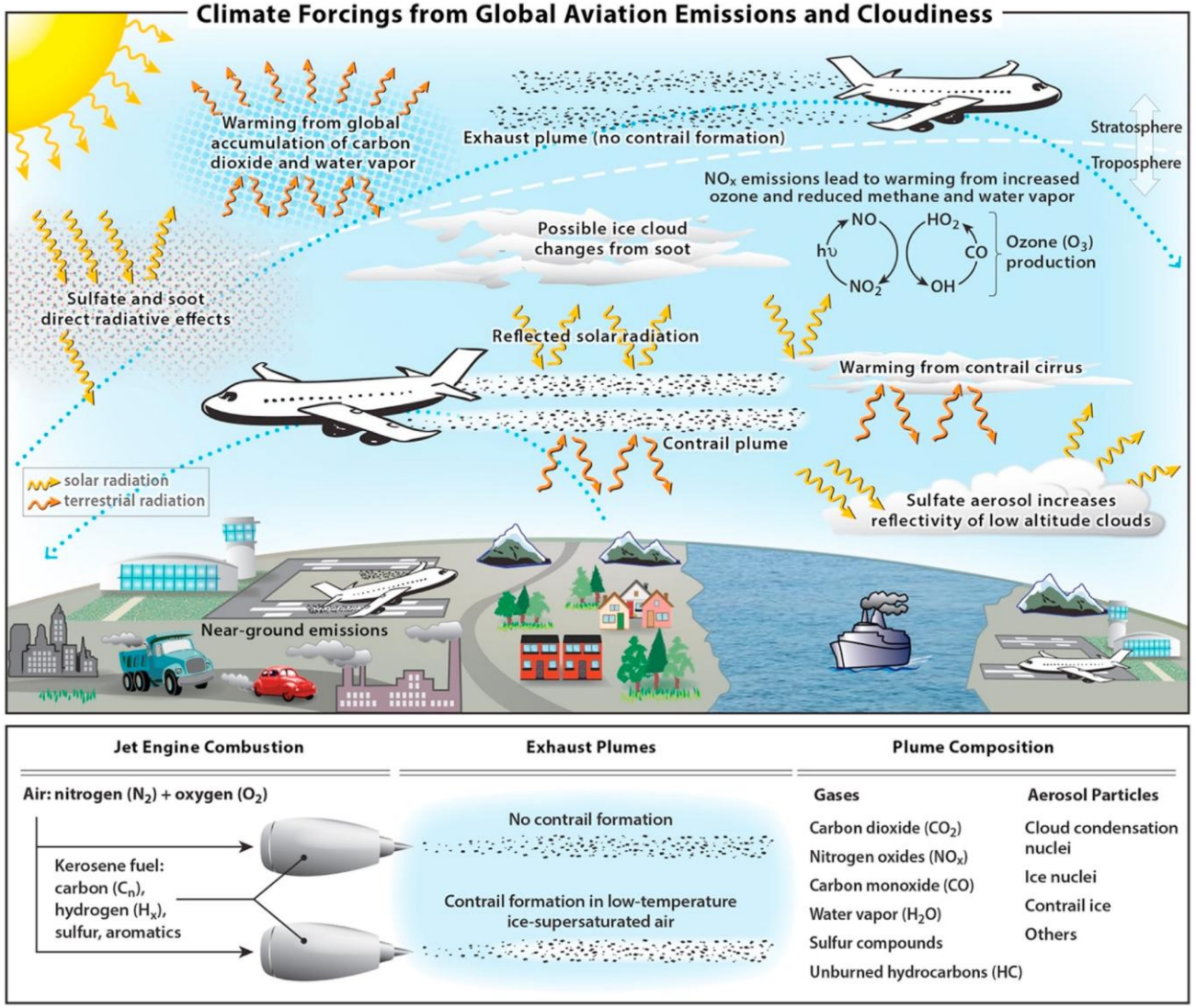
- Condensation trails that form behind aircraft cruising at altitude.
- Whether contrails form depends on climate conditions (e.g., temperature, humidity) and the aircraft itself (e.g., engine efficiency)
- Because of the many variables, estimating the warming effect from contrails is highly uncertain

Nitrogen oxide emissions

- Pre-cursor to ozone (GHG), but also cooling effects from methane reduction

Aerosols

- Warming from black carbon / soot and cooling from SO_2



Source: Lee et al. 2021

*"*Aviation: Methane (CH4) may be emitted by gas turbines during idle and by older technology engines, but recent data suggest that little or no CH4 is emitted by modern engines.*" –IPCC 2006 Guidelines for National GHG Inventories

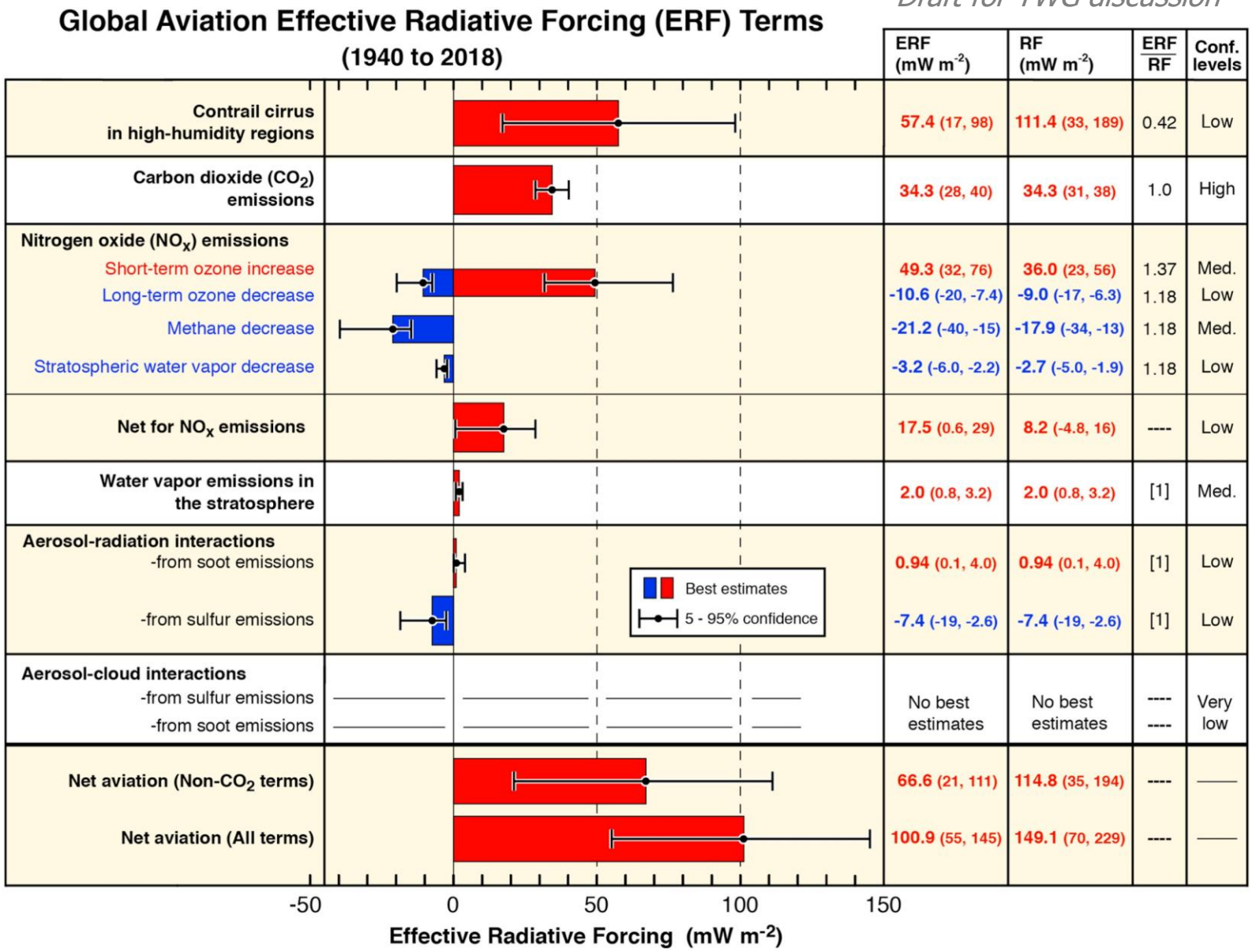
Draft for TWG discussion

Aviation and radiative forcing: Uncertainty

- Aviation does have additional radiative forcing beyond CO_2 emissions
- However, there is **high uncertainty** associated with the estimates
- Lee et al. (2021) report high confidence for estimates of CO_2 emissions, but low to medium confidence for all other key drivers of aviation radiative forcing

Revised draft GHG Protocol guidance on accuracy and conservativeness:

*"**Accuracy** should be pursued as far as possible, but once uncertainty can no longer be practically reduced, **conservative estimates** should be used."*



	ERF (mW m^{-2})	RF (mW m^{-2})	ERF/RF	Conf. levels
Contrail cirrus in high-humidity regions	57.4 (17, 98)	111.4 (33, 189)	0.42	Low
Carbon dioxide (CO_2) emissions	34.3 (28, 40)	34.3 (31, 38)	1.0	High
Nitrogen oxide (NO_x) emissions				
Short-term ozone increase	49.3 (32, 76)	36.0 (23, 56)	1.37	Med.
Long-term ozone decrease	-10.6 (-20, -7.4)	-9.0 (-17, -6.3)	1.18	Low
Methane decrease	-21.2 (-40, -15)	-17.9 (-34, -13)	1.18	Med.
Stratospheric water vapor decrease	-3.2 (-6.0, -2.2)	-2.7 (-5.0, -1.9)	1.18	Low
Net for NO_x emissions	17.5 (0.6, 29)	8.2 (-4.8, 16)	----	Low
Water vapor emissions in the stratosphere	2.0 (0.8, 3.2)	2.0 (0.8, 3.2)	[1]	Med.
Aerosol-radiation interactions				
-from soot emissions	0.94 (0.1, 4.0)	0.94 (0.1, 4.0)	[1]	Low
-from sulfur emissions	-7.4 (-19, -2.6)	-7.4 (-19, -2.6)	[1]	Low
Aerosol-cloud interactions				
-from sulfur emissions	No best estimates	No best estimates	----	Very low
-from soot emissions			----	
Net aviation (Non-CO_2 terms)	66.6 (21, 111)	114.8 (35, 194)	----	——
Net aviation (All terms)	100.9 (55, 145)	149.1 (70, 229)	----	——

Source: Lee et al. 2021

Aviation and radiative forcing

Radiative forcing index / multiplier

- **Radiative Forcing Index (RFI) = *"the ratio of total radiative forcing to that from CO2 emissions alone.*** *Total radiative forcing induced by aircraft is the sum of all forcings, including direct emissions (e.g., CO2, soot) and indirect atmospheric responses (e.g., CH4, O3, sulfate, contrails)."* –IPCC 1999
- RFI are **used inconsistently** in emission factors (e.g., UK DESNZ offers EFs with and without RFI) and GHG inventory preparation
- RFI **multipliers vary**:

Radiative forcing index	Source
1.7	Lee et al 2021 Used by DESNZ
1.9	Sausen et al. 2005
2.0	Lee et al. 2009
2.7 (2.2 – 3.4 for all scenarios analyzed)	IPCC 1999

Calculation of UK DESNZ's radiative forcing factor

Effective radiative forcing term	CO2-eq (TG CO2/yr) for 2018, using 100-year GWP
CO2	1034
Contrail cirrus (Tg CO2 basis)	652
Net NOx	163
Soot emissions	11
SO2 emissions	-84
Water vapor emissions	23
Total CO2-eq / CO2	**1.7**

All values are summed and divided by the CO2 GWP to calculate the radiative forcing value of 1.7

Source: UK DESNZ 2025 methodology paper and Lee et al. 2021

GHG Protocol context: Indirect climate forcers

Corporate Standard

Corporate Standard does not comment directly on any indirect climate forcers.

Optional information:

- *Emissions from GHGs not covered by the UNFCCC/Kyoto Protocol (e.g., CFC, NO_X) reported separately from the scopes.*
- *A list of any optional GHGs included in an inventory shall be reported.*

- GHG Protocol Amendment on Required GHGs

Scope 3 Technical Guidance

Scope 3 Technical Guidance notes that multipliers for radiative forcing are optional:

- *Note: For air travel emission factors, multipliers or other corrections to account for radiative forcing **may be applied** to the GWP of emissions arising from aircraft transport.*
- *If applied, companies **should disclose** the specific factor used.*

- Scope 3 Technical Guidance for categories 4, 6, and 7

Scope 3 Standard does not comment directly on other indirect climate forcers.

Indirect climate forcers: External programs

Other standards

Standard	Aviation radiative forcing	Other indirect climate forcers
ISO **14064-1:2018** **Corporate carbon footprint**	**No requirements**; only reference to aviation radiative forcing is in a note: • *NOTE Aircraft GHG emissions under certain circumstances in high altitudes have additional climate impacts as a result of physical and chemical reactions with the atmosphere. For more information on GHG emissions from aircraft, see IPCC guidelines.*	No reference to other indirect climate forcers
ISO **14067:2018** **Product carbon footprint**	• *Aircraft transportation GHG emissions shall be included in the CFP [carbon footprint of a product] and documented separately in the CFP study report.* • *Where an **aviation multiplier** is used, the **effect of this multiplier shall not be included in the CFP and shall be reported separately** together with the source.*	• *Note 3 on GHG definition: The focus of this document is limited to long-lived GHGs and it therefore **excludes climate effects due to changes in surface reflectivity (albedo) and short-lived radiative forcing agents (e.g. black carbon and aerosols).***

SBTi
CNZS v1.0
Aviation Pathway
	• Aviation indirect radiative forcing **specifically excluded** from target setting
	• *"The impact of aviation non-CO_2 factors on warming is **acknowledged but not included** in quantitative target setting due to scientific uncertainty and lack of mitigation solutions"*
	• *"Nonetheless, the SBTi recognizes that aviation **non-CO_2 induced Effective Radiative Forcing will likely need to be addressed** to deliver the ultimate goal of limiting warming to well-below 2°C"*
	• Disclosure requirements:
	  • *Aviation target formulation and communication must explicitly **state that targets are exclusive of non-CO_2 factors***
	  • *Targets must include a footnote stating that non-CO_2 factors which may also contribute to aviation-induced warming are not included in this target and **whether the company has publicly reported or commits to publicly report its non-CO2 impacts**.*
		No reference to other indirect climate forcers

Note: GRI 102 Climate Change 2025 does not appear to have any reference to indirect climate forcers

Indirect climate forcers: External programs
Climate disclosure rules and other programs

Draft for TWG discussion

	Name	Aviation radiative forcing	Other indirect climate forcers
IFRS	**IFRS S2**	No reference to aviation radiative forcing	No reference to other indirect climate forcers
	ESRS E1 Climate Change Nov 2025 draft	No reference to aviation radiative forcing	*ESRS E2 Pollution addresses ozone-depleting substances (ODS), nitrogen oxides (NOx) and sulphur oxides (SOx), among other air emissions, that are connected to climate change*
	ESRS E2 Pollution Nov 2025 draft	No reference to aviation radiative forcing	• *The sustainability statement shall include information in relation to **ESRS E2 Pollution** if this topic relates to **material impacts, risks and opportunities** to cover all the reporting areas listed in paragraph 5 of **ESRS 1 General Requirements**.* • *14. (28(a) amended) The undertaking **shall disclose the amounts of material emissions of pollutants** to air, water and soil from its own operations, including due to environmental accidents, in the reporting period.* • Entity **reports material pollutants**, including those "*…listed in Annex II of Regulation (EC) No 166/2006 (E-PRTR), Regulation (EU) 2024/1244 (IEPR)…, together with other pollutants that the undertaking measures or monitors.* • Examples of pollutants: NOx, SOx, total N, total P, heavy metals, pesticides
ipcc	**IPCC**	• **Defines Radiative Forcing Index** (RFI) and provides first estimate (2.7) • Uncertainty and need for more analysis noted - Special Report on Aviation (1999) Note: Guidelines for national inventories do not have specifications on non-CO2 aviation radiative forcing	• Short-lived climate forcers include aerosols (e.g., sulphate, nitrate) and chemically reactive gases (e.g., CH4, ozone, NOx) • Provides latest understanding of climate forcing effects (cooling and warming) - IPCC AR 6, chapter 6: Short-lived climate forcers
	ICAO CORSIA*	Focus is on CO2 emissions. No mention of multipliers.	*Not applicable*
CLEVER	**CLEVER**	Draft transport emissions methodology in Europe Includes optional high altitude aviation emissions	Draft transport emissions methodology in Europe Includes optional indirect climate forcers (e.g., black carbon)

Note: The following do not mention other indirect climate forcers: CDP and California Health and Safety Code section 38532
**ICAO CORSIA = International Civil Aviation Organization Carbon Offsetting and Reduction Scheme for International Aviation*

Decision-making criteria: Aviation radiative forcing (RF) multiplier/index

*Note: All options assume **separate reporting***

Criteria	**A. Require** aviation RFI ("shall" statement)	**B. Recommend** aviation RFI ("should" statement)	**C. Provide as an option** ("may" statement)	**D. Stay silent** on aviation RFI
Scientific integrity				
GHG accounting and reporting principles	**Pros**: Promotes completeness, relevance, conservativeness **Cons**: Uncertainty of RF factors poses accuracy challenges	**Pros**: Promotes completeness, relevance, conservativeness **Cons**: Uncertainty of RF factors poses accuracy challenges Consistency across orgs	**Pros**: Somewhat promotes completeness, relevance, conservativeness **Cons**: Uncertainty of RF factors poses accuracy challenges Consistency across orgs	**Cons**: Hinders completeness and relevance
Support decision-making that drives ambitious global climate action	**Pros:** Supports decision-making by requiring reporting of significant warming source	**Pros:** Somewhat supports decision-making by recommending reporting of significant warming source	**Pros**: Somewhat supports decision-making by acknowledging a significant warming source	**Cons**: Does not acknowledge significant warming source
Support programs based on GHG Protocol and uses of GHG data	**Pros**: Supports users of the data Interoperable with external programs (mostly silent)	**Pros**: Supports users of the data Interoperable with external programs (mostly silent)	**Pros**: Aligned with some programs (ISO 14067), and interoperable with others **Cons**: Does not support users of the data	**Pros**: Aligned with most programs, which are silent (ISO 14064-1, IFRS S2, ESRS E1) **Cons**: Does not support users of the data
Feasibility to implement	**Cons**: Additional calculation step and reporting burden	**Cons**: Additional calculation step and reporting burden, made more feasible as recommendation	**Pros**: Additional calculation step and reporting burden, made feasible as recommendation	**Pros**: Feasible for all companies

Subgroup 3
Indirect climate forcers

Aviation radiative forcing multiplier/index: Whether to use

Preliminary outcome

Split opinions on aviation radiative forcing multiplier/index

*The organization **[shall/should/may]** use an aviation radiative forcing [multiplier/index] when calculating emissions arising from aircraft transport [to account for non-CO_2 climate effects from aviation such as water vapor, NOx, and contrails].*

Key pros and cons

- **Pros**: Promotes **completeness** and **conservativeness**: *"Accuracy should be pursued as far as possible, but once uncertainty can no longer be practically reduced, conservative estimates should be used."*
- **Cons:** Uncertainty of aviation radiative forcing multiplier/index

Level of support from Subgroup 3

Should companies use an aviation radiative forcing multiplier/index?

Meeting 13

- 3 of 17: Shall
- **6 of 17: Should**
- **6 of 17: May – *status quo in S3 Technical guidance***
- 1 of 17: Stay silent
- 1 of 17: Abstain

Meeting 14

- 3 of 17: Shall
- **5 of 17: Should**
- **6 of 17: May – *status quo in S3 Technical guidance***
- 2 of 17: Stay silent
- 1 of 17: Abstain

Discussion

Which of the following **narrowed options** do you support?

1. All organizations **should** use aviation radiative forcing index/multiplier
2. Organizations with **significant aviation emissions should** use aviation radiative forcing index/multiplier*
3. All organizations **may** use aviation radiative forcing index/multiplier

For more information, see Subgroup 3 Meeting 13 and 14 minutes and slides
**New option suggested by Subgroup 3 members. "Significant" to be defined the same as in the LSR Standard.*

Subgroup 3
Indirect climate forcers

Aviation radiative forcing multiplier/index: Disclosure and separate reporting

Preliminary outcome

Disclosure requirement and separate reporting requirement for aviation radiative forcing multiplier/index

*The organization **shall** [report/disclose] the following information on indirect climate forcers: Whether an aviation radiative forcing [multiplier/index] was used, and if so, the specific factor used.*

*If an aviation radiative forcing [multiplier/index] is applied, the organization **shall** separately report the [additional aviation emissions/non-GHG aviation emissions]*

Rationale

- Promotes **transparency** with required disclosure
- Promotes **consistency** with separate reporting requirement
- **Interoperable** with other programs that require separate reporting (e.g., ISO 14067, SBTi)
- **Separate reporting** aligned with requirement to report other GHGs (and non-GHGs) separately

Level of support from Subgroup 3

Disclosure requirement

- **16 of 17: Support** (14 fully, 2 with edits)
- 0 of 17: Opposed
- 1 of 17: Abstain

Separate reporting

- **12 of 16: Separate reporting**
- 3 of 16: Within the inventory
- 0 of 16: Abstain

Implications and concerns

- **Separate reporting could obscure** the full warming effects of aviation
- **Complexity introduced** with separate reporting

For more information, see Subgroup 3 Meeting 13 and 14 minutes and slides

Subgroup 3
Indirect climate forcers

Other indirect climate forcers

Preliminary outcome

"May" statement on other indirect climate forcers (e.g., black carbon) with separate reporting

*The organization **may** also account for other indirect climate forcers [(e.g., black carbon)].*

*If other indirect climate forcers are accounted for, they **shall** be separately reported.*

Rationale

- **Balances completeness** (by acknowledging indirect climate forcers) with **uncertainty** and **feasibility** (e.g., GWP availability)
- **Interoperable** with programs, which are mostly silent
- **Separate reporting** aligned with requirement to report other GHGs (and non-GHGs) separately

Level of support from Subgroup 3

Should companies separately report the emissions of other indirect climate forcers?

Meeting 13

- 1 of 17: Shall
- 4 of 17: Should
- **9 of 17: May (53%)**
- 3 of 17: Stay silent – status quo
- 0 of 17: Abstain

Do you agree with a "may" statement for other indirect climate forcers?

Meeting 13

- **13 of 16: Fully support**
- **3 of 16: Yes, with edits**
- 0 of 16: No
- 0 of 16: Abstain

Implications and concerns

- **Limited availability** for emission factors and especially GWPs for indirect climate forcers

For more information, see Subgroup 3 Meeting 13 and 14 minutes and slides

Indirect climate forcers: Polls

Discussion

Polls

#	Question	Draft text	Options
1	**Should companies use an aviation radiative forcing multiplier/index?**	*The organization **[should/with significant aviation emissions should/may]** use an aviation radiative forcing [multiplier/index] when calculating emissions arising from aircraft transport [to account for non-CO_2 climate effects from aviation such as water vapor, NOx, and contrails].*	A. Should B. Organizations with significant aviation emissions should C. May D. Abstain
2	**Do you support the disclosure requirement and separate reporting requirement for the aviation radiative forcing multiplier/index?**	*The organization **shall** [report/disclose] the following information on indirect climate forcers: Whether an aviation radiative forcing [multiplier/index] was used, and if so, the specific factor used.* *If an aviation radiative forcing [multiplier/index] is applied, the organization **shall** separately report the [additional aviation emissions/non-GHG aviation emissions]*	A. Fully support B. Support with minor edits C. Oppose D. Abstain
3	**Do you support providing indirect climate forcers as optional separate reporting?**	*The organization **may** also account for other indirect climate forcers [(e.g., black carbon)].* *If other indirect climate forcers are accounted for, they **shall** be separately reported.*	A. Fully support B. Support with minor edits C. Oppose D. Abstain

Agenda

• Introduction and housekeeping	10 minutes
• Scope 1 disaggregation (Subgroup 3)	20 minutes
• Required GHGs (Subgroup 3)	10 minutes
• Global warming potential (Subgroup 3)	20 minutes
• Indirect climate forcers (Subgroup 3)	30 minutes
• **GHG targets (Subgroup 1)**	**30 minutes**
• Verification and assurance (Subgroup 2)	20 minutes
• Wrap up and next steps	10 minutes

GREENHOUSE GAS PROTOCOL

Subgroup 1 Phase 2: Status update

Topics considered

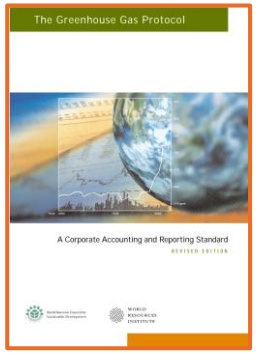
- **Topics reviewed (at least in part) by full TWG:***
  - Base year selection
  - Base year recalculation policy and significance thresholds
  - Reporting requirements/emissions profile over time
- **Topics not yet reviewed by full TWG:**
  - Options for when data's unavailable for base year recalculation
  - Timing of base year recalculation for structural changes
  - GHG targets
  - GHG intensity metrics

Next steps

- **Full TWG meeting on August 4 (Subgroup 1 focus)**
  - Address pending items related to topics already reviewed along with topics not yet reviewed
  - The topic of intensity metrics may be introduced at the next TWG meeting on July 16th
- **Working draft text under review**
  - Includes requirements ('shall' statements) and key provisions ('should' and 'may' statements)
  - Secretariat draft under review/revision by Subgroup 1, updated working draft to be shared with full TWG ahead of August 4th meeting
- **For today's meeting: Introduce GHG targets**

*Subgroup 1 phase 2 topics were discussed during meeting 3 (slides, minutes) and meeting 5 (slides, minutes) of the full TWG.

GHG Targets: Current specifications in GHG Standards



Corporate Standard: Targets *optional*

- Chapter 11 provides guidance on GHG targets but does not specify any requirements or recommendations that companies set targets.
- "*Often, a corporate GHG emission reduction target is the logical follow-up to developing a GHG inventory.*" (Chapter 11, p.74)
- "*Effective GHG management involves setting a GHG target.*" (Chapter 11, p.75)

Scope 3 Standard: Targets *optional*

- "*Companies are **not required** to set a scope 3 reduction target, but **should consider** setting a target in the context of their business goals.*" (Chapter 9, p.100)
- "*Companies **may** set a variety of scope 3 reduction goals including: [list of options for a single/separate targets across emissions scopes and categories]*" (Chapter 9, p.100)

Land Sector and Removals Standard: Targets ***recommended*

- "*Companies **should** set targets for all relevant accounting categories in this Standard*" (Chapter 17, p.97)
- Chapter 17 provides conditional requirements/recommendations applicable if companies choose to set targets.

GHG targets: specifications from relevant accounting/disclosure standards

- **ISO 14064-1:2018** specifies GHG targets as **optional**:
  - 7.3 GHG emission reduction or removal enhancement targets: *"The organization **may** set targets to reduce GHG emissions"*
  - 7.3 also specifies **required disclosure information** *if* an organization reports a target and **criteria that should be considered** for target setting
- Relevant **reporting/disclosure standards** considered do ***not*** provide specifications on GHG targets, but **require the disclosure of information** related to targets:
  - **IFRS S2 Climate-related Disclosures**, ¶33: *"An entity shall disclose the quantitative and qualitative climate-related targets it has set … including any greenhouse gas emissions targets".*
  - **ESRS E1 Climate Change Draft November 2025**, E1-6, ¶23 (34 amended) "*The undertaking shall disclose the GHG emission reduction targets it has set…"*
  - **GRI 102 Climate Change 2025**, 102-4-a: *"The organization shall report short-, medium- and long-term gross Scope 1, Scope 2, and Scope 3 GHG emissions reduction targets…".*

Key message: *Relevant GHG accounting/reporting and climate disclosure standards **do not require the setting of GHG targets**, but **do require disclosures** related to targets.*

Note: SBTi is not included here, but will be considered later in the meeting when reviewing more detailed provisions related to GHG targets.

GHG Protocol decision-making criteria analysis (DRAFT): What provisions should the Corporate Standard provide on the setting of GHG targets?

Criterion	Require targets ('*shall*')	Recommend targets ('*should*')	Specify targets as optional ('*may*')	Make no specification (i.e., be silent) on targets
Scientific integrity	N/A	N/A	N/A	N/A
GHG accounting and reporting principles	N/A	N/A	N/A	N/A
Support decision-making that drives ambitious global climate action	Promotes corporate targets as tool for facilitating ambitious global climate action (potentially to a greater degree that just defining a recommendation).	Promotes target setting as a best practice for facilitating ambitious global climate action.	References targets as tool for corporate climate action, but does not promote/ encourage targets to the same extent as a recommendation would.	Does not promote ambitious global climate action.
Support programs based on GHG Protocol and uses of GHG data	GHG Protocol is not a target setting standard; requiring targets will necessitate establishing specific requirements on targets, which may lead to conflicts with program requirements and inhibit interoperability.	Helps promote participation in target setting programs. May necessitate specific requirements/ recommendations on targets, with some potential of inhibiting interoperability.	Highlights targets as a use case for GHG inventory data, without posing interoperability risks.	No interoperability risks. Does not promote target setting as a use case or encourage participation in target setting programs.
Feasibility to implement	Requirement on topic that goes beyond accounting and reporting, significant implementation challenges may be anticipated.	Recommendation on topic that goes beyond accounting and reporting, some implementation challenges may be anticipated.	Status quo in Corporate Standard, no feasibility challenges anticipated.	No feasibility challenges anticipated.

Key message: *Specifying targets as a recommendation ('should') or as ('optional') are the most viable options, with no major downsides.*

Subgroup 1
GHG Targets

Setting GHG targets

Preliminary outcome

Recommend that organizations set GHG targets.

Example text: *The organization **should** set targets to reduce GHG emissions [in the context of GHG inventory objectives].*

Level of support from Subgroup 1

What general specification should the Corporate Standard provide on the setting of GHG targets?

Meeting 12 poll results:
- Requirement: 1 of 18
- **Recommendation: 8 of 18**
- **Optional: 9 of 18**
- No specification: 0 of 18
- Abstain: 0 of 18

Split opinions

Meeting 13 poll results:
- **Recommendation: 11 of 18**
- Optional: 7 of 18
- Abstain: 0 of 18

Majority support (61%) for a recommendation.

Rationale

- Promotes **best practice**.
- A **key purpose** of developing a GHG inventory is to inform forward-looking targets, driving **climate action**.
- A recommendation provides **flexibility** to organizations of varying levels of maturity.

Implications and concerns

- Continued **alignment pending** with ISO 14064-1, which specifies targets as optional ('may' statement).
- Concerns from opposing members that GHG Protocol is **not a target setting body**.

For more information, see Subgroup 1 Meeting 12, 13, and 14 minutes and slides.

Subgroup 1
GHG Targets

Reporting on GHG targets

Preliminary outcome

Require *that organizations* ***report*** *information on GHG targets.*

Example text: *If the organization chooses to set GHG target(s), it* ***shall*** *[disclose/report] the following information for each target: [Target boundary, target base year, target completion year, type of target, progress in reaching the target]*

Rationale

- Provides **useful information** to investors and other stakeholders.

Level of support from Subgroup 1

Meeting 13 poll results:
What overall approach should the Corporate Standard take to specifying reporting provisions on GHG targets?

- **Requirement: 9 of 18**
- Recommendation: 6 of 18
- Optional: 2 of 18
- No specification: 0 of 18
- Abstain: 1 of 18

Split opinions, but with the most support for a requirement.

Meeting 14 poll results:
Do you support a requirement to report information ('shall' statement) on GHG targets?

- **Support: 17 of 18**
- Oppose: 1 of 18
- Abstain: 0 of 18

Majority support (94%) for a requirement.

Implications and concerns

- Concerns that requiring reporting of information on GHG targets may **pose risks** to companies in the current market.

For more information, see Subgroup 1 Meeting 12, 13, and 14 minutes and slides.

GHG targets: discussion and polls

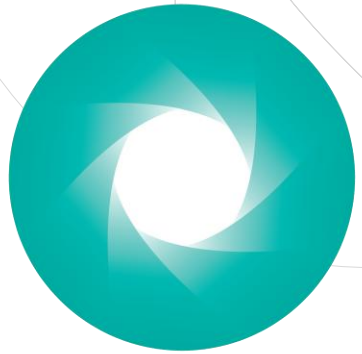
Discussion

Polls

#	Question	Options
1	**Do you support the following preliminary Subgroup 1 outcome?** ***Recommend*** *that organizations set GHG targets.* ***Example text:*** *The organization* ***should*** *set targets to reduce GHG emissions [in the context of GHG inventory objectives].*	A. Fully support B. Support with minor edits C. Oppose D. Abstain
2	**Do you support the following preliminary Subgroup 1 outcome?** ***Require*** *that organizations* ***report*** *information on GHG targets.* ***Example text:*** *If the organization chooses to set GHG target(s), it* ***shall*** *[disclose/report] the following information for each target: [Target boundary, target base year, target completion year, type of target, progress in reaching the target]*	A. Fully support B. Support with minor edits C. Oppose D. Abstain

Agenda

• Introduction and housekeeping	10 minutes
• Scope 1 disaggregation (Subgroup 3)	20 minutes
• Required GHGs (Subgroup 3)	10 minutes
• Global warming potential (Subgroup 3)	20 minutes
• Indirect climate forcers (Subgroup 3)	30 minutes
• GHG targets (Subgroup 1)	30 minutes
• **Verification and assurance (Subgroup 2)**	**20 minutes**
• Wrap up and next steps	10 minutes



GREENHOUSE GAS PROTOCOL

Verification and assurance: Current GHG Protocol provisions/guidance

Standard	**Corporate Standard** *(Chapter 10)*	**Scope 3 Standard** *(Chapter 10)*	**Land Sector and Removals Standard** *(Chapter 19)*
Term used	Verification*	Assurance**	Assurance***
Verification/ Assurance coverage	Guidance only	Guidance only	Limited assurance **recommendation**
Reporting requirement	Optional/Recommended (when applicable)	Optional/Recommended (when applicable)	Required
Other recommend-ations	**Conditional recommendations** for companies choosing to obtain verification	**Conditional recommendations** for companies choosing to obtain assurance	**Recommendations** and **options** for **GHG regulations and programs**
Guidance	Types of verification *(internal and external)*, materiality concept, verification process *(preparation, timing, selecting a verifier)*	Types of assurance (first-party vs. third party) levels of assurance (limited and reasonable), assurance concepts and process, assurance statement	*V2 publication planned for Q2 2026*

*__Verification__: An objective assessment of the accuracy and completeness of reported GHG information and the conformity of this information to pre-established GHG accounting and reporting principles.
**__Assurance__: The level of confidence that the inventory is complete, accurate, consistent, transparent, relevant, and without material misstatements.
*** LSR Standard uses a similar definition for the assurance process as the Scope 3 Standard definition

Cell indicates a deviation from other GHG Protocol standards

Verification and Assurance: Requirements/guidance of external programs

Program	Verification and assurance requirements/guidance
IFRS S1 & S2	Silent *However, adopting jurisdictions can set assurance requirements based on their objectives*
ISO 14064-1 2018	Verification is **optional** (may statement): Left to the discretion of the user *The reporter is **required** to follow 14064-3 for verification principles and requirements **if** it chooses to obtain verification.*
EU CSRD (ESRS disclosures)	**Limited assurance is required** for all emissions *Original text included transition to "reasonable assurance requirement" over time, which is now removed* *The European Commission plans to issue targeted sustainability assurance guidelines by 2026*
CARB SB 253	**Limited assurance is required** for scope 1 and 2 emissions (starting in 2027) *Assurance requirements are slated for 2030.* *Proposed standards until then: AA1000ASv3, AICPA, ISSA 5000 (ISAE 3000 & ISA 3410 until it is in force), ISO 14064-3:2019*
SBTi CNZS-C7 (v2) ***new***	**Assurance** (*limited* assurance at a minimum) is ***required*** for Category A companies for scope 1, 2 and scope 3 emissions and ***strongly encouraged*** for Category B companies *Refers to a new SBTi Assurance Model for SBTi-recognized independent third-party assurance providers (when available)*

- **Accounting/reporting standards are** typically **silent or** provide verification/assurance as **an option** (e.g., IFRS and ISO)
- **Regulatory programs and target setting standards** set their own requirements (e.g., EU CSRD, SBTi)

Verification and assurance: Initial Decision-making criteria analysis

Criterion	Verification/assurance as requirement (shall statement)	Verification/assurance as recommendation (should statement)	Verification/assurance as an option (may statement)	Be silent on verification and assurance
Scientific integrity	N/A	N/A	N/A	N/A
GHG accounting and reporting principles	N/A	N/A	N/A	N/A
Support decision-making that drives ambitious global climate action	**Pro: Strongly promotes** informed decision-making	**Pro: Promotes** informed decision-making based on more credible data	**Pro: Raises awareness to promote** informed decision-making based on more credible data	**Con: No additional support** to facilitate informed decision-making based on more credible data
Support programs based on GHG Protocol and uses of GHG data	**Pro:** Promotes **interoperability** with external programs requiring V/A; provides **confidence** to the user of GHG data **Con: Significant challenge** to GHGP's **policy neutral positioning**;	**Pro:** Promotes **interoperability** with external programs by allowing them to set their requirements in line with their objectives while encouraging the reporter to **build confidence** in the disclosed GHG data through V/A as best practice **Con: Potential challenge** to GHGP's **policy neutral** positioning	**Pro: Does not stay silent** on V/A and raises awareness on next steps while providing **flexibility to external programs** to set their requirements and recommendations, and maintaining policy neutral positioning	**Pro**: Promotes GHGP's policy neutral positioning, giving programs referencing GHGP full flexibility to weigh in; **Avoids any conflicting requirement or guidance** with external reporting and V/A standards **Con**: Does not raise awareness on building confidence for the user of GHG data
Feasibility to implement	**Con:** Significant **feasibility challenges** for voluntary reporters especially with the current direction to require scope 3 reporting; **creates confusion** in the absence of specific V/A requirements	**Pro: Prevents** significant **feasibility challenges** by providing **flexibility** to the user to obtain V/A as best practice (**LSR Standard Status quo**) **Con**: Could **create confusion** in the absence of specific V/A requirements	**Pro**: **Avoids feasibility challenges** (Closest to the **Corporate Standard status quo**)	**Pro:** Does **not pose any feasibility challenges** by leaving the consideration and decision completely to the reporter

V/A: Verification/assurance

Subgroup 2

Verification and assurance

Preliminary outcome

Corporate Standard should **be silent** on **verification and assurance**.

Level of support from Subgroup 2

How should verification and assurance topic be addressed in the Corporate Standard?

Meeting 13 poll results:

- Requirement: 0 of 20
- **Recommendation: 6 of 20**
- **Optional: 5 of 20**
- **Be silent: 9 of 20**
- Abstain: 0 of 20

***Split opinions**, but most support for providing guidance*

Meeting 14 poll results:

- Provide guidance [should or may]: 7 of 19
- **Be silent: 12 of 19**
- Abstain: 0 of 19

***Majority support** (63%) for being silent*

Rationale

- The topic extends **beyond GHG accounting and reporting**.
- Verification and assurance provisions **should be determined by regulators** and other programs, **not by GHG Protocol**.
- If addressed, it could be provided as **separate guidance outside** the Corporate Suite of Standards.

Implications and concerns

- Does **not promote** provision of **more credible data**
- Does **not support** reporters by promoting verification and assurance as best practice or as option especially **less-experienced, voluntary or first-time reporters**
- **Not consistent** with GHG Protocol's **longstanding treatment** of the topic
- Does **not address stakeholder requests** for further clarity and guidance on the topic

For more information, see Subgroup 2 Meeting 13 and 14 minutes and slides

Discussion & Poll: Verification and assurance

Group Discussions

Poll question

Do you support the preliminary Subgroup 2 outcome?

Be silent on verification and assurance in the Corporate Standard

- **Support** being silent on verification and assurance
- **Oppose** being silent on verification and assurance
- Abstain

Agenda

• Introduction and housekeeping	10 minutes
• Scope 1 disaggregation (Subgroup 3)	20 minutes
• Required GHGs (Subgroup 3)	10 minutes
• Global warming potential (Subgroup 3)	20 minutes
• Indirect climate forcers (Subgroup 3)	30 minutes
• GHG targets (Subgroup 1)	30 minutes
• Verification and assurance (Subgroup 2)	20 minutes
• **Wrap up and next steps**	**10 minutes**

GREENHOUSE GAS PROTOCOL

Next steps

Items to be shared by GHG Protocol Secretariat:

- Final slides, minutes, and recording from this meeting
- Feedback survey

TWG member action items:

- Respond to feedback survey (deadline TBC)
- Feedback on draft text on setting operational/reporting/ inventory boundaries
- Volunteers for ad hoc Corporate Standard text editing group

Next meeting

Thursday, July 16th

- Focus on **Subgroup 2 topics**
- Option 1: 08:00-10:30 ET, 14:00-16:30 CET, 20:00-22:30 CHN
- Option 2: 16:00-18:30 ET, 22:00-00:30 CET, 04:00-06:30 CHN Wed July 17

GREENHOUSE GAS PROTOCOL

Thank you!

Iain Hunt, iain.hunt@wri.org

Hande Baybar, baybar@wbcsd.org

Allison (Alley) Leach, allison.leach@wri.org

Appendix A

Supplemental slides on Subgroup 3 topics

GREENHOUSE GAS PROTOCOL

F. Data/calculation methodology (Subgroup 3, Phase 2)

Relevant chapters: chapter 6 (Identifying and Calculating GHG Emissions), chapter 7 (Managing Inventory Quality), and chapter 9 (Reporting GHG Emissions)

F.1. Updates to address **data quality and uncertainty** to consider:

- Data quality requirements and additional guidance related to the use of proxies or estimates.
- A data quality hierarchy.
- Additional disclosure requirements related to data quality and uncertainty.
- Additional guidance on developing uncertainty estimates.

F.2. Additional **guidance on calculation methods** and their applicability and consider providing a hierarchy of calculation methods.

F.3. Guidelines for **selecting appropriate emission factors** and disclosure requirements for emission factor sources.

F.4. Expanded **disclosure requirements** related to data sources, significant assumptions, descriptions of methodologies used, and disaggregating emissions obtained using different data collection and calculation methods (e.g., primary versus secondary data).

F. Data/calculation methodology, continued (Subgroup 3, Phase 2)

F.5. Updates to current requirements in the *Corporate Standard* on **required GHGs and global warming potential (GWP) values**:

- Integration and update of 2013 amendment on required GHGs into *Corporate Standard*.
- Revisit which GHGs companies are required to report on, considering GHGs not governed by the United Nations Framework Convention on Climate Change (UNFCCC).
- Revisit requirement for companies to report emissions from each required GHG individually.
- Clarification regarding which Intergovernmental Panel on Climate Change (IPCC) Assessment Report (AR) should be used for GWP values.
- Revisit the 100-year GWP as the only required metric and consider additionally a 20-year GWP, particularly for short-lived GHGs such as methane.

F.6. Accounting for **indirect climate forcers including radiative forcing in aviation**.

Appendix B

Supplemental slides on Subgroup 1 topics

GREENHOUSE GAS PROTOCOL

Subgroup 1, Phase 2: Tracking emissions over time

Relevant chapters: chapter 5 (Tracking Emissions Over Time), chapter 8 (Accounting for GHG Reductions), chapter 11 (Setting GHG targets)

D.1. Updates to requirements and guidance for **selecting a base year**.

D.2. Updates to requirements and guidance for developing a **base year recalculation policy** and defining a **significance threshold** and related disclosure requirements.

D.3. Revisit **optionality of reporting emissions for all years included in a GHG statement** in addition to the base year to enable tracking of an emissions profile over time.

D.4. Integration and update of **2005 amendment** "Base Year Recalculation Methodologies for Structural Changes" (Appendix E).

D.5. Additional **guidance for estimating base year emissions** for acquired assets where records of emissions activities are limited or non-existent.

D.6. Revisit **reporting requirements for base year recalculation** including whether changes due to structural changes versus methodological changes should be reported separately.

D.7. Requirements and guidance for **tracking emissions intensity metrics over time**.

D.8. Additional guidance on how to appropriately disclose the **reason(s) for changes in emissions over time**.

D.9. Updates to **target-setting guidance** to bring up to date and facilitate interoperability with target setting programs (including SBTi).

Appendix C

Supplemental slides on Subgroup 2 topic: Verification and assurance

GREENHOUSE GAS PROTOCOL

E. Verifications/assurance (Subgroup 2, Phase 2)

Relevant chapters: chapter 7 (Managing Inventory Quality) and chapter 10 (Verification of GHG Emissions)

E.1. Consider introducing a **verification or assurance requirement** to the *Corporate Standard* (based on criteria such as scope coverage, level of assurance, frequency and phase-in period, and differentiation by company size or sector).

E.2. Consider whether a **verification/assurance standard or guidance document for assurers** should be developed by the GHG Protocol.

E.3. **Additional clarifications** in chapter 10 of the *Corporate Standard* including:

- Clearer distinctions between verification and assurance.
- More detailed descriptions of what different levels of assurance (e.g., limited assurance, reasonable assurance) entail and related procedures performed by assurance provider.
- Clarity regarding the concept of materiality and materiality thresholds.
- How and when historical data should be reassured when there are structural and methodological changes.

E.4. Additional **guidance related to data credibility and internal controls** to help companies prepare for assurance.

E.5. Consider **reference to verification or assurance standards** in use that have been developed since the last revision of the *Corporate Standard.*

E.6. Guidance related to **qualifications for third-party** verification or assurance **providers**.