



Carbon Removals and Land Sector Initiative

Project Overview

Updated April 2020

1. Project Overview

The Greenhouse Gas Protocol (GHG Protocol) is a multi-stakeholder partnership of businesses, non-governmental organizations (NGOs), governments, and others convened by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). Launched in 1998, the mission of the GHG Protocol is to develop internationally accepted greenhouse gas (GHG) accounting and reporting standards and tools, and to promote their adoption in order to achieve a low emissions economy worldwide.

The Greenhouse Gas Protocol is launching a process to develop new standards and guidance on how companies account for and report the following activities in their greenhouse gas inventories:

- Carbon removals and storage
- Land use
- Land use change
- Bioenergy
- Related topics

The project will develop internationally accepted standards or guidance on corporate GHG accounting on the above topics. New standards or guidance are expected to be used by companies to:

- **Inform mitigation strategies** by understanding the GHG emissions/removals impacts of land use, land use change, bioenergy and carbon removal activities
- **Set targets and track performance** by including the above activities in GHG targets
- **Report** GHG inventories including GHG emissions and carbon removals and report progress toward GHG mitigation goals

The new standards/guidance will be designed to create more consistency and transparency in the way companies quantify and report GHG emissions and removals from land use, land use change, bioenergy and carbon removal technologies and track progress toward GHG mitigation goals, following a credible approach. The guidance will be developed through an inclusive, multi-stakeholder process and will build on existing methods and approaches.

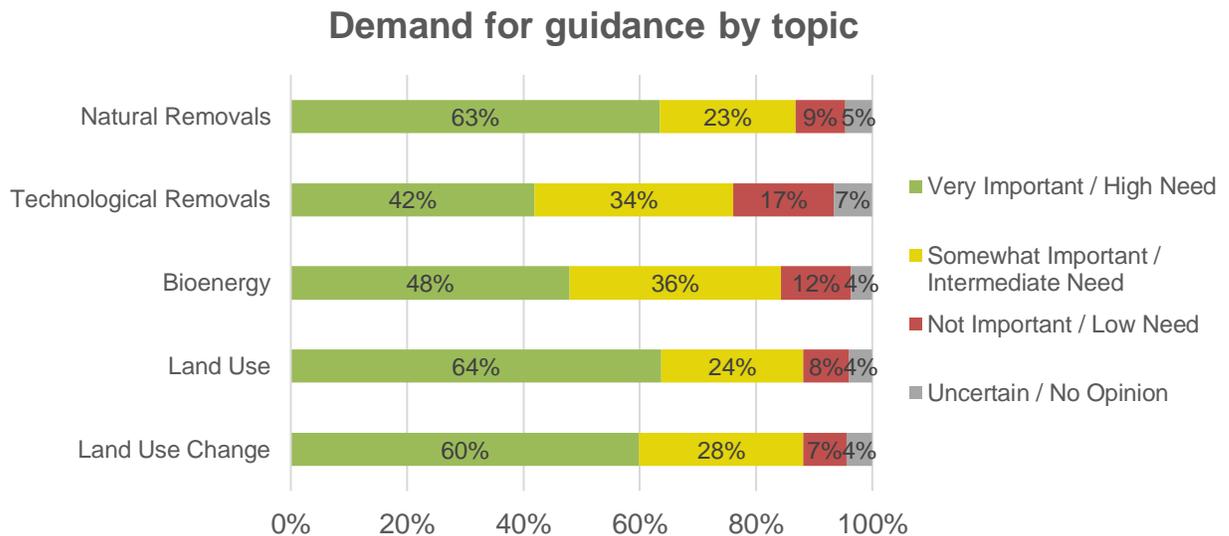
The new standards/guidance are also likely to be adopted by key programs and initiatives such as the Science Based Targets Initiative.

2. Summary of Survey Findings

In early 2019 WRI developed a survey to assess the demand for additional Greenhouse Gas Protocol guidance on carbon removals (natural and technological), bioenergy, land use and land use change. The survey was distributed online and ran from January to April 2019. A total of 417 individuals responded to the survey from businesses, governments, NGOs, academic/research institutions and consultants across over 50 countries.

Key Findings

1) There was strong demand across survey respondents for guidance in all areas identified

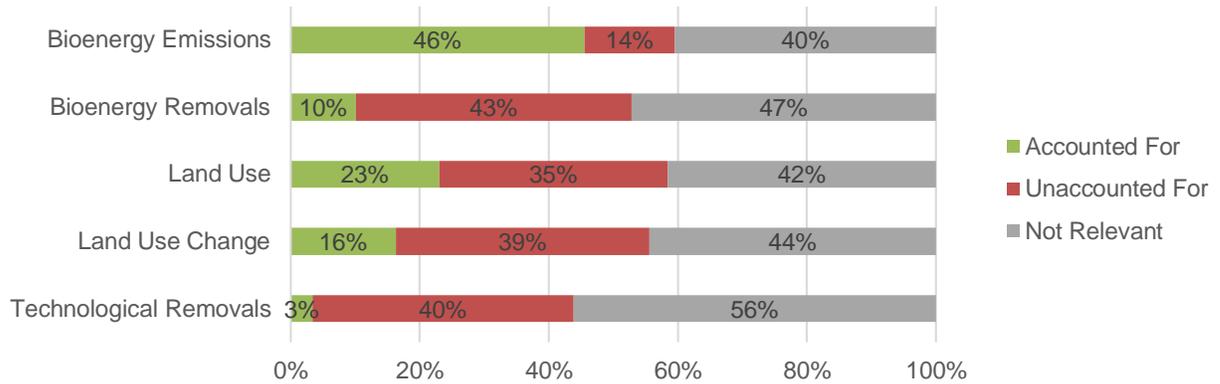


More than three quarters of survey respondents identified new guidance on each topic as being important (either very important or somewhat important):

- Natural carbon removals (86%)
- Technological carbon removals (76%)
- Bioenergy (84%)
- Land use (88%)
- Land use change (88%)

2) Few companies currently account for land sector emissions and removals, even when relevant

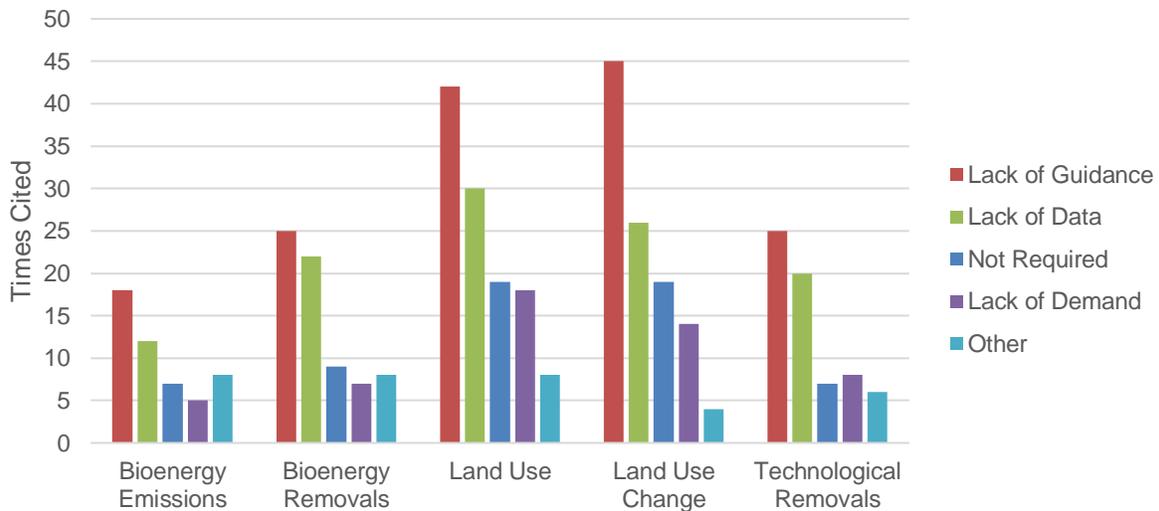
Share of respondents with GHG inventories accounting for each activity



Emissions and removals from bioenergy, land use and land use change are relevant for more than half of respondents with GHG inventories (n=178), yet few companies account for bioenergy removals, land use and land use change. Very few companies are currently accounting for technological removals (e.g., carbon capture and storage) but 76% of stakeholders still identified a need for new guidance in this area.

3) Lack of guidance was the most common reason respondents cited for why they were not accounting for activities, where such activities were relevant

Reasons cited for not accounting for a category



3. Scope

GHG Protocol is developing three new standards/guidance:

1) Carbon Removals Standard/Guidance

- Corporate-level guidance on accounting and reporting for greenhouse gas removals and storage
- Applicability: Cross-sectoral

2) Land Sector Guidance

- Corporate-level guidance on accounting and reporting for greenhouse gas emissions and carbon removals from agriculture, forestry, other land use, and land use change
- Applicability: Sector-specific

3) Bioenergy Guidance

- Corporate-level guidance on accounting and reporting for greenhouse gas emissions and carbon removals from the production and consumption of bioenergy
- Applicability: Companies that produce or consume bioenergy

4. Draft List of Topics to Address

Carbon Removals Standard/Guidance

- Defining terms and concepts
 - Carbon removals (from the atmosphere) vs. carbon storage in pools/reservoirs (i.e. carbon sequestration)
 - Carbon removal enhancements vs. avoided emissions or reduced emissions
 - Carbon removals occurring in the company's value chain vs. carbon removals occurring outside of the value chain
- Types of carbon removals and sequestration
 - Biogenic carbon removals and storage (e.g., afforestation, reforestation, forest restoration, urban tree planting, agroforestry, building soil carbon, etc.)
 - Technological carbon removals and storage (e.g., carbon capture and storage, direct air capture, enhanced weathering/mineralization, etc.)
- Accounting methods for removals and sequestration across scopes 1 and 3
 - Carbon removals or carbon fluxes from the atmosphere vs. monitoring storage in pools
 - Accounting for removals and storage over time
 - Allocating removals across companies and scopes
 - Accounting for biogenic and technological removals that do not store carbon and will be emitted back to the atmosphere (i.e. carbon removal and utilization)
 - Accounting for biogenic and technological removals with temporary or long-term storage, including monitoring and verification
- Quantification methods and data sources
 - Identification of relevant tools, methodologies/protocols, datasets, etc.
- Reporting

- Separate reporting of emissions and removals vs. reporting net GHG impacts
- How to report removals across the value chain (e.g., whether to establish scope 1 removals and scope 3 removals)
- Separate reporting of removals vs. carbon storage
- Separate reporting of carbon removals outside of the scopes (i.e., purchased from/sold to other companies, or interventions with impacts outside the value chain)
- Target setting and tracking changes over time
 - Setting targets that cover removals
 - Setting a base year and recalculating base year removals and storage
 - Setting separate targets for emissions and removals
 - Role of removals in achieving net zero targets
 - Tracking removal enhancements within an inventory
 - Mitigation strategies/actions to enhance removals
- Alignment with or revisions to other GHG Protocol standards

Land Sector Guidance

- Types of emissions, removals and sequestration within the land sector
 - Carbon emissions and removals from land use (e.g., forest management, crop and livestock production, bioenergy feedstock production, soil carbon, etc.)
 - Carbon emissions and removals from land use change (e.g., deforestation, afforestation, wetland conversion, etc.)
 - Direct and indirect land use change and related impacts from changes in production
 - Agricultural GHG emissions (e.g., livestock methane emissions, soil nitrous oxide emissions, etc.)
 - Biogenic removals and temporary to long-term storage in biogenic products/materials (e.g., furniture, building materials, etc.)
 - Biogenic carbon dioxide emissions and removals from bioenergy production and consumption (e.g., biomass, biofuels, biogas)
- Land sector accounting approaches
 - Use of land-based vs. activity-based accounting methods
 - Addressing the timing of removals and emissions
 - Separate biogenic carbon emissions and removals accounting vs. bringing biogenic emissions and removals into scopes 1, 2 and 3
 - Guidance by scope
 - Scope 1 accounting (e.g., for farmers, ranchers, timber/forest management companies, bioenergy feedstock producers, land managers/owners, etc.)
 - Scope 2 accounting (e.g., for bioenergy-sourced electricity consumption)
 - Scope 3 accounting (e.g., for food and beverage companies, forest product companies, apparel companies, retailers, finance/investors, etc.)
 - Guidance by sub-sector

- Forest management / forest products
 - Cropland management / crops
 - Rangeland management / animal products
 - Bioenergy feedstock production / bioenergy (aligning bioenergy accounting approaches with land sector accounting approaches)
- Quantification methods and data sources
 - Methods across carbon pools (i.e., biomass carbon, dead organic carbon, soil organic carbon, carbon storage in biogenic products/materials)
 - Use of primary (monitored) data vs. secondary (estimated) data and modeling approaches
 - Data collection based on the company's location within the value chain (e.g., land managers, processors and retailers)
 - Data approaches depending on whether there is data traceability
 - Estimating and managing uncertainty in data, methods and models
- Reporting requirements for the land sector
 - Reporting emissions and removals across scopes (i.e., scope 1, 2 and 3)
 - Separate reporting of fossil versus biogenic carbon
 - Whether and how to report avoided emissions (e.g., in a bioenergy life cycle)
 - How to report purchases or sales of credits/certificates
- Target setting and tracking changes over time
 - Setting targets that cover land sector activities
 - Setting a base year and recalculating base year emissions and removals
 - Identifying land sector mitigation strategies and interventions
 - Role of bioenergy and land use removals in achieving GHG targets
- Alignment with or revisions to other GHG Protocol standards and guidance
 - Agriculture Guidance (e.g., livestock emissions, emissions from manure management, soil emissions, biomass burning), Corporate Standard, Scope 3 Standard, Scope 2 Guidance, Product Standard
- Relationship of corporate land sector accounting to other programs and initiatives
 - Jurisdictional accounting initiatives (i.e., national GHG inventories, REDD+ programs)
 - Project-based accounting initiatives (i.e., Agriculture Forestry and Other Land Use (AFOLU) sector offset/inset projects, C removal certificates)
 - Sustainability certification (i.e., sustainable agriculture, green gas certificates, apparel and forestry standards)

Bioenergy Guidance

- Detailed guidance for bioenergy producers and consumers that aligns with the Land Sector Guidance
- Direct / scope 1 GHG accounting for bioenergy consumers
 - Accounting for direct biogenic emissions from bioenergy combustion
- Indirect / scope 2 GHG accounting for electricity consumers

- Accounting for indirect biogenic emissions associated with purchased electricity, heat, steam or cooling
- Indirect / scope 3 accounting for bioenergy producers and consumers
 - Accounting for upstream life cycle GHG emissions and biogenic carbon removals for bioenergy consumers
 - Accounting for downstream life cycle GHG emissions for bioenergy producers
 - Accounting for bioenergy carbon capture and storage across the value chain
- Use of certificates/credits and certification standards
 - Sustainability standards for bioenergy feedstocks
 - Bioenergy certificates/credits
- Evaluating mitigation impacts to inform mitigation strategies
 - Comparing bioenergy GHG impacts relative to counterfactual scenarios (e.g. other energy resources)
- Target setting and tracking progress
 - Accounting for bioenergy in GHG emissions and removals targets
- Reporting
 - Reporting emissions and removals across scopes (i.e., scope 1, 2 and 3)
 - Separate or combined reporting of fossil versus biogenic carbon
 - Whether and how to report avoided emissions (e.g., in a bioenergy life cycle)
 - How to report purchases or sales of credits/certificates

5. Approach

Key elements of the Greenhouse Gas Protocol approach include:

- **Develop standards/guidance through a global, inclusive, multi-stakeholder process** in partnership with companies, government agencies, NGOs, and other experts and stakeholders from around the world. GHG Protocol has twenty years of experience convening global stakeholders to develop consensus GHG accounting methodologies. The GHG Protocol will follow the same type of global, inclusive, and open multi-stakeholder process used to develop the *GHG Protocol Corporate Standard* (2004), the *GHG Protocol for Project Accounting* (2005), the *Corporate Value Chain (Scope 3) Standard* (2011), and the *Product Life Cycle Standard* (2011).
- **Build on existing approaches**, such as the IPCC guidelines for national GHG inventories, GHG Protocol *Agricultural Guidance* and *LULUCF Guidance for Project Accounting*, ISO 14064-1:2018, Quantis' *Accounting for Natural Climate Solutions* guidance, Gold Standard Value Change Initiative's *Value Chain (Scope 3) Intervention Guidance* and *Guidance for Soil Organic Carbon*, GHG Protocol Brazil Forestry tool, REDD+ programs and other jurisdiction land sector approaches, CDM and voluntary AFOLU sector project methodologies and other methods and reports recommended by participants in the scoping process.
- **Pilot test draft standards/guidance** by a set of companies to gain real-world feedback on the practicality and usefulness of draft standards/guidance and ensure that the final standards/guidance are well-suited to their needs.

- **Ensure rigorous and user-friendly technical design** to ensure a true and fair account of emissions, removals and sequestration and provide comprehensive guidance for land sector accounting aligned with international best practices. The standards/guidance will be based on key GHG accounting principles (relevance, accuracy, completeness, consistency, and transparency).

6. Governance Process

WRI and WBCSD will convene a series of stakeholder groups as part of the global, inclusive, multi-stakeholder standard/guidance development process. The stakeholder groups will be balanced by including participation from diverse geographies and include a range of government, business, and civil society participants. All outputs will be subject to comprehensive review by any interested stakeholders.

The governance process to oversee and develop the new standards/guidance will consist of five groups:

- Secretariat
- Advisory Committee
- Technical Working Group(s)
- Review Group
- Pilot Testing Group

Summary of responsibilities and expected commitment of each stakeholder group

| Group | Responsibilities | Commitment |
|------------------------------------|----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Secretariat (WRI and WBCSD) | Convene, facilitate, and oversee process | The Secretariat will consist of 4 FTE staff dedicated to this initiative |
| Advisory committee | Provide strategic guidance on the goals and direction of the project | Participate in 1 in-person meeting per year and 2-3 conference calls per year |
| Technical working group(s) | Develop the technical content of the standards/guidance | Participate in biweekly conference calls between approximately January 2020 and July 2020 (unless fewer calls are necessary); with possibility of 1 in-person meeting per year; and the necessary time to prepare and review materials (approx. 5-10 hours per month) |
| Review group | Review and provide feedback on draft standards/guidance as they are produced through the working group process | At the discretion of the participant, review and provide written comments on draft standards/guidance twice during the process (once in 2020 and once in 2021) |
| Pilot testing group | Implement the draft standards/guidance and provide feedback for their improvement | Implement the draft standards/guidance over 6 months in early 2021. Provide feedback on the strengths and weaknesses of the draft standards/guidance. Generate case studies to be included in the final publication(s). |

Advisory Committee Members

(as of April 2020)

| | |
|-------------------------------|------------------------------------------------------------|
| Greg Downing | Cargill |
| Morgan Gillespy | CDP |
| Frances Wang | ClimateWorks Foundation |
| Nicolas Gordon | CMPC |
| Michele Galatola | European Commission |
| Till Neeff | Food and Agriculture Organization of the United Nations |
| Owen Hewlett | Gold Standard |
| Uwe Fritsche | IEA Bioenergy / IINAS |
| Andreas Ahrens | IKEA |
| Ashley Allen | Mars |
| Gladys Naylor | Mondi |
| Duncan Pollard | Nestlé |
| Jon Dettling | Quantis International |
| Martin Noponen | Rainforest Alliance |
| Alex Cantlay | Shell |
| Antti Marjokorpi | Stora Enso |
| Cristiano Resende De Oliveira | Suzano |
| Volker Sick | Global CO ₂ Initiative / University of Michigan |
| Martha Stevenson | WWF |
| Bernhard Stormyr | Yara |

Carbon Removals Technical Working Group Members

(as of April 2020)

| | |
|------------------------------|--------------------------------------------|
| Mike McMahon | BP |
| John Kazer | Carbon Trust |
| César Dugast | Carbone 4 |
| Pedro Faria | CDP |
| Louis Uzor | Climeworks |
| Catharina Hohenthal | Confederation of European Paper Industries |
| Marie-Pierre Bouquet Lecomte | Danone |
| Edwin Alders | DNV GL |
| Parminder Plahe | European Investment Bank |
| Sudha Padmanabha | Fair Climate Services Pvt. Ltd. |
| Remi Samad | Heineken |
| Christoph Leibing | Inter IKEA Group |
| Andreas Flad | KlimAktiv Consulting GmbH |
| Cher Xue | Kohler Company |
| George Peridas | Lawrence Livermore National Lab |
| Anthansia Xeros | Mastercard |
| Elizabeth Willmott | Microsoft |
| Urs Schenker | Nestlé Research |
| MaryKate Bullen | New Forests |

Morten Pedersen
James Goudreau
Abdulmutalib Yussuff
David Morris
Mark Downes
Conor McMahon
Ran Tao
Sasha Wilson
Diarmaid Clery
Hilton Thadeu do Couto
Ara Erickson
Chris Weber

Niras
Novartis
Project Drawdown
Royal DSM
Shell
South Pole
The Estée Lauder Companies Inc
University of Alberta
University of East Anglia
University of São Paulo
Weyerhaeuser
WWF

Land Sector Technical Working Group Members

(as of April 2020)

Richard Sheane
Beatriz Shanez Jimenez
Edie Sonne Hall
Jad Daley
Sofyan Kurnianto
Annette Cowie
Oliver von Hagen
Jeff Seale
Yuki Hamilton Onda Kabe
Juan Jose Rincon Cristobal
Caroline Wade
Braulio Pikman
Luca Zampori
Allison Thomson
Pina Gervassi
Jeff Hanratty
Ruaraidh Petre
Laura Overton
Pete Garbutt
Lauren Cooper
Rob Waterworth
Caroline Gaudreault
Michelle Nutting
Tom Oldfield
Michele Zollinger
Jacob Crous
David Cockburn
Stephan Wehr
Peter Ellis
Michael Mugarura
Rachel Lamb

3Keel
Aether UK
American Forest Foundation
American Forest
Asia Pacific Resource Holdings International
Australia NSW Dept. of Primary Industries / IEA Bioenergy
Barry Callebaut
Bayer Crop Science
Braskem
Climate Change Atelier, S.L.
Ecosystem Services Market Consortium
Environmental Resources Management Brazil
European Joint Research Centre
Field to Market
Forest Stewardship Council
General Mills
Global Roundtable for Sustainable Beef
Mars Incorporated
McDonalds's Corporation
Michigan State University Forestry Department
Mullion Group
NCASI
Nutrien
Olam International
Quantis International
Sappi Forests
Tetra Pak
The Delphi Group
The Nature Conservancy
Thünen Institute of Forest Ecosystems
University of Maryland

Bioenergy Technical Working Group

(as of April 2020)

| | |
|----------------------------------------|-------------------------------------------------------------|
| Maya Kelty | 3Degrees |
| Amargit Singh | Biz Excellence Systems Sdn Bhd |
| Mounyelle Nkake Manfred Claude Cyrille | Cameroon Ministry of External Relations |
| Peggy Kellen | Center for Resource Solutions |
| Michael Goldsworthy | Drax |
| Thibaut Brac de la Perriere | EDF |
| Alan Kroeger | Enviva Biomass |
| Harmen Dekker | European Biogas Association |
| Jesse Scharf | European Renewable Gas Registry |
| William Gischlar | Firmenich Inc. |
| Roger Ballentine | Green Strategies |
| Miguel Brandão | KTH - Royal Institute of Technology, Sweden / IEA Bioenergy |
| Christian Ramaseder | Mondi |
| Tom Berg | Navigant |
| Mary Booth | Partnership for Policy Integrity |
| Fabio Nogueira de Avelar Marques | Plantar Carbon |
| Olivia Tuchten | Promethium Carbon |
| Jamie Bohan | Republic Services, Inc. |
| Steve Muzzy | Second Nature |
| Simon Armstrong | Sustainable Biomass Program |
| Gary Bull | University of British Columbia |
| Matthew Brander | University of Edinburgh |
| Sara Ohrel | United States Environmental Protection Agency |
| Anna Stephens | WSP |

7. Draft Timeline (subject to change)

| Activities | 2019 | | | | 2020 | | | | 2021 | | | |
|-----------------------------------------------------------------------------|------|----|----|----|------|----|----|----|------|----|----|----|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Scoping assessment | | | | | | | | | | | | |
| Conduct survey & consultations on need and scope; research existing methods | ■ | ■ | ■ | | | | | | | | | |
| Standards/guidance development process | | | | | | | | | | | | |
| Convene stakeholder groups | | | | ■ | | | | | | | | |
| Develop first drafts | | | | | ■ | ■ | ■ | | | | | |
| Stakeholder review | | | | | | | ■ | ■ | | | | |
| Develop second drafts | | | | | | | | ■ | | | | |
| Pilot testing | | | | | | | | | ■ | ■ | | |
| Develop third drafts | | | | | | | | | | ■ | | |
| Stakeholder review | | | | | | | | | | | ■ | |
| Publish final standards/guidance | | | | | | | | | | | | ■ |

8. How to Participate in the Process

The Greenhouse Gas Protocol is an open, inclusive, multi-stakeholder process that depends on the active participation of stakeholders to ensure the success and broad adoption of its standards. Now that the Advisory Committee and Technical Working Groups have been convened, stakeholders have two options for participating in the development process:

- Review Group
- Pilot Testing Group

See the sections below for roles and responsibilities of each group. Note that the Review Group will not be active until late 2020 when first drafts are ready, and the Pilot Testing Group will not be active until early 2021 when pilot drafts are ready.

If you are interested in participating, please fill out [this form](#) to participate in the Review Group, Pilot Testing Group, or to receive updates.

If you any have questions, please contact Matt Ramlow at Matt.Ramlow@wri.org.

Review Group

The review group will provide feedback on the draft standards/guidance as they are produced through the working group process.

Composition

The group will consist of any interested stakeholders from government, business, NGOs, academia, etc.

Responsibilities

At the discretion of the individual participant, provide written feedback on draft standards/guidance once per year. Comments from the Review Group will be incorporated at the discretion of the Technical Working Groups, Advisory Committee members, and the Secretariat.

Commitment

Receive draft guidance at two intervals: once in 2020 (first draft) and once in 2021 (final draft). Provide written feedback at the discretion of the individual participant.

Acknowledgement

Stakeholders who submit comments as part of the Review Group will be acknowledged and recognized as Reviewers and listed by name and affiliation in the final publication.

Pilot Testing Group

After the draft standards/guidance are prepared, a select group of companies and organizations will have an opportunity to test the draft standards/guidance to ensure that they can be practically implemented, provide any feedback for their improvement, and serve as important case studies in the final publications. The Secretariat will provide technical support to pilot testers in implementing the draft standards/guidance. Feedback from the pilot testing will be incorporated into the final version of the standards/guidance.

Composition

The group will consist of selected organizations representing a diversity of sectors and geographic locations.

Responsibilities

Implement the draft standards/guidance in early 2021. The expected length of testing phase is 6 months. Provide detailed, constructive feedback on the strengths and weaknesses of the draft standards/guidance. Generate case studies to be included in the final publication(s).

Commitment

Commit to testing and implementing the draft standards/guidance, providing feedback through a questionnaire, and developing a case study.

Acknowledgement

Pilot testers will be recognized as Pilot Testers and listed by affiliation in the final publication.