

# CHAPTER 19.

## Assurance

*This chapter provides requirements and recommendations on third-party assurance of the GHG inventory. Further discussion of the assurance process is provided in the Guidance.*

### 19.1 Overview

Third-party assurance is recommended for all companies and may be required by regulations or GHG programs. The assurance process provides a level of assurance (i.e., confidence) that the GHG inventory is complete, accurate, consistent, transparent, relevant, and without material misstatements. The assurance process also checks that removals reported in the GHG inventory follow the principles of conservativeness and permanence (defined in Chapter 3).

The outcome of third-party assurance is valuable to the reporting company and its stakeholders, ensuring that all users of the inventory data can make informed decisions based on the inventory results. The transparency and confidence provided through disclosure and assurance provide the basis for informed action and improving the inventory over time.

Companies must disclose if the inventory was third-party assured (see Section 19.2). Refer to Section 19.4 in the *Guidance* for more information on obtaining assurance.

### 19.2 Requirements

#### Reporting assurance

Companies **shall** disclose whether third-party assurance was performed, the level of assurance obtained, the relevant competencies of the assurance provider(s), and the opinion issued by the assurance provider. If the GHG report is not third-party assured, companies **shall** disclose and justify why third-party assurance was not obtained.

### 19.3 Recommendations

#### Assurance recommendation

Companies **should** seek third-party assurance of the GHG inventory against the *Corporate Standard* and *Scope 3 Standard*, including any land emissions, removals, and other required metrics reported in their GHG inventory against the *Land Sector and Removals Standard*. At a minimum, this **should** be a limited level of assurance.

#### Box 19.1 Assurance recommendation for GHG regulations and programs

The GHG Protocol provides a voluntary accounting and reporting standard, not a GHG program or regulation. GHG programs, regulators, or other initiatives that adopt the GHG Protocol's standards, including the *Land Sector and Removals Standard*, as a basis for corporate GHG inventory accounting and reporting **should** require third-party assurance of GHG inventories where relevant to meeting program objectives.

A GHG regulation or program **may** require assurance in order to review the GHG inventory for compliance with the requirements and recommendations in GHG Protocol standards and guidance, to ensure the accuracy and completeness of reported data, and to identify opportunities for improvements to data quality and accuracy over time. GHG regulations and programs **may** consider differentiating assurance requirements based on the capacities of entities preparing corporate GHG inventories (e.g., small vs. large enterprises).

## 19.4 Guidance on the requirements and recommendations

The guidance in this section pertains to the selection by the reporting company of an appropriate assurance provider and to the implementation of the assurance process.

### 19.4.1 Benefits of assurance

Accounting for land sector emissions, removals, and other metrics in an inventory can present unique data and traceability challenges, high levels of uncertainty, and the need to ensure permanence and conservative estimates for removals. Thus, the process of assuring the land sector and removal aspects of an inventory can be complex in comparison with aspects that pertain to activities in other sectors. These complexities, alongside evolving technical knowledge and land management and removals options, heighten the need for collaborative decision-making and information exchange across value chains, which assurance can support.

Third-party assurance of the inventory offers tangible benefits to the reporting company and its stakeholders, such as:

- Increasing confidence in data (e.g., LMU-level data collection or soil monitoring processes) and conformity to accounting standards, which helps de-risk external or internal reporting.
- Meeting the needs of GHG reporting and target-setting programs by verifying that emission reduction and removal estimates, and monitoring and reporting processes are adequate.
- Supporting consistent reporting across value chains and sectors by having a common and independent interpretation of standards.
- Highlighting possible weaknesses and areas for improvement in internal accounting, modelling, or reporting practices (e.g., data collection, calculation, and internal reporting systems).
- Improving efficiency in subsequent inventory update processes and the ongoing monitoring of carbon pools.
- Activating knowledge of the accounting and reporting ecosystem and experience with interpreting and applying standards independently and consistently in different circumstances.
- Ensuring privacy when handling commercially sensitive information that can establish trust and confidence within value chains (e.g., to support supplier data privacy when reporting to downstream partners).



## 19.4.2 Competencies of assurers

Table 19.1 includes a non-exhaustive list of capabilities that may be essential (or otherwise required by a selected assurance or verification standard) for the assurance of GHG inventories that apply this *Standard*. When selecting an assurer, companies should consider these capabilities in addition to those defined in the selected assurance or verification standard.

**Table 19.1** Examples of essential assurer competencies

Capability or expertise	Examples
<b>Interpretation and application of GHG accounting and reporting standards and other frameworks</b>	<ul style="list-style-type: none"> <li>• Corporate GHG accounting standards (e.g., GHG Protocol <i>Corporate Standard</i> and <i>Scope 3 Standard</i>)</li> <li>• Product life cycle accounting standards (e.g., GHG Protocol <i>Product Standard</i>)</li> <li>• Voluntary carbon markets</li> <li>• Corporate target-setting frameworks (e.g., SBTi)</li> </ul>
<b>Sectoral and domain knowledge</b>	<ul style="list-style-type: none"> <li>• Regulations, certifications, and land-based sustainability issues, for example:               <ul style="list-style-type: none"> <li>• Legal requirements</li> <li>• Land rights/ownership</li> <li>• Certification programs</li> <li>• Watershed dynamics</li> <li>• Biodiversity impacts</li> </ul> </li> <li>• Removals accounting topics, for example:               <ul style="list-style-type: none"> <li>• Biogenic removals</li> <li>• Technological removals</li> <li>• Removals with land-based storage</li> <li>• Removals with geologic storage</li> </ul> </li> <li>• Temporal issues with carbon storage, for example:               <ul style="list-style-type: none"> <li>• Land-based issues of permanence</li> <li>• Carbon storage in products</li> <li>• Current and emerging carbon storage and monitoring technologies</li> </ul> </li> </ul>
<b>Verification of data, models, and other methods</b>	<ul style="list-style-type: none"> <li>• Verification of historical, existing data records relating to land sector and removal GHG inventories</li> <li>• Verification that models and assumptions fairly reflect the inventory</li> <li>• Verification that data management or monitoring systems address the needs of the inventory scope</li> </ul>
<b>Ability to conduct site visits for purposes of verification</b>	<ul style="list-style-type: none"> <li>• Field sampling for land management CO<sub>2</sub> removals on agricultural lands</li> <li>• Inspections at CO<sub>2</sub> capture facilities and CO<sub>2</sub> transportation networks</li> <li>• Inspections at CO<sub>2</sub> injection sites for storage within geologic reservoirs</li> </ul>
<b>Specialized contracts and other legal advice</b>	<ul style="list-style-type: none"> <li>• Ownership claims and allocation of accounted removals</li> <li>• Liability for ongoing storage monitoring</li> <li>• Ownership claims of carbon storage (land or technological)</li> </ul>

## 19.4.3 Assurance process

Table 19.2 provides a general overview of the steps involved in the assurance process. Additional guidance for relevant activities within these general steps is provided below.

**Table 19.2** General overview of the assurance process

Step in the assurance process	Relevant activities & considerations
<b>Step 1.</b> Planning and scoping	<ul style="list-style-type: none"> <li>• Consider reporting and disclosure aims</li> <li>• Determine the level of assurance and the intended use of the GHG inventory, where reasonable assurance is recommended for target setting and monitoring (more details below)</li> <li>• Determine assurance risk factors</li> <li>• Identify the relationships between parties in the assurance process</li> <li>• Identify sources (emissions) and sink and storage processes (removals) within scope 1 and scope 3</li> <li>• Verify the geographical scope of sink and storage processes included in the inventory</li> </ul>
<b>Step 2.</b> Perform the assurance process	<ul style="list-style-type: none"> <li>• Gather evidence, perform analytics, and evaluate the inventory methods, data quality, and uncertainty</li> <li>• Verify historical data and the suitable use of data, calculations, and assumptions, including expectations about the future</li> <li>• Record verification findings</li> </ul>
<b>Step 3.</b> Evaluate verification results and report conclusions	<ul style="list-style-type: none"> <li>• Evaluate verification findings following the process determined by the assurer and the selected verification standard</li> <li>• Report verification results following the process determined by the assurer and the selected verification standard</li> <li>• Provide an assurance statement</li> </ul>

### Step 1. Planning and scoping

The planning and scoping phase of the assurance process considers the level of assurance; the determination of risks according to the company’s reporting and disclosure aims; the relationship of parties in the assurance

process; the identification of the scope and geography of sources, sinks, and storage processes; the need to perform site visits; and the competency requirements for assurers. The details and sequence of the process, need for site visits, and level of assurance opinion may vary according to the purpose of the inventory and scope of information being reviewed.

#### DETERMINING THE LEVEL OF ASSURANCE

The assurance process may apply varying degrees of rigor to provide either a reasonable or limited assurance opinion, as described in Table 19.3. As established in Section 10.4 of the *Scope 3 Standard (2011)*, it is not possible to provide absolute assurance.



**Table 19.3** Limited and reasonable assurance opinions

Assurance opinion	Nature of opinion	Example of opinion wording
Limited assurance	Negative opinion	“Based on our review, we are not aware of any material modifications that should be made to the company’s assertion that their greenhouse gas inventory is in conformance with the <i>Land Sector and Removals Standard</i> .”
Reasonable assurance	Positive opinion	“In our opinion, the reporting company’s assertion of their greenhouse gas inventory is fairly stated, in all material respects, and is in conformance with the <i>Land Sector and Removals Standard</i> .”

Source: GHG Protocol Scope 3 Standard.

The company and assurance provider must determine the level of assurance to be applied during the planning and scoping phase of assurance. Assurance levels are classified as either limited or reasonable (Table 19.3) and must be appropriate to the purpose of the inventory, initial misstatement risk assessment, and requirements of any associated program. For example, a limited level of assurance may not be appropriate if a program includes removals in the context of a net GHG target. In such cases, reasonable assurance could be more suitable.

A limited assurance opinion, expressed as a negative statement (see Table 19.3), includes the following elements:

- There is no reason to believe that emissions (and removals) do not comply with the relevant standard and guidance.
- There is no reason to believe the GHG inventory and report are not complete, accurate, consistent, transparent, relevant, permanent, and conservative, nor contain material misstatements.
- There is no reason to believe the GHG inventory and report do not provide a true and fair view of emissions and removals.
- The assurance provider is not aware of any material misstatements or modifications that should be made.

**DETERMINING ASSURANCE RISK FACTORS**

Examples of some factors that may determine the complexity of assurance and the risk of misstatement are listed in Table 19.4. Examples of misstatements include the following:

- Omission of information
- Incorrect data
- Misapplication of a methodology required or recommended by this *Standard* and *Guidance*



**Table 19.4** Examples of assurance risk factors

Risk factor	Examples
Data	<p><b>Extent and complexity of historical data</b></p> <ul style="list-style-type: none"> <li>• Range of different historical land use and management issues (e.g., number of countries)</li> <li>• Historical land ownership</li> </ul> <p><b>Extent and complexity of current or past land use</b></p> <ul style="list-style-type: none"> <li>• Current and historical land use patterns and applicable boundaries</li> <li>• Contractual arrangements and claims to upstream removals</li> </ul>
Uncertainties	<p><b>Storage technology uncertainties</b></p> <ul style="list-style-type: none"> <li>• CO<sub>2</sub> removal, capture, and storage operations (e.g., energy use, equipment performance, calibration records)</li> <li>• Current and future storage operations (e.g., structural design, equipment performance, calibration records)</li> </ul>
Assumptions	<p><b>Assumptions and modelling</b></p> <ul style="list-style-type: none"> <li>• Assumptions about future land use and ownership</li> <li>• Assumptions and modelling regarding sold products</li> <li>• Assumptions, modelling, and/or contractual arrangements for future carbon storage (land-based and geologic)</li> </ul>

Existing certification schemes or government regulations may already require the verification of some relevant information (e.g., supply chain traceability, land ownership, or existing land management practices which relate to removals). The use of food production sustainability certification programs or related government regulations may therefore support and facilitate the assurance process by providing pre-verified information.

The assurance provider can apply the following list of criteria when assessing a reporting company’s and value chain partners’ conformity with regulations, or when assessing information provided by certification programs:

- The existence of qualitative or quantitative data on historical land use change and whether there is enforcement of a date from which no (further) land use change is allowed.
- The collection of qualitative or quantitative data on forest and soil management activities.
- The approach of the certification program (e.g., a deforestation-free certification program used by the reporting company) to third-party verification and whether key requirements regarding GHG data are voluntary or mandatory.
- The approach to supply chain traceability or chain-of-custody models, if applicable (e.g., identity-preserved, segregated, mass balance, or book and claim).
- The basis for the calculation methodology (if any) and consistency with GHG accounting principles.

**RELATIONSHIPS OF PARTIES IN THE ASSURANCE PROCESS**

There are many roles, or parties, that may be involved in implementing this *Standard*, either within the reporting company or among its suppliers and customers, such as:

- Land managers with access to land management operations, ownership, and contract information
- Sustainability and energy management teams compiling and managing reporting data
- Supply chain managers who know suppliers and the specific relationships through which key data will be available

- Legal representatives managing supplier contracts, which are particularly important when allocating removals and negotiating monitoring processes with long-term lifespans
- Communications and marketing teams who need to translate complex inventories into straightforward, accurate external messages
- Service providers (such as those implementing CO<sub>2</sub> removal or land management activities) whose operations and/or contracts may be subject to the assurance process (e.g., to verify suitable allocation of removals)
- Senior management responsible for company targets and sustainability investments
- External stakeholders affected by land management choices (e.g., by other land managers in a shared watershed, NGOs monitoring biodiversity, etc.)



A useful output of mapping these relationships can be a clear understanding of the structure of the organization creating the inventory. This information will be necessary for the next scoping stage.

### IDENTIFYING THE SCOPE AND GEOGRAPHY OF SOURCES, SINKS, AND STORAGE PROCESSES

Once the structure of the inventory's organization and its value chain relationships are understood, it is necessary to identify which sources, sinks, and carbon pools are within the reporting company's scope 1 or scope 3 spatial boundary and where, physically, these sources, sinks, and pools are located.

Subsequently, verification is needed to confirm that all sinks and storage processes comprising removals have been included in the inventory and correctly defined as scope 1 or scope 3. The geographical location is important information to ensure suitable monitoring programs exist and any assumptions or modelling are appropriate.

## Step 2. Perform the assurance processes

Assurance against this *Standard* has requirements for both backward- and forward-looking content in a GHG inventory. The assurance of GHG inventories associated with the land sector and CO<sub>2</sub> removals includes the verification of historical data to ensure that models of future expectations are correct and use appropriate methodologies (e.g., for future expectations associated with the ongoing monitoring of land-based or geologic carbon storage, or cradle-to-grave product life cycle assessment).<sup>1</sup> Assurance, therefore, follows the scope of ISO 14064 standards.<sup>2</sup>

The assurance process should assess:

- Historical data describing the inventory year
- Records of historical land use or ownership
- Conformity of methods used by any modelling of past or future emissions or removals
- Changes to any previous inventory being compared against

Chapter 10 of the *Scope 3 Standard* (2011) lists key concepts to consider when conducting the assurance process that also apply to the use of this *Standard*. However, GHG inventories with land sector activities and CO<sub>2</sub> removals raise additional challenges to the assurance process, as outlined in Table 19.5.

**Table 19.5** Examples of assurance challenges and suggested solutions for GHG inventories with land sector impacts and CO<sub>2</sub> removals

Assurance challenge	Suggested solutions
<b>Verifying ongoing storage monitoring of carbon pools</b>	Defining and applying criteria to validate the adequacy of the reporting company’s ongoing storage monitoring and reporting systems for removals is a distinct activity not covered by this <i>Standard</i> and <i>Guidance</i> . It is instead sufficient to verify that carbon associated with previously reported removals is stored in carbon pools in the reporting year (i.e., by verifying annual carbon stock changes in the relevant carbon pool) and that there is evidence that the monitoring program is operating as intended.
<b>Possessing expertise in a diversity of types of removal and storage</b>	Assurers should possess sufficient knowledge of the biological, chemical, and business processes involved in generating and maintaining biogenic and technological removal and storage.
<b>Verifying modelling of carbon stock changes</b>	The verification process is extended to include the conformity of the approach taken to the prediction, uncertainty measurement, and reporting of modelled future carbon stock changes.
<b>Determining materiality</b>	There should be an equal weight given to the materiality of removal magnitude, covering both the removal itself and the risk of reversal. That is, the materiality of a removal should also take the risk of reversal into account. <sup>3</sup>  For example, a large removal with low risk of reversal (e.g., physical storage of CO <sub>2</sub> as calcium carbonate in a geologic reservoir) is less material as a potential inventory misstatement than a large removal with a high risk of reversal (e.g., reforestation).
<b>Verifying land ownership</b>	The assessment of land ownership at the time of the inventory, in the past, and expected ownership in the future offers challenges in relation to transparency, legal documentation, the interaction of multiple jurisdictions, and varying levels of control for the reporting company. The complexities arising from varying levels of control apply separately to land owned by the reporting company versus that owned by those in the value chain, who may also be supplying other companies. The attribution of removals or land use change may not be obvious. Indirect effects of land use or land use change by or upon the reporting company’s value chain may also be important.  The use of GIS tools and existing land-based certifications may support decision making.

In addition, it is often necessary to verify the appropriateness and quality of assumptions about the future (e.g., ongoing storage monitoring requirements for CO<sub>2</sub> removals). These assumptions may include estimating the soil carbon impacts of land management changes or the predicted long-term geologic carbon storage dynamics.

The performance of review and corrective action processes that address data collection and ongoing storage monitoring for removals should also be verified in the context of the current inventory. These review and corrective action processes will be needed when the current inventory is compared against measurements made during previous or subsequent inventory assessments to ensure consistency, drive improved data quality, and verify continued integrity of removals.

If the guidance is applied to an inventory that is associated with a GHG program (e.g., the Science Based Targets initiative [SBTi]) or regulations, the requirements and expectations of the GHG program should be taken into account during the assurance process.

### Step 3. Evaluating verification results and reporting conclusions

Assurers present their conclusions about the inventory results through an assurance statement. The assurance statement should indicate the following:

- The level of assurance
- How the level of assurance informed the assurance process
- The materiality threshold or benchmark, if set
- The implications of the assurance statement for the use of the inventory results
- Any additional details regarding the assurer's conclusion, including details regarding any exceptions noted or issues encountered in performing the assurance

The assurance statement may separately indicate the approach taken to data quality and the assurance of primary and secondary data.

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#### Endnotes

- 1 Adapted from ISO (2019).
- 2 See, e.g., Clauses 3.6, 6, and 7 in ISO (2019).
- 3 See Section 10.5 of the *Scope 3 Standard* (WRI and WBCSD 2011) for more information on materiality.

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