Reporting GHG Emissions

The Climate Leaders GHG inventory reporting requirements are designed to provide credibility and promote continuous improvement in corporate emissions accounting procedures.

This chapter provides guidance to Partners, third-party verifiers, and other interested parties on the steps needed to fulfill the Climate Leaders reporting requirements. It is not intended to provide EPA guidance on GHG inventory verification. However, EPA allows Partners who wish to undertake a rigorous third-party verification of their GHG inventories to submit a verification report certifying that, at a minimum, the requirements of the Climate Leaders GHG inventory review have been met.

GHG Inventory Reporting Requirements Overview

All Climate Leaders Partners can receive free technical assistance from EPA's team of experts to complete the program's reporting requirements. The reporting requirements consist of three major components:

1. *Partners complete and maintain an Inventory Management Plan (IMP) — or a similar collection of Standard Operating Procedures — that describes the process for completing a high quality, corporate entity-wide inventory.*
2. *Partners complete and submit to EPA on a yearly basis the Annual GHG Inventory Summary and Goal Tracking Form that reports GHG emissions at a corporate level and details progress towards meeting their GHG reduction goal.*
3. *EPA conducts the following reviews:*

- *A desktop review of the Partner's GHG accounting methods and systems as detailed in their IMP.*
- *A desktop review of the Partner's corporate GHG inventory data as reported in their Annual GHG Inventory Summary and Goal Tracking Form.*
- *An optional desktop review of the Partner's facility-level GHG data.*
- *One on-site visit to review facility-level implementation of the IMP.*

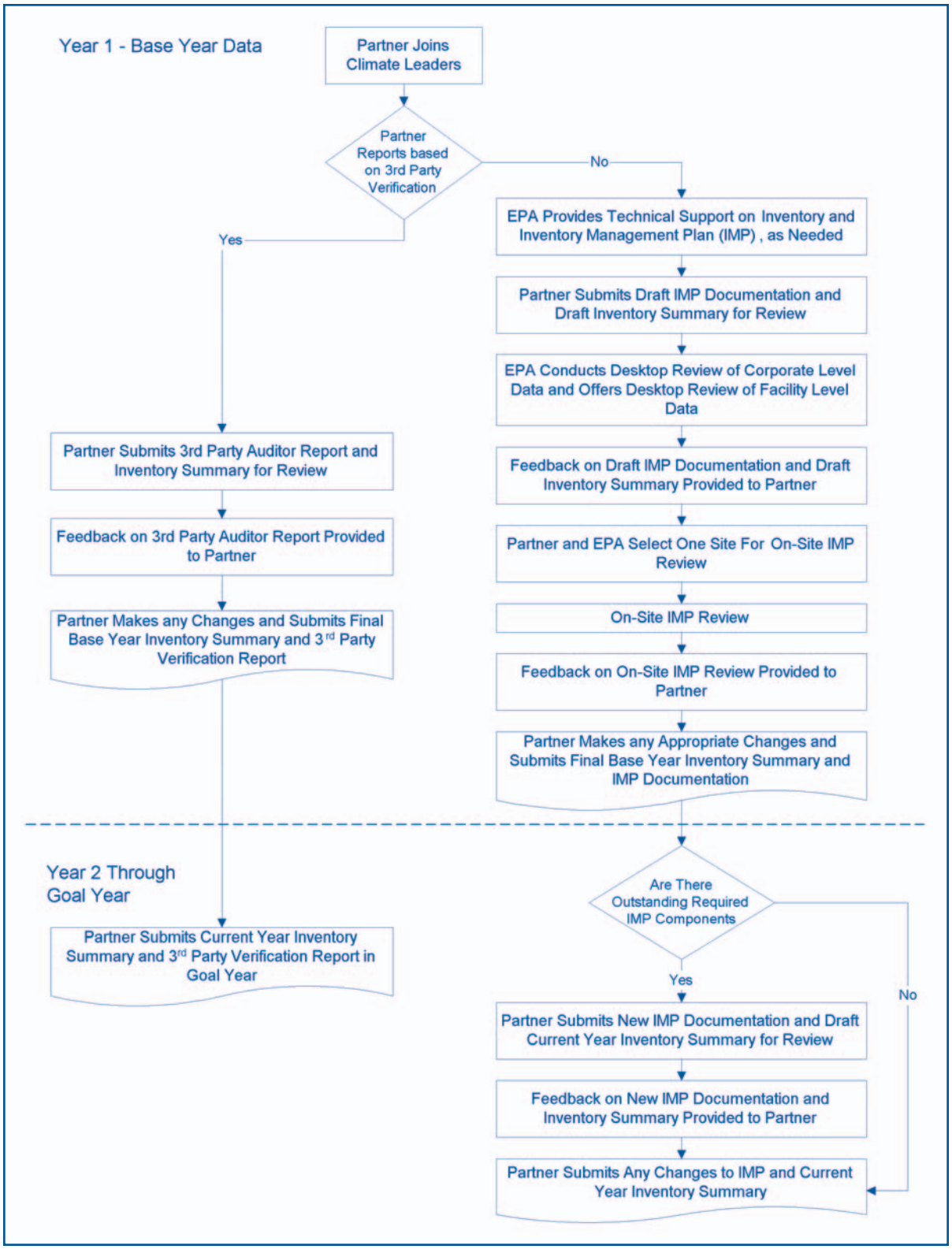
An initial review is conducted for the Partner's IMP and base year inventory. A follow-up is then conducted for the goal year inventory to provide assurance that the goal is met. Interim year inventories are reviewed; however, the IMP is reviewed only when there have been major revisions or updates.

A flow chart describing the reporting process is provided in Figure 9-1.

Reporting Requirements and Technical Assistance

The major components of the Climate Leaders reporting requirements consist of the IMP, the Annual GHG Inventory Summary and Goal Tracking Form, and the review process as described in further detail below. Technical assistance is available to Partners as they develop and document their IMP and complete their inventory, as well as during their EPA review process. Technical assistance is also described in further detail below.

Figure 9-1: Reporting Requirements Flow



GHG Accounting Methods and Systems – Inventory Management Plan

Partners complete and maintain an IMP that describes their process for completing a high-quality, corporate-wide inventory. Companies use an IMP to institutionalize a process for collecting, calculating, and maintaining GHG data. A detailed IMP checklist describing the individual components and level of detail necessary is attached as Appendix 3 (Columns 1 & 2). Partners may have a single IMP document that addresses all of the elements that go into developing their corporate inventory, or they might have an equivalent collection of procedures and other relevant information. EPA expects the critical elements of an IMP to be developed within one year of a Partner joining the program, while other elements can be phased in over time (as noted in Appendix 3). The seven major sections of the IMP are described below.

- ***Partner Information:*** *company name, address, and inventory contact information*
- ***Boundary Conditions:*** *organizational and operational boundary descriptions*
- ***Emissions Quantification:*** *quantification methodologies and emissions factors*
- ***Data Management:*** *data sources, collection process, and quality assurance*
- ***Base Year:*** *base year adjustments for structural and methodology changes*
- ***Management Tools:*** *roles and responsibilities, training, and file maintenance*
- ***Auditing & Verification:*** *auditing, management review, and corrective action*

The IMP is an internal process for the Partner to institutionalize the completion of a high quality inventory. The IMP should be designed with this in mind, not strictly as a reporting requirement to EPA. The checklist in Appendix 3 outlines what should be included in an IMP and can be used as a guide for creating an IMP or pulling together existing documents. The checklist does not represent, and should not be used as a substitute for an IMP

Annual GHG Inventory Summary and Goal Tracking Form

Partners complete and submit the Annual GHG Inventory Summary and Goal Tracking Form to EPA each year. This form describes emissions in terms of total CO_2-equivalent at a corporate level, broken out by emission source type — core direct (e.g., stationary, process, and mobile sources), core indirect (e.g., electricity or steam purchases), optional (e.g., offsite waste disposal, product transport), and offsets (e.g., sequestration, renewables) — for both domestic and international (if applicable) sources. The form also includes historical totals and a performance indicator (if applicable) that is used to track progress toward a reduction goal.

The Annual GHG Inventory Summary and Goal Tracking Form is attached as Appendix 4.

Review Process

EPA provides a desktop review of both the Partner's IMP and its corporate GHG inventory data. EPA also offers a desktop review of facility-level GHG data for interested Partners. Many Partners have found the facility-level data review to be helpful in improving the quality of their inventory. One site visit is also conducted to ensure accurate facility-level implementation of the Partner's IMP.

Desktop Review of the Inventory Management Plan

EPA conducts a desktop review of the Partner's GHG accounting methods and systems as detailed in the IMP Checklist.

A complete list of issues to consider for the desktop review is attached as Appendix 3 (Column 3). Once the desktop review of the IMP is completed, EPA informs the Partner whether their IMP meets or is below expectations for each item on the IMP Checklist. The desktop review also identifies required areas for improvement, optional areas for improvement, and best practices. For required areas for improvement, Partners submit a revised IMP to correct the deficiency. Optional areas for improvement are recommendations to the Partner that could help improve the accuracy, efficiency, or relevance of their inventories. Best practices are also noted and compiled into a database that will enable EPA to highlight and share innovative IMP practices with Partners in the future.

Desktop Review of Corporate GHG Inventory Data

The desktop review of the Partner's GHG inventory covers a review of corporate inventory data disaggregated to the categories broken out in the Annual GHG Inventory Summary and Goal Tracking Form. The desktop GHG inventory review of corporate data includes identifying issues such as:

- ***Boundary Conditions.*** *Are all emission source types within operational boundaries included as specified in IMP? Are all significant differences in the annual emissions profile explained?*
- ***Base Year.*** *If structural or methodology changes are reported: Do changes appear to be reflected in adjustments to base year emissions? Do changes appear to be consistent with changes in annual inventory from the previous year's inventory?*
- ***Data Management/Goals.*** *Does the inventory adequately provide data that allows the Partner to evaluate facility- and entity-wide progress against their Climate Leaders goal? Does the inventory appear to be on track for achieving reduction goal? What percentage of emissions and emissions reductions are occurring domestically vs. outside the U.S.? What percentage of reductions is occurring through offsets vs. emissions reductions?*

Based on the desktop review of corporate inventory data, EPA provides the Partner with findings and recommendations to improve the accuracy and relevance of their inventory.

Desktop Review of Facility-Level GHG Inventory Data

While not a requirement, EPA's preference is to see facility level data; however, EPA recognizes that some Partners have confidentiality concerns with reporting at this level of disaggregation. If confidentiality is a concern, EPA can review the data at the Partner site. Many Partners have found the facility-level data review to be helpful in improving the quality of their inventory.

The desktop GHG inventory review of facility data includes identifying issues such as:

- ***Boundary Conditions.*** *Are all facilities identified in the IMP included? Are emission source types at each facility consistent with the IMP? Do emission totals appear consistent between facilities based on magnitude and type of operations?*
- ***Data Management/Goals.*** *Are emissions of each GHG correctly converted to CO_2-equivalents? Are calculations outlined in the IMP correctly completed for each emission type at*

each facility? Does activity data used reflect that specified in the IMP? Do facility subtotals sum to the reported corporate totals?

Based on the desktop review of facility inventory data, EPA provides the Partner with findings and recommendations to improve the accuracy and relevance of their inventory.

On-Site Review of IMP Implementation

Once the desktop reviews have been completed, one on-site visit is conducted to review facility-level implementation of the IMP. This on-site review is designed to give confidence in the credibility of the data reported to EPA, as well as to foster continuous improvement in the emissions accounting and reporting procedures of Climate Leaders Partners. The goal of the review is to determine whether there are ways to improve the accuracy, efficiency, and relevance of the inventory created by the IMP. To accomplish this, the inventory performance at the site should be significant to the overall inventory and notably relevant to other facilities. EPA, in consultation with its Partners, determines the most appropriate site to visit based on the following factors:

- **Risk.** *EPA strives to review facilities with the greatest overall contribution to corporate emissions, or those with emissions profiles that are the most representative of corporate emissions*
- **Potential Benefit to Partners.** *EPA strives to review facilities that offer the best opportunity for technical assistance to benefit Partners' inventory efforts.*

Ideally, a site that is a large emitter, has many of the largest emission types, and represents the most common business activity, data management system, and environmental/quality management system is identified. Where process emissions are a large fraction of the total corporate inventory, preference is given to these sites, especially in cases where sector-specific guidance is not available from EPA.

Once a site is selected, EPA conducts a telephone conference with the Partner to identify the GHG emissions sources at the site, key personnel at the site, data sources to review, equipment/processes to be visited, safety/security issues, and other logistics. It is anticipated that most site visits will last one day, but more complicated facilities may require more time. An example of a typical schedule for an onsite visit is shown in Figure 9-2.

The site review includes sampling source data, tracing data through the entire data management chain, and checking calculations. A complete list of issues to consider for the on-site review is attached as Appendix 3 (Column 4). Once the site review is complete, EPA informs the Partner whether their IMP implementation at the site meets expectations or requires improvement for each item on the IMP Checklist. The site review also identifies optional areas for improvement, as well as best practices. For required areas for improvement, Partners submit additional documentation detailing the steps taken to address these issues. The optional areas for improvement are recommendations to the Partner that could help improve the accuracy, efficiency, or relevance of their inventory management systems. Best practices are also noted and compiled into a database that will enable EPA to highlight and share innovative IMP practices with Partners in the future.

Third-Party Verification

Many Climate Leaders Partners have completed or are considering third-party verification of their inventories. As an alternative to the primary reporting option, EPA allows Partners that undertake a rigorous third-party verification of their GHG inventories to submit a verification report

Figure 9-2: Sample Onsite IMP Review Schedule

Typical Schedule for Climate Leaders Onsite IMP Review

This schedule assumes that a facility of moderate complexity would be visited. Very complex facilities may require a longer agenda; very small or noncomplex facilities may require a shorter agenda.

1-2 Weeks in Advance
EPA and Partner discuss source types included at the facility, business/product divisions within the facility, partner personnel required during the visit, safety procedures, and logistics. The partner representative ensures that required personnel will be available.

Day of the Onsite Review
8:00-8:30 am
The reviewer arrives onsite, clears security, attends required safety briefing (if any). Data confidentiality is discussed. (Note: reviewers are not allowed to sign non-disclosure agreements).

8:30 -9:00 am
The reviewer meets with the Climate Leaders representative, local (define) EHS representative, and facility management (as appropriate) to discuss objectives for site visit, to review major operations and processes used at the facility, and to identify specific areas of interest for the onsite review.

9:00 - 11:00 am
Tour of facility. The reviewer will be attempting to understand chemical/manufacturing/generating processes used at the plant in order to review the completeness of the emission source list and to understand the specific mode of operation for these sources. Discussions occur with facility operators during the tour.

11:00 am - 12:00 pm
The reviewer and EHS representative meet with facility staff responsible for tracking electrical, steam, and fuel purchases (non-utilities) or for quality assurance/quality control (QA/QC) of Continuous Emissions Monitoring System (CEMS) data and Title IV reporting (utilities). Review of activity data used for this estimate and discussion of any unit conversions/calculations/QC of data performed by the Environmental Health and Safety (EHS) representative. Use of any data management tools and data review by other personnel are also discussed.

12:00 - 1:00 pm
Working lunch, onsite or offsite. As necessary, the reviewer and the Partner further discuss types of emission sources, business divisions, and key performance indicator (KPI) tracking.

1:00 - 3:00
The reviewer and the EHS representative meet with personnel responsible for tracking of activity data from other processes or emission sources, tracking of KPI (if performed at facility level), and for management and QA/QC of data.

3:00 - 4:00
The reviewer and the Partner's representative discuss preliminary findings and any areas of concern.

Approximately 1 Week After Visit
Formal report provided by EPA to the Partner.

certifying that, at a minimum, the requirements of the Climate Leaders GHG inventory review have been met. Partners choosing to submit to EPA a third-party verification report are not required to submit an IMP to EPA, nor are the IMP desktop review and on-site review by EPA required. However, Partners are still required to submit the Annual GHG Inventory Summary and Goal Tracking Form to EPA each year.

The third-party verification report must certify that the requirements of the Climate Leaders GHG inventory review process have been met. This includes a minimum of one on-site visit, although more may be appropriate. The third-party verification report must address all of the required IMP checklist components, both in a desktop review and during the site visit(s). EPA is available via telephone conference to answer Partner's or third-party verifier's questions on these requirements. When Partners choose to use third-party verification in lieu of submitting an IMP, then third-party verification is required for the Partner's base year inventory and for its goal year inventory.

Partners interested in third-party verification are encouraged to discuss this with EPA to better understand verification options and other considerations.

Technical Assistance to Complete Base Year Reporting

EPA provides up to 80 hours of technical assistance to each Partner as they develop and document their IMP and complete their base-year inventory. Technical assistance encompasses all aspects of creating a credible GHG inventory, including creating and implementing GHG accounting methods, and measuring, tracking, and reporting GHG emissions. EPA also provides an inventory review process to offer constructive feedback on improving the accuracy, efficiency, and relevance of Partners' GHG inventory data and management systems. The level of assistance involved will vary by the needs of the Partner.

Ongoing Technical Assistance

After the completion of a Partner's base year inventory, EPA experts continue to provide up to 10 hours annually of technical assistance in subsequent years to help Partners update their IMP, adjust their base year inventory for significant changes, and calculate new emission sources.

Types of technical assistance available include:

- *Assistance in understanding the Climate Leaders GHG Inventory Protocol, which includes the Design Principles, cross-sector modules, and sector-specific modules.*
- *Guidance on selecting organizational and operational boundaries.*
- *Assistance identifying sector-specific emissions sources.*
- *Assistance identifying methods, types of data needed, and emission factors used to calculate emissions.*
- *Help defining estimation methods for small sources of emissions to minimize unnecessary data collection.*
- *Support in creating a GHG management system or IMP based on best practices.*
- *One onsite visit to review implementation of the IMP.*
- *On-call support for technical queries.*

Corporate Data Management Approaches

The following describes various corporate GHG data management approaches.

Roll-Up GHG Emissions Data to Corporate Level

To report a corporation's total GHG emissions, companies usually need to gather and summarize data from multiple facilities, possibly in different countries and business divisions. It is important to plan this process carefully to minimize the reporting burden, reduce the risk of errors that might occur while compiling data, and ensure that all facilities are collecting information on an approved, consistent basis. Ideally, corporations will integrate GHG reporting with their existing reporting tools and processes, and take advantage of any relevant data already collected and reported by facilities to division or corporate offices, regulators, or other stakeholders.

For internal reporting up to the corporate level, it is recommended that standardized reporting formats be used to ensure that data received from different business units and facilities is comparable, and that internal reporting rules are observed. Standardized formats can significantly reduce the risk of errors. *Common differences between sites that can result in errors in the corporate inventory include:*

- *Different emission factors and quantification methodologies used by each site*
- *Sites reporting data in different units of measure that then go uncorrected*
- *Different interpretation of what constitutes* de minimus
- *Unclear roles and responsibilities resulting in incomplete data sets sent to corporate*
- *Different interpretation of how to establish organizational and operational boundaries*
- *Availability of activity or other measured data necessary to do emissions calculations*
- *Differences in reporting periods*

The reporting under the Climate Leaders program will help to ensure that there is a process in place for meeting GHG data standards. It will also provide suggestions for ongoing improvements and efficiencies in GHG inventory development through the corporate-wide IMP submittal and desktop review, as well as through the onsite IMP review, as documented above.

Centralized Approach: Individual Facilities Report Activity/Fuel Use Data

This approach may be particularly suitable for office-based organizations. Requesting that facilities report their activity/fuel use data may be the preferred option if:

- The staff at the corporate or division level can calculate emissions data in a straightforward manner on the basis of activity/fuel-use data; and
- Emissions calculations are standard across a number of facilities.

Decentralized Approach: Individual Facilities Calculate GHG Emissions Data

Asking facilities to calculate GHG emissions themselves will help to increase their awareness and understanding of the issue. However, it may also lead to resistance, increased training needs, an increase in calculation errors, and a greater need for auditing of calculations. Requesting

that facilities calculate GHG emissions themselves may be the preferred option if:

- GHG emission calculations require detailed knowledge of the kind of equipment being used at facilities.
- GHG emission calculations methods vary across a number of facilities.
- Process emissions (in contrast to emissions from burning fossil fuels) make up an important share of total GHG emissions.
- Resources are available to train facility staff to conduct these calculations and to audit them, or a user-friendly tool is available to simplify the calculation and reporting task for facility-level staff.
- Local regulations require reporting of GHG emissions at a facility level.

The choice of collection approach depends on the needs and characteristics of the reporting company. To maximize accuracy and minimize reporting burdens, some companies use a combination of two approaches. Complex facilities with process emissions calculate their emissions at the facility level, while facilities with uniform emissions from standard sources only report fuel use, electricity consumption, and travel activity. The corporate database or reporting tool then calculates total GHG emissions for each of these standard activities.

The two approaches are not mutually exclusive and should produce the same result. Thus companies desiring a consistency check on facility-level calculations can follow both approaches and compare the results. Even when facilities calculate their own GHG emissions, corporate staff may still wish to gather activity/fuel use data to double-check calculations and explore opportunities for emissions reductions. These data should be available and transparent to staff at all corporate levels. Corporate staff should also verify that facility-reported data are based on well-defined, consistent, and approved inventory boundaries, reporting periods, calculation methodologies, etc.

Whether final GHG emissions figures are derived at the facility or corporate level, the data specified at the beginning of this chapter must be collected and supplied for the final report. *The Climate Leaders program requires that Partners report corporate-level emissions data and prefers that Partners provide supporting information for each facility, as detailed above.*