

# Setting Operational Boundaries

**A**fter a company has determined its organizational boundaries in terms of the operations that it owns or controls, it then sets its operational boundaries. This involves identifying the emissions associated with its operations and categorizing them as *core direct*, *core indirect*, and *optional emissions*. *The Climate Leaders program requires Partners to report, at a minimum, all core direct and indirect emissions. Partners have the option of including other emissions sources from upstream and downstream activities (optional emissions), if a credible emissions accounting methodology exists.*

The selected operational boundary is then uniformly applied to identify and categorize direct and indirect emissions at each operational level. The established organizational and operational boundaries together constitute a *Partner's* inventory boundary.

## Emissions Categorization

Emissions may be either directly or indirectly derived from *Partner* activities. Classifying emissions as either direct or indirect is dependent on the consolidation approach (equity share or control) selected for setting the organizational boundary (Chapter 3). Direct emissions versus indirect emissions are defined as follows:

- **Direct** emissions are from sources that are owned or controlled by the company, e.g., emissions from combustion in owned or

controlled boilers, furnaces, vehicles; emissions from chemical production in owned or controlled process equipment.

Direct CO<sub>2</sub> emissions from the combustion of biomass or of *GHG emissions not covered by this protocol* (e.g., chlorofluorocarbons (CFCs), nitrous oxide (NO<sub>x</sub>), etc.) shall not be included as part of *core direct* emissions, but may be reported separately.

- **Indirect** emissions are a consequence of the activities of the company, but occur at sources owned or controlled by another company. Indirect emissions for the purchaser are characterized as direct emissions for the facility where the emissions are generated. An example of indirect emissions is the emissions from the generation of purchased electricity consumed by a company.

*Reporting for the Climate Leaders Program is delineated by core and optional emissions as described below. These categories are designed to provide a uniform basis to allow companies to compare their own performance over time, and to enhance transparency. Core emissions include those emissions included under Scope 1 and 2 of the WRI/WBCSD GHG Protocol. Optional emissions include those emissions included under Scope 3 as well as under "optional" information in the WRI/WBCSD GHG Protocol. Table 4-1 depicts this relationship. Partners shall separately account for and report core direct and indirect emissions at a minimum.*

**Table 4-1: Relationship of Climate Leaders to GHG Protocol Reporting Scope Terminology**

Climate Leaders	WRI/WBCSD GHG Protocol
Core Emissions (Direct and Indirect)	Scopes 1 and 2
Optional Emissions	Scope 3 and optional information

*Core direct and indirect emissions* are carefully defined to ensure that two or more companies do not account for the same emissions in the same scope, as defined in the GHG protocol.

## Core Emissions Reporting

*Core emissions reporting includes both direct and indirect emissions. Core direct emissions result from stationary, mobile, and process-related sources at a facility. Core indirect emissions are emitted as a consequence of the import of electricity, heating/cooling, or steam. Partners should account for and report GHG information separately for each emissions category. To facilitate comparability over time or to aid transparency, Partners are encouraged to further subdivide emissions data, e.g., by business units/facilities, country, source types (production of electricity or steam, transportation, processes, etc.), and activity type (production of electricity, consumption of electricity, generation of purchased electricity that is sold to end users, etc.).*

*The components of core direct and indirect emissions are described in more detail below:*

### Core Emissions Reporting – Direct Emissions

*Core direct emissions are GHG emissions from sources that are owned or controlled by the reporting company. All Partner companies must*

*report core direct emissions according to their chosen organizational boundary approach. Core direct emissions are principally the result of the following activities undertaken by the company:*

- **Generation of electricity, heat, or steam.** For example, fossil fuel combustion in stationary sources such as boilers, furnaces, turbines, or generators. *These emissions are reported without netting sale of own-generated electricity to another reporting company.* These emissions do not include emissions from the combustion of biomass, those should be reported separately.
- **Physical or chemical processing.** Most of these emissions result from manufacture or processing of chemicals and other materials, e.g., cement, aluminum, adipic acid, waste processing, and ammonia manufacture.
- **Transportation of materials, products, waste, and employees.** These emissions result from the combustion of fuels in company-owned/controlled mobile combustion sources, such as trucks, trains, ships, airplanes, buses, and cars (leased mobile sources need to be evaluated as described in Chapter 3).
- **Fugitive emissions.** These emissions result from intentional or unintentional releases, e.g., equipment leaks from joints, seals,

packing, and gaskets; methane emissions from coal mines and venting; HFC emissions from refrigeration and air conditioning equipment; and CH<sub>4</sub> leakages from gas transport.

*Exported carbon content sequestered in products should not be reported as core direct emissions.*

### Core Emissions Reporting – Indirect Emissions

*Core indirect emissions are associated with the generation of GHG emissions from sources not owned or controlled by the reporting company and are specifically the result of the following activities:*

- **Imported/purchased electricity, heating/cooling, or steam** that a company purchases or otherwise brings into the organizational boundaries of the reporting company (i.e., not self-generated) for its own use.

For many companies, purchased electricity represents one of the largest sources of GHG emissions and the most significant opportunities to reduce these emissions. Companies can reduce their use of electricity by investing in energy efficient technologies and energy conservation. Additionally, emerging green power markets (i.e., renewable energy sources such as solar photovoltaic panels, geothermal energy, landfill gas, and wind turbines) provide opportunities for some companies to switch to less GHG intensive sources of electricity. Companies can also install an efficient onsite co-generation plant if it replaces the purchase of more GHG intensive electricity from the grid or electricity supplier. *Core indirect* reporting facilitates the transparent

accounting of the GHG emissions and benefits associated with such opportunities.

- **Transmission and Distribution.** Electric utility companies often purchase electricity from independent power generators or the grid and resell it to end-consumers through a transmission and distribution (T&D) system. A portion of the electricity purchased by a utility company is consumed (T&D loss) during its transmission and distribution to end-consumers.

The reporting company that owns the T&D lines should report the emissions associated with the purchased electricity that is consumed during T&D as core indirect emissions (i.e., not reported by the end users, as they do not own or control the T&D operation where the electricity is consumed, or, therefore, the T&D loss). This approach ensures that there is no double counting because only the T&D utility company will account for indirect emissions associated with T&D losses.

End consumers may, however, report their indirect emissions associated with T&D losses in optional emissions as “generation of electricity consumed in a T&D system.”

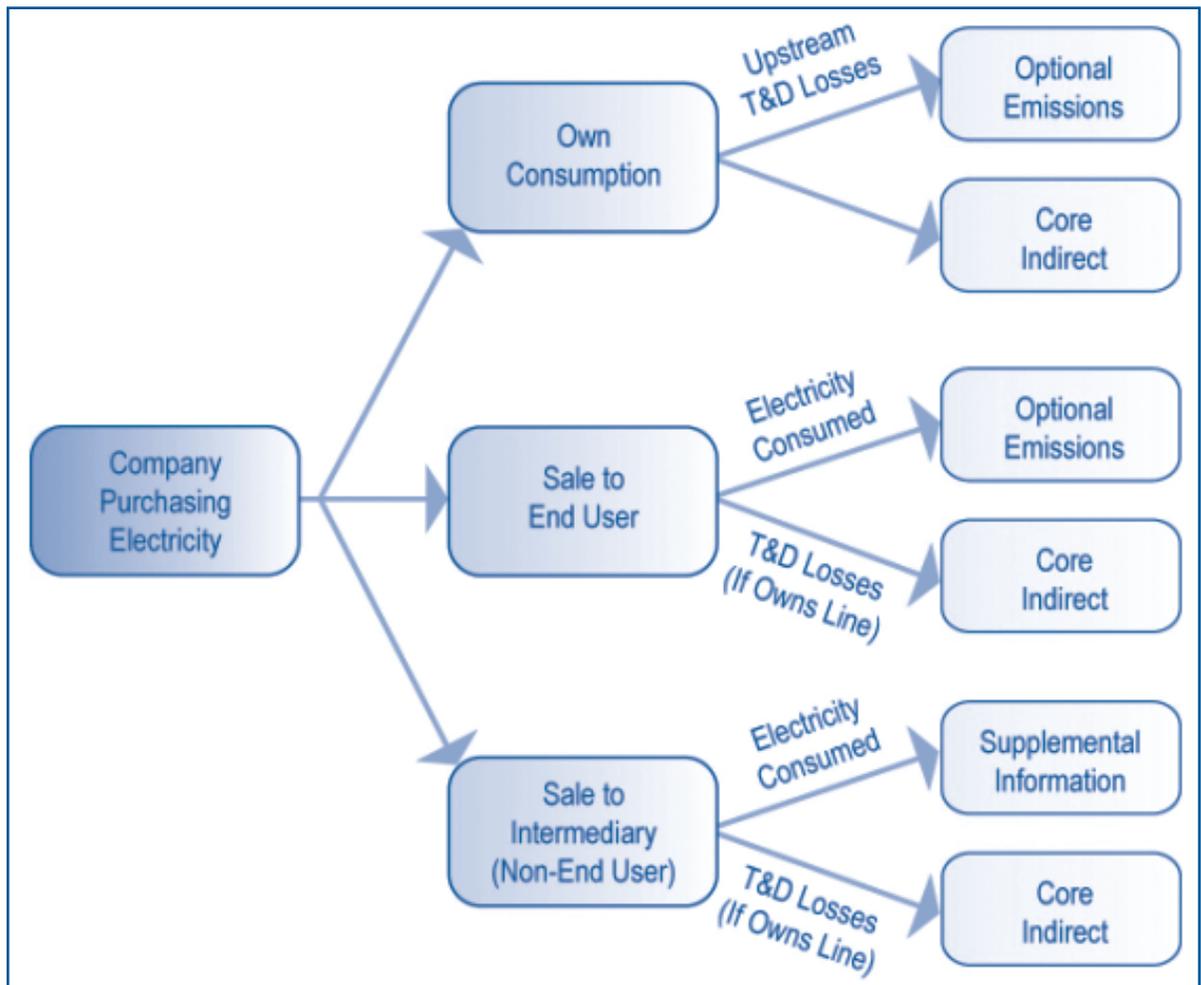
- **GHG emissions from activities upstream of the electricity provider** (e.g., exploration, drilling, flaring, transportation, and refining) shall not be included with the *core indirect emissions* reporting but may be reported as optional emissions.
- **Purchase of electricity for sale to end-users.** Should not be reported under *core indirect emissions*, but may be reported in optional emissions.

- Purchase of electricity for resale.** Also referred to as trading transactions of electricity should not be reported under *core indirect emissions* or *optional emissions*, but may be reported under supplemental information.

*Climate Leaders strongly encourages electric utility Partners to include the emissions of electricity purchased for sale to end users in their GHG inventory and goal. This is especially true for utilities that purchase power for a significant portion of their end user demand.*

Figure 4-1 summarizes emissions reporting from the sale and purchase of electricity.

**Figure 4-1: Emissions Reporting From the Purchase and Subsequent Use or Sale of Electricity**



**Example: Reporting GHGs from Generation, Purchase, and Sale of Electricity**

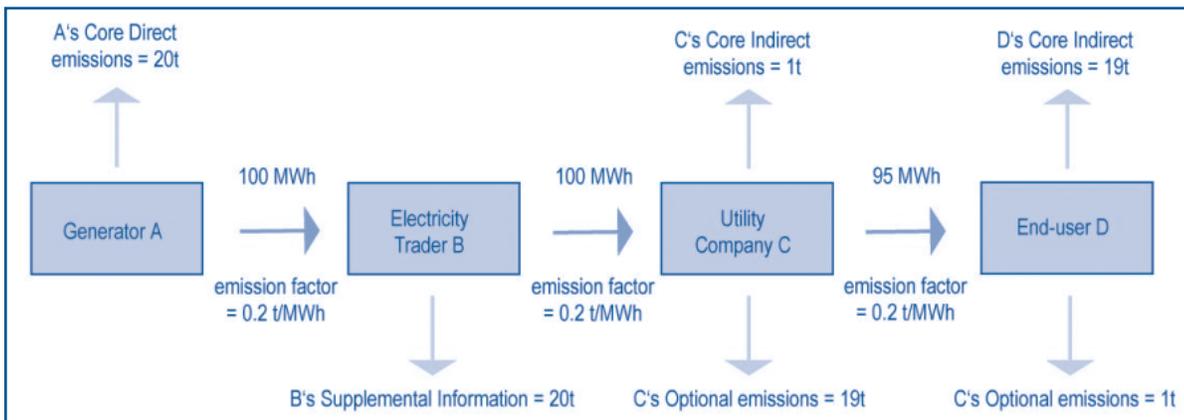
**Example one:** Company A is an independent power generator that owns a power generation plant. The power plant produces 100 MWh of electricity and releases 20 tons of emissions per year. Company B is an electricity trader and has a supply contract with Company A to purchase all of its electricity. Company B re-sells the purchased electricity (100 MWh) to Company C, a utility company that owns/controls the T&D system. Company C consumes 5 MWh of electricity in its T&D system and sells the remaining 95 MWh to Company D. Company D is an end user who consumes the purchased electricity (95 MWh) in its own operations.

Company A reports its direct emissions from power generation as *core direct* emissions. Company B *may optionally* report emissions from the purchased electricity sold to a non-end-user as *supplemental* information separately from *optional* emissions. Company C *may* report the indirect emissions from the generation of the part of the electricity that is sold to the end-user as *optional* emissions. *However, Company C shall report* the part of the purchased electricity that it consumes in its T&D system as *core indirect* emissions. Company D (end-user) reports the indirect emissions associated with its own consumption of purchased electricity under *core indirect* emissions and can optionally report emissions associated with upstream T&D losses as *optional* emissions.

Figure 4-2 shows the accounting of emissions associated with these transactions.

**Example two:** Company D installs a co-generation unit and sells surplus electricity to neighboring Company E for its consumption. Company D reports all direct emissions from the co-generation unit as *core direct* emissions. Company D *optionally* reports indirect emissions from the generation of electricity for export to Company E under supplemental information separate from *optional* emissions (see Chapter 8 on accounting for this in Climate Leaders goal tracking). Company E reports indirect emissions associated with the consumption of electricity purchased from the Company D’s co-generation unit under *core indirect* emissions.

**Figure 4-2: GHG Accounting from the Sale and Purchase of Electricity**



### Optional Emissions Reporting

*Optional* emissions reporting allows for the inclusion of emissions that are a consequence of the activities of the reporting company, but occur from sources not owned or controlled by the reporting company, and are not part of the reporting company's *core* emissions.

*Partners* may choose to report optional emissions to take a leading role in achieving comprehensive GHG reductions and environmental stewardship.

Emissions reported under these *optional* emissions sources should be adequately explained and supported by data and evidence. It will not be relevant or appropriate for companies to report on all of the activities listed below. Companies should report those activities that are relevant to their business and goals, and for which they have reliable information.

Such *optional* emission sources might include:

- Extraction and production of purchased materials and fuels
- Transport-related activities:
  - ◆ Transportation of purchased materials or goods
  - ◆ Transportation of purchased fuels
  - ◆ Employee business travel
  - ◆ Employees commuting to and from work
  - ◆ Transportation of sold products
  - ◆ Transportation of waste
- Electricity-related activities not included as part of core indirect emissions:

- ◆ Extraction, production, and transportation of fuels consumed in the generation of electricity (either purchased or self-generated by the reporting company).
- ◆ Purchase of electricity that is sold to an end-user (reported by the utility company).
- ◆ Generation of electricity that is consumed in a T&D system (reported by the end-user).

- Leased assets, outsourced activities, and franchises: Emissions from such contractual arrangements are only classified as optional emissions if the selected consolidation approach (equity or control) does not apply to them. Clarification on the classification of leased assets should be obtained from the company accountant (see guidance on leased assets, outsourced activities, and franchises in Chapter 3).

- Waste disposal
  - ◆ Disposal of waste generated in operations
  - ◆ Disposal of waste generated in the production of purchased materials and fuels
  - ◆ Disposal of sold products at the end of their life

Some activities mentioned above may be included under *core direct* emissions if the pertinent emission sources are included in the organizational boundaries of the reporting company (e.g., if the transportation of products is done in vehicles owned or controlled by the company). To determine if an activity falls within *core direct* or *indirect* emissions, *Partners*

should refer to the selected consolidation approach (equity or control) used in setting its organizational boundaries (Chapter 3).

Accounting for *optional* emissions need not involve a full-blown GHG life cycle analysis of all products and operations. Usually it is valuable to focus on one or two major GHG-generating activities. Although it is difficult to provide generic guidance on *optional* emissions to include in an inventory, some general steps include the following:

1. **Describe the value chain.** It is important, for the sake of transparency, to provide a general description of the value chain and the associated GHG sources. Consideration of the company's inventory or business goals and relevance of the various *optional* categories will guide the choice as to how many levels upstream and downstream to include in this category.
2. **Consider the relevance of the various optional emission categories.** Only some types of upstream or downstream emissions categories might be relevant to the company. They may be relevant for several reasons: 1) they are or are believed to be of significant magnitude relative to *core* emissions, 2) they contribute to the GHG risk exposure, 3) they are deemed critical by stakeholders (e.g., feedback from customers, suppliers, investors, or civil society) or 4) there are potential emission reductions that could be undertaken or influenced by the company.

Examples include large manufacturing companies that have significant freight

transport-related emissions or outsourced activities (especially if the activity previously contributed to *core* emissions).

Commodity and consumer product companies may want to account for GHGs from transporting raw materials, products, and waste.

3. **Identify and engage** partners along the value chain (that contribute potentially significant amounts of GHGs), e.g., customers/users, product designers/manufacturers, and energy providers. This is important when trying to identify sources, obtain relevant data, and calculate emissions.
4. **Quantify optional emissions.** *EPA encourages Partners to report emissions from optional sources to maximize opportunities to meet a GHG reduction target. In some cases, optional sources may be a significant piece of a Partner's total climate footprint, so including optional sources could greatly increase the credibility of a company's inventory. However, there are many sources of optional emissions that are difficult to calculate due to challenges in collecting data and lack of standardized calculation methodologies. To maintain the accuracy and credibility of Climate Leaders Partners' inventories, EPA only allows Partners to report optional emissions from sources for which a standardized calculation methodology exists.*

### Double Counting

*Core direct and core indirect emissions have been carefully defined to ensure that two different reporting companies will not account for emissions in the same category, to avoid double counting. Nonetheless, concern is often expressed that accounting for indirect emissions will lead to double counting when two different companies include the same emissions in their respective inventories. This depends on how consistently companies with shared ownership choose the same approach (equity or control) to set the organizational boundaries. However, for GHG risk management and voluntary reporting, double counting is less important. The inventories created for the Climate Leaders program are designed to reflect as accurately and transparently as possible the emissions over which Partner companies have control and can proactively implement reductions.*

Appendix 1 lists common GHG emissions sources and activities by emission category and industrial sector.