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USING DATA TO MEASURE IMPACTS

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Agenda

1. Background
2. Data Sourcing
3. BEA City Example
4. Calculating impacts
5. Wrap-up and Q&A

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Purpose of this webinar

- Series: Tools for Sustainability Webinar
- Objective: Learn process of conducting an impact analysis of BEA policies and projects

- Today's webinar: "Using Data to Measure Policy Impacts" is 3 of 4 in series
- Objective: Learn how to conduct calculations for impact assessment

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Building Efficiency Accelerator

Types of Tracking Progress:

1. Selecting indicators & methods to track progress on BEA Actions

2. Methods for measuring impacts of city energy efficiency actions

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Why tracking the GHG impacts of BEA actions?

- Understand effects of polices/projects
- Communicate progress towards goals
- Accountability and transparency
- Improving efforts and scaling up projects

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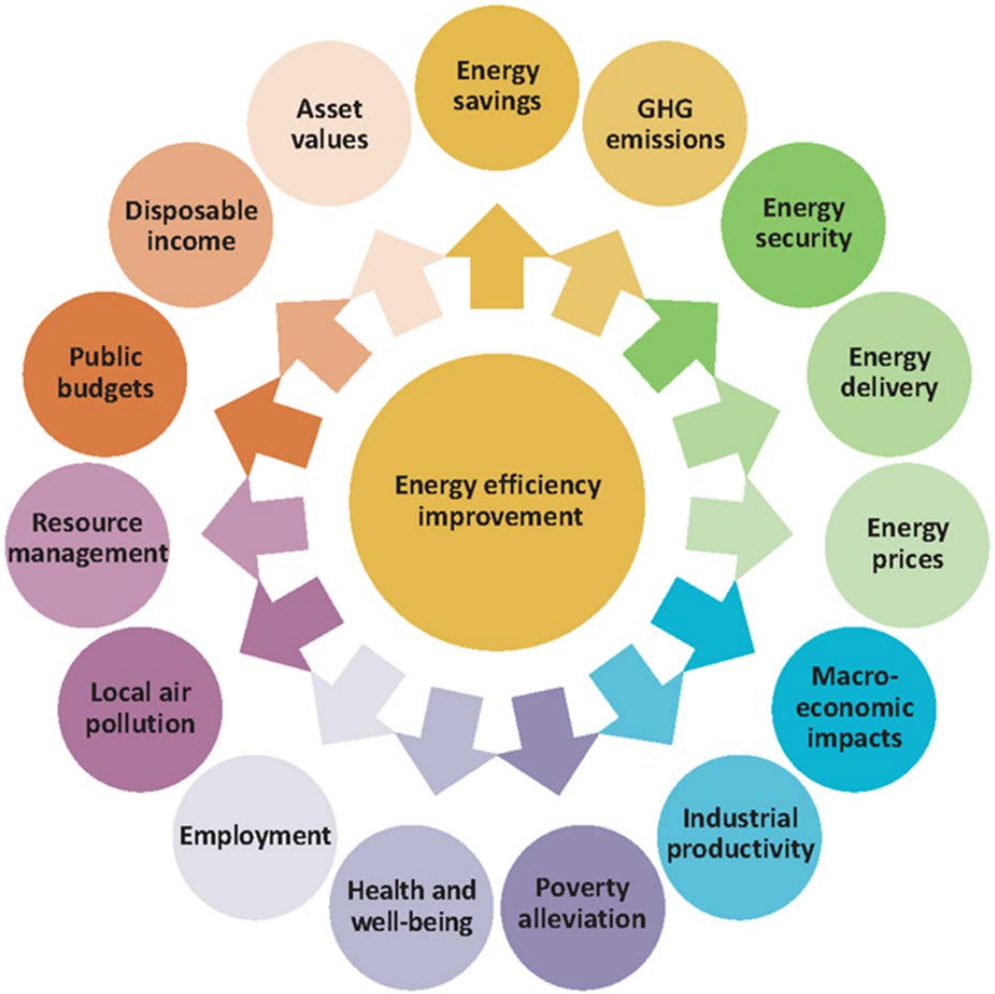
The Multiple Benefits of Energy Efficiency (IEA)



Energy Efficient Prosperity

Energy efficiency as a means to support economic and social development

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Impact Estimation for BEA

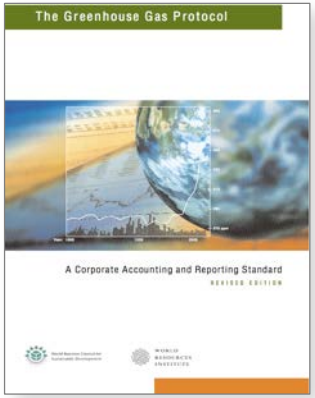
- Impact estimation analyses for 7 cities
- Important to assess the potential effects of policies and projects in a relevant, consistent, and accurate way
- Process for cities:

- Potentially more guidance/resources for all cities with progress

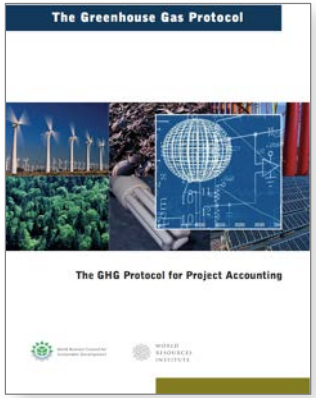
The Greenhouse Gas Protocol

- The GHG Protocol sets the global standard for how to measure, manage, and report greenhouse gas emissions
- Convened in 1998 by WRI and WBCSD
- Provides:
  - Greenhouse gas accounting and reporting standards
  - Sector guidance
  - Calculation tools
  - Trainings (webinar, e-learning and in-person training)
- Standards and tools available free of charge at www.ghgprotocol.org

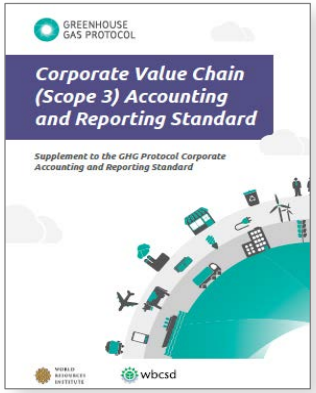
Greenhouse Gas Protocol standards



Corporate Standard



Project Protocol

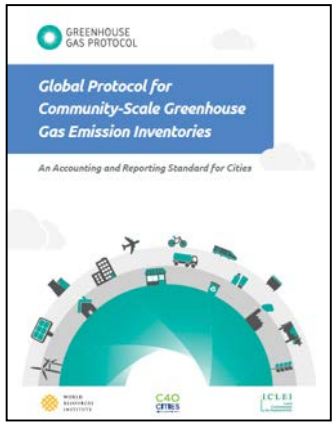


Corporate Value Chain (Scope 3) Standard

Product Standard

Policy and Action Standard

Mitigation Goal Standard



Global Protocol for Cities (GPC)

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Policy and Action Standard

The standard helps to answer the following questions:

- What effect is a given policy or action likely to have on GHG emissions in the future?
- Is a given policy or action on track and delivering expected results?
- What effect has a given policy or action had on GHG emissions?

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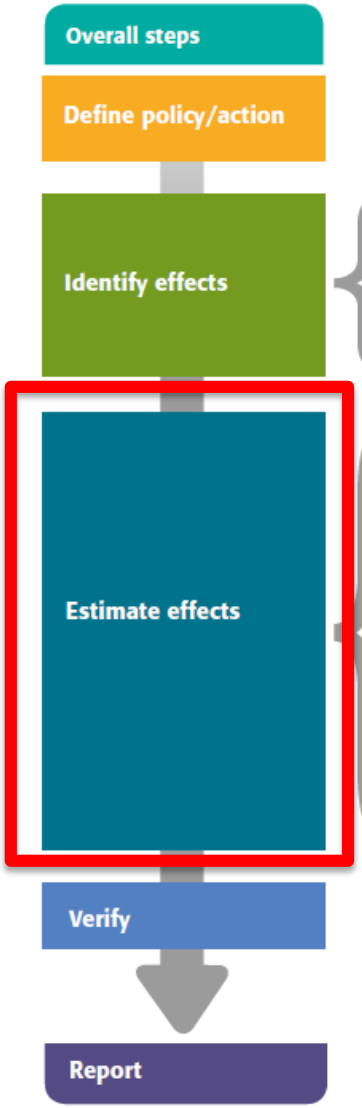
Steps in policy/action assessment



Detailed steps	Chapter
Define the policy or action to be assessed; choose ex-ante or ex-post assessment	5
Identify all potential GHG effects of the policy or action; include them in a map of the causal chain	6
Define the GHG assessment boundary around significant effects; identify the sources/sinks in the boundary	7
Estimate baseline emissions for all affected sources/sinks included in the boundary	8
Ex-ante assessment: Estimate policy scenario emissions for affected sources/sinks; subtract baseline emissions to estimate GHG effect	9
Identify key performance indicators; monitor performance over time	10
Ex-post assessment: Estimate policy scenario emissions for affected sources/sinks; subtract baseline emissions to estimate GHG effect	11
Assess uncertainty (relevant to Chapters 8, 9, 10, and 11)	12
Verify results (optional)	13
Report results and methodology used	14

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Data necessary for Assessment

- Activity Data: a quantitative measure of a level of activity that results in GHG emissions

- Emission Factors: factor that converts activity data into GHG emissions data.

GHG emissions =

Activity data × Emission factor

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Sourcing Data

Table 8.6 Examples of activity data and emission factors

Examples of activity data	Examples of emission factors
Liters of fuel consumed	kg CO_2 emitted per liter of fuel consumed
Kilowatt-hours of electricity consumed	kg CO_2 emitted per kWh of electricity consumed
Kilograms of material consumed	kg PFC emitted per kg of material consumed
Kilometers of distance traveled	t CO_2 emitted per kilometer traveled
Hours of time operated	kg SF_6 emitted per hour of time operated
Square meters of area occupied	g N_2O emitted per square meter of area
Kilograms of waste generated	g CH_4 emitted per kg of waste generated

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Collecting Data

Figure A.1 Iterative process for collecting data

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Collecting Data

Figure A.1 Iterative process for collecting data

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Choosing a level of accuracy

- Users should determine the desired level of accuracy and completeness of the GHG assessment based on a range of factors, including:
  - Objectives of the assessment, intended uses of the results, and the level of accuracy and completeness required to meet stated objectives
  - Relative significance of the policy or action being assessed
  - Data availability
  - Capacity, resources, and time available to carry out the assessment

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Choosing a level of accuracy

A range of methods are available to estimate the GHG effect of policies

Table 8.5 Range of methodological options for estimating baseline emissions using the scenario method

Level of accuracy	Emissions estimation method	Other policies or actions included	Non-policy drivers included	Assumptions about drivers and parameters	Source of data for drivers and parameters
Lower	Lower accuracy methods (such as Tier 1 methods in the IPCC *Guidelines for National GHG Inventories*)	Few significant policies	Few significant drivers	Most assumed to be static or linear extrapolations of historical trends	International default values
	Intermediate accuracy methods	Most significant policies	Most significant drivers	Combination	National average values
Higher	Higher accuracy methods (such as Tier 3 methods in the IPCC *Guidelines*)	All significant policies	All significant drivers	Most assumed to be dynamic and estimated based on detailed modeling or equations	Jurisdiction- or source-specific data

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Collecting Data

Figure A.1 Iterative process for collecting data

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Data Collection Procedures

Procedures	Description
Data compilation	The processes that have been followed to compile the data should be clearly described. This may include a description of how the data is compiled, who has compiled the data, and where the data is stored.
Data processing	The steps taken to further process the data should be clearly described. This should include details of any modifications or corrections that have been made to the data, including the cleaning of data sets, the removal of outliers and any other adjustments. These changes should be documented, along with a brief justification for any key decisions.
Quality assurance / quality control	For key data sources or data sets, users should provide a judgment on the overall quality of the analysis. This may require a subjective assessment, but the aim is to provide an indication of the overall quality of the data and the main uncertainties. Established QA/QC procedures should be clearly followed.

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Collecting Data

Figure A.1 Iterative process for collecting data

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Bottom-up and top-down data and methods

- Data:
  - Bottom-up data are measured, monitored, or collected
  - Top-down data are macro-level statistics collected at the jurisdiction or sector level
- Methods:
  - Bottom-up methods calculate or model the change in GHG emissions for each source, project, or entity affected by the policy or action, then aggregate
  - Top-down methods use statistical methods

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