



INTERNATIONAL FINANCIAL INSTITUTIONS TECHNICAL WORKING GROUP ON  
GREENHOUSE GAS ACCOUNTING

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**IFI TWG - AHG-002**

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# Methodology/approach to account project emissions associated with grid electricity consumption

Version 01.0

Date: December 2020

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## 1. Overview

1. This note sets out a harmonized approach for the assessment of GHG emission associated with grid electricity consumption, in accordance with the International Financial Institution (IFI) Framework for a Harmonized Approach to Greenhouse Gas Accounting. In particular, the note provides guidance for the selection of activity data and grid emission factors, building on the work done by the Technical Working Group (TWG) of IFIs, which elaborated a common set of emission factors (Combined Margins) for electricity grids.

## 2. Scope of the guidance

2. This guidance applies to any investment project that uses grid electricity as an energy source. Examples of project types that are relevant for the approach are provided below (the list below is not exhaustive).
  - (a) Heat pumps, lights and appliances in buildings;
  - (b) Electric motors, pumps, robots, etc. in manufacturing facilities;
  - (c) Pumps, sensors and control systems in waste-water treatment plants;
  - (d) Servers, telecommunications towers, computers, telephones and other ICT devices;
  - (e) Electric vehicles (buses, cars, trucks, lawn motors, forklifts at ports, and tractors in agriculture, etc.).
3. This guidance applies to both greenfield and brownfield projects, for the calculation of absolute or relative GHG emissions associated with grid electricity consumptions.
4. For specific project types that use grid electricity as an energy source, the IFI may, in the future, develop additional and more specific guidelines. Where these more specific guidelines will be available, they will supersede the guidance provide in this document.

## 3. Activity data - electricity consumption

5. Assumptions for electricity consumption (MWh/year) should be based on and consistent with the project appraisal documentation and the due diligence documentation of IFIs.

## 4. Choice of grid emission factors

6. The following approaches are recommended for the choice of grid emission factors depending upon the availability of data (e.g., load profile and operational details of projects) and types of applications, unless otherwise prescribed in the specific IFI TWG methodology/guidance applied for estimating GHG emissions.

7. **Tier 1:** Tier 1 calculations use grid EFs from the IFIs common dataset containing Default Emission Factors (DEFs)<sup>1</sup>. Appropriate values<sup>2</sup>. shall be selected using Combined Margin (CM) grid emission factor in which the weight of the grid Operating Margin (OM) is 33% and the weight of the Built Margin (BM) is 67%. This approach is most appropriate to apply in the case where grid emissions associated with project electricity consumption cannot be estimated accurately (e.g., due to paucity of hourly generation profile data or estimation of such would require sophisticated modelling). A tier 1 approach cannot be used with projects that actively manage electricity loads by modifying consumption profiles to achieve desired goals (e.g., matching consumption with the availability of electricity produced from a specific energy source). In such cases a higher tier 2 or tier 3 calculation approach is required.
  
8. **Tier 2:** This approach, like the tier 1 approach, can be used where grid emissions associated with project electricity consumption cannot be estimated accurately. As opposite to tier 1 calculations, however, tier 2 calculations are based on default grid emission factors that are country- and application-specific and not just country-specific. This approach hinges on using emission factors by project type, estimated through past studies of similar project types or from published literature/research. The table below (illustrative) shows how an IFI may articulate application specific grid EFs for a country.

Application	Tier 2 default grid EF for country x
Heat pumps, lights and appliances in buildings	
Electric motors, pumps, robots, etc. in manufacturing facilities	
Pumps, sensors and control systems in waste-water treatment plants	
Servers, telecommunications towers, computers, telephones and other ICT devices	
Electric vehicles	

9. **Tier 3:** Tier 3 calculations are based on emissions factors that are project-specific and not based on a default Emission Factor. The implementation of this approach requires a project-specific study, entailing detailed load profile data and modelling tool/capacity to estimate the GHG emissions due to project interventions. The results of such studies by an IFI may be submitted to the IFI TWG and may be used as a source of default grid emissions factors for tier 2 calculations undertaken when implementing similar projects.

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<sup>1</sup> As and when country specific data becomes available to the IFIs, e.g., through their detail country studies, such information can be used to calculate the country-level grid EFs following the principle and methodology stipulated in the IFIs document [Methodological Approach for the Common Default Grid Emission Factor Dataset](#).

<sup>2</sup> The DEFs and the methodology are available [here](#).

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### Document information

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<i>Version</i>	<i>Date</i>	<i>Description</i>
01.0	15 December 2020	Initial adoption.

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