United Nations Framework Convention on Climate Change

Grid emission factor for Grenada

OPPORTUNITES FOR CLEAN TECHNOLOGIES UNDER THE CARBON MARKET

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OUTLINE

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What is a grid emission factor?

Measure of CO_2 emissions intensity per unit of electricity generation in the grid system (tCO_2/MWh)

How a GEF is calculated?

- "Tool to calculate the emission factor for an electricity system", **or**
- **"Guidelines for the establishment of sector specific standardized baselines"**

Step 1: Identify host country(ies), sectors, output(s) and measures

(i) Country: Grenada

(ii) Sector: Power generation sector

(iii) Measure: Measure 2 - Switch of technology with or without change of energy sources (including energy efficiency improvement).

Step 2: Establish the baseline

The cumulative output (Oi) e.g. XX GWh/year, produced based on technologies is arranged in descending order of carbon intensity of the technologies.

The baseline is set at **90%** of the cumulated output of the sector.

Step 3: Establish the grid emission factor

By applying these guidelines, the deemed baseline grid emission factor is the CO2 intensity at **90%** of Oi

CDM projects that replace grid electricity can calculate their "*carbon credits*" (CERs) on the basis of the difference between the emission factor of the electricity grid and the project emission factor, multiplied by the amount of electricity produced.

The GEF of Grenada

Grid Emission Factor and Baseline Identification for Grenada

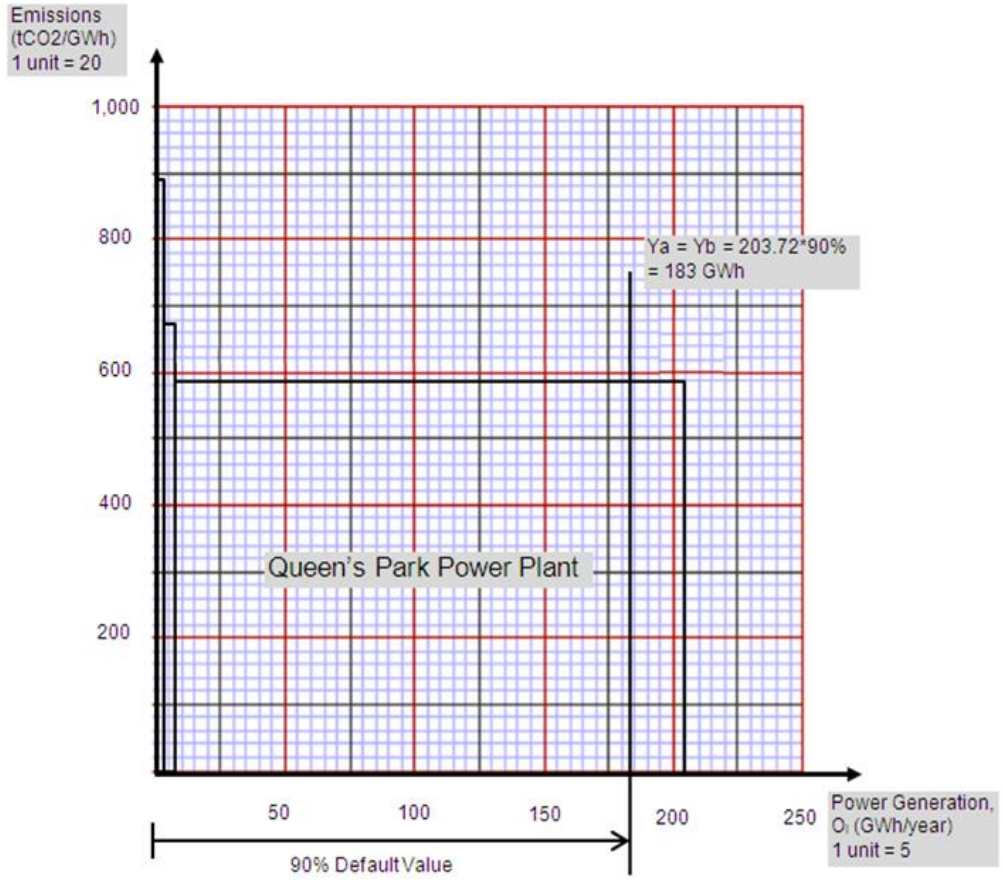
Plant's Name	Type of Fuel	EF CO_2	NCV	Average Power Generation	Average CO_2 Emissions	Emissions per GWh
		tCO_2/TJ	TJ/Gg	GWh/year	tCO_2/year	tCO_2/GWh
Petite Martinique Power Plant	Diesel	72.60	41.40	0.78	660	846
Carriacou Power Plant	Diesel	72.60	41.40	7.80	5,003	641
Queen's Park Power Plant	Diesel	72.60	41.40	195.13	114,181	**585**
	Total			**203.72**		

Data from Grenada Electricity Services Ltd. (GRENLEC)

The data on annual average power generation (GWh/year) representing 2010-2012 for 3 power plants.

The list of power plants is arranged in descending order of carbon intensity per unit of power produced (tCO2/GWh).

The GEF of Grenada



The grid emission factor of Grenada is **0.585 tCO2/MWh**

GEFs in the Caribbean

Country	GEF, tCO2/MWh (CDM projects) *	GEF, tCO2/MWh (RCC St. George's) **
Antigua & Barbuda	-	In progress
Bahamas	0.723 (CDM 5620)	-
Belize	-	0.2278 (PSB0006)
Grenada	-	0.585 (PSB0023)
Guyana	0.948 (CDM 1458)	In progress
Jamaica	0.834 (CDM 0239)	Data gathering
St Vincent & the Grenadines	-	0.7309 (PSB0021)
Trinidad & Tobago	0.666 (CDM 9358)	In progress

*) https://cdm.unfccc.int/Projects/projsearch.html

**) https://cdm.unfccc.int/methodologies/standard_base/new/sb8_index.html

Final remarks

1. Accurate GEF values supports (part of) the **decision making process** to achieve renewable energy targets under country or regional plans by
   - **Selecting** type/size of interventions based on emission reductions
   - Providing **Monitoring Reporting & Verification frameworks** that have been already applied

2. GEF is used to calculate the emission reduction from **renewable energy**

3. GEF is also used to estimate carbon reductions for any type of intervention that **reduces electricity consumption** e.g. energy efficiency

4. RCC St George's provides *in-kind* **assistance** to regional stakeholders in
   - Carbon accounting for electricity sector interventions; e.g. renewable energy and energy efficiency technologies
   - Estimating/updating GEFs

THANK YOU!

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