
Component methodology proposal: Location based baseline for grid-connected solar thermal renewable energy projects

Submission details

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Description

This component methodology outlines the baseline scenario for projects supplying solar thermal renewable energy into a national power grid (where no direct client supply contract or REC is applicable).

Applicability:

This component methodology is applicable to renewable energy projects delivering electricity to a national power grid and to projects not previously transferred from or previously registered under another carbon credit registry or standard.

Categorisation

Category: Emission reduction

Sectoral scopes:

- Energy industries**
- Energy distribution**
- Energy demand**
- Manufacturing industries
- Chemical industries
- Construction
- Transport
- Mining/mineral production
- Metal production
- Fugitive emissions from fuels
- Fugitive emissions from production and consumption of halocarbons and sulphur hexafluoride
- Solvent use
- Waste handling and disposal
- Afforestation and reforestation
- Agriculture
- Other

Motivation

To complete a full suite of component methodologies for use with solar PV and other renewable energy projects that generate electricity tied into a national grid.

Explanation of the compatibilities and possible combinations with other component methods

This component methodology is compatible with all other component methodologies that deal with projects delivering renewable energy into a national power utilities grid.

Note on required questions

Please be aware that * indicates responding to these questions is required.

Part 1: Project Form

1. Applicability Criteria

1.1. * Confirmation of project type: Renewable Energy where no direct client supply contract or renewable energy certificate is applicable _____

Is this a renewable energy project, with no direct client supply contract or RECs?

- Yes
 No

1.2. * Confirmation that the project delivers renewable energy into a national electricity grid. _____

- Yes
 No

1.3. * Confirmation that the project is not being transferred from or has been previously registered under another carbon credit registry or standard. _____

- Yes
 No

2. Baseline Emissions

2.1. * National electricity grid host country: _____

State the host country of the electricity grid into which the project will be supplying electricity.

2.2. * Carbon dioxide emissions from all fossil-fuel-derived energy generation connected to the host country's electricity grid: _____

The latest annual total tonnes of CO₂ emissions from all national electricity utility providers.

2.3. * Carbon dioxide emissions from electricity generation source document

Upload the source document/s referencing the relevant year's annual carbon dioxide emissions, for example, the latest published Eskom (South African Energy Utilities) Integrated Annual Report.

2.4. * Carbon dioxide emissions from electricity generation reference year: _____

State the year that the data above is provided for.

2.5. * Total electricity generated and delivered to the national grid in the reference year.

The latest annual total MWh provided to the national grid by all electricity utility providers.

2.6. * Total electricity generated and delivered to the national grid in the reference year source document

Upload the source document/s referencing the relevant year's annual total electricity provided to the national grid.

Part 2: Data capture input fields

Parameters

MonitoringPeriodStart	
Symbol	MPStart
Data Unit	s
Description	Required parameter: Start date of monitoring period
Type of parameter	InputParameter
Source of data	Manual data entry
Choice of data or measurement methods and procedures	Manual
Quality control procedures	-
Purpose of data	to store the start of monitoring period
Additional comment	-

MonitoringPeriodEnd	
Symbol	MPEnd
Data Unit	s
Description	Required parameter: End date of monitoring period
Type of parameter	InputParameter
Source of data	Manual data entry
Choice of data or measurement methods and procedures	Manual
Quality control procedures	-
Purpose of data	to store the end of monitoring period
Additional comment	-

Grid Emission Factor	
Symbol	EFGGrid
Data Unit	tCO2/MWh
Description	The national grid emission factor prior to project implementation (GHG Protocol EFG location based)
Type of parameter	OutputVariable
Source of data	Calculated
Choice of data or measurement methods and procedures	National utility data analysis
Quality control procedures	According to national utility internal and external quality control procedures
Purpose of data	Calculating baseline emissions
Additional comment	

TotalCO2fromNationalUtilities	
Symbol	TotalCO2
Data Unit	tCO2e
Description	The total amount of carbon dioxide emissions from all fossil-fuel derived electricity delivered to the national grid
Type of parameter	Constant
Source of data	Manual data entry
Choice of data or measurement methods and procedures	According to grid host data collection captured in Section 2: Baseline Emissions, of this component methodology.
Quality control procedures	
Purpose of data	Calculating the host country grid emission factor
Additional comment	

TotalNationalElectricityGenerated	
Symbol	TotalEGC
Data Unit	GWh
Description	Total electricity generated by the host country's national electricity utilities provider/s
Type of parameter	Constant
Source of data	Manual data entry
Choice of data or measurement methods and procedures	According to grid host data collection captured in Section 2: Baseline Emissions, of this component methodology.
Quality control procedures	
Purpose of data	Calculating the host country grid emission factor
Additional comment	

Import&IPPElectricity	
Symbol	EGenImpIPP
Data Unit	GWh
Description	Total imported and independently generated electricity supplied to the host country's national electricity grid
Type of parameter	Constant
Source of data	Manual data entry
Choice of data or measurement methods and procedures	According to grid host data collection captured in Section 2: Baseline Emissions, of this component methodology.
Quality control procedures	
Purpose of data	Calculating the host country grid emission factor
Additional comment	

Baseline Electricity Consumption	
Symbol	ElecCons
Data Unit	kWh
Description	Monthly electricity consumption of the project activity generated electricity that displace grid electricity consumption
Type of parameter	InputParameter
Source of data	Manual data entry
Choice of data or measurement methods and procedures	
Quality control procedures	
Purpose of data	For the calculation of emissions reduction
Additional comment	

Baseline Emissions	
Symbol	BE
Data Unit	tCO2e
Description	Baseline emissions per month before project implementation
Type of parameter	OutputVariable
Source of data	
Choice of data or measurement methods and procedures	
Quality control procedures	
Purpose of data	Calculation of emissions reduction
Additional comment	

Baseline Emissions for Monitoring Period	
Symbol	BEForMP
Data Unit	tCO ₂ e
Description	Total baseline emissions during the monitoring period
Type of parameter	OutputVariable
Source of data	
Choice of data or measurement methods and procedures	
Quality control procedures	
Purpose of data	Calculating monitoring period emissions reduction
Additional comment	

Grid Emission Factor Landmark Value	
Symbol	EFGridLM
Data Unit	tCO ₂ /MWh
Description	Grid emission factor for relevant grid in reference year
Type of parameter	OutputVariable
Source of data	
Choice of data or measurement methods and procedures	
Quality control procedures	
Purpose of data	For emissions reduction calculation via a grid emission factor landmark value
Additional comment	

Equations

Name	Equation	Component Methodology
Eq1: EFG (Location-based)	$EFG_{Grid} := \frac{TotalCO2}{(TotalEGC + EGenImpIPP)}$	DM(B)-076
Eq2: Baseline emissions from Grid	$BE_{\{m \text{ in Month}\}} = ElecCons[m] * EFG_{Grid}$	DM(B)-076
Eq 3: Baseline emissions monitoring period	$BE_{ForMP}\{mp \text{ in MonitoringPeriod}\} = \sum\{(mo, mv) \text{ in ProjectElement: } mo \text{ in Month} \ \&\& \ MPStart[mp] \leq num(mv) \ \&\& \ num(mv) < MPEnd[mp]\} BE[mo];$	DM(B)-076
Eq 4: Host country/grid grid emission factor	$EFG_{GridLM} \{e \text{ in ElectricityGridHost}\} = EFG_{Grid}$	DM(B)-076

Part 3: Monitoring and evaluation input fields

