PROJECT CONCEPT NOTE

CARBON OFFSET UNIT (CoU) PROJECT

Title: I Solar Power Project by Future Energy

Version 1.1

Date 18/11/2025

First CoU Issuance Period: 9 Years and 10 Months.

Date: 06/02/2025 to 31/12/2034

Project Concept Note (PCN) CARBON OFFSET UNIT (CoU) PROJECT

BASIC INFORMATION	
Title of the project activity	I Solar Power Project by Future Energy
Scale of the project activity	Small Scale
Completion date of the PCN	18/11/2025
Project participants	**Project Owner**: FUTURE ENERGY ONE BRASIL INTEGRADORA E COMERCIALIZADORA DE ENERGIA LIMPA LTDA. **Project Aggregator**: ECO_2 CONSULTING LTDA.
Host Party	Brazil
Applied methodologies and standardized baselines	Applied Baseline Methodology: AMS-I.D.: "Grid connected renewable electricity generation", version 18 Standardized Methodology: Not Applicable
Sectoral scopes	01 Energy industries (Renewable Sources)
Estimated amount of total GHG emission reductions	To be estimated during verification [Ex-ante estimated at 8,636 CoUs per year]

SECTION A. Description of project activity

A.1. Purpose and general description of Carbon offset Unit (CoU) project activity >>

The **I Solar Power Project by Future Energy** (hereafter referred to as "project") consists of a bundled solar power plant installation of total capacity of 8.998 MW. The three solar power plants are installed in São Desidério, state of Bahia, and Poço Redondo, state of Sergipe. The promoter of the project is "FUTURE ENERGY ONE BRASIL INTEGRADORA E COMERCIALIZADORA DE ENERGIA LIMPA LTDA." (hereinafter also referred as FUTURE ENERGY), a company who has developed and been operating all solar power plants. FUTURE ENERGY also has the full ownership of the project activity.

These solar power plants are operational since 2025 (different months for each plant) and are consistently reducing the emission of Greenhouse Gas emissions (GHGs). This reduction is currently being applied under "Universal Carbon Registry" (UCR) for receiving carbon finance for a long term sustainability of the project.

Purpose of the project activity:

The purpose of the project is to install and operate three new solar power plants at different locations. These solar power plants generate electricity using solar energy which is a clean and renewable source of energy for power generation. The generated electricity supplies the National Interconnected System (Sistema Interligado Nacional - SIN). The project activities are outlined in Table 1, with a total capacity of 8.998 MW.

Power Plant	City/State	Energy Source	Installed capacity (MW)	Annual generation (MWh/year)	Commissioning date
UFV Desidério III	São Desidério/BA	Solar PV	3.206	7,077.48	18/02/2025
UFV Desidério IV	São Desidério/BA	Solar PV	3.206	7,049.22	06/02/2025
UFV Poço Redondo	Poço Redondo/SE	Solar PV	2.586	5,179.42	27/05/2025

Since each power plant has an installed capacity of less than 5 MW, they are classified as mini-generation units under Brazil's electricity compensation system, regulated by the National Electric Energy Agency (ANEEL), in accordance with Normative Resolutions No. 482/2012, No. 687/2015, and Federal Law No. 14.300/2022. Under this system, the active energy injected by a consumer unit with distributed mini-generation is transferred, as a free loan, to the local distributor and subsequently compensated by offsetting the unit's consumption.

Emission reduction and impact of the project activity:

Prior to the implementation of the project, the electricity delivered to the grid by the project activity would be generated by the operation of grid-connected power plants and by the addition of new generation sources into the SIN.

With a nominal power capacity of 8.998 MW, the project is expected to supply an annual average of 19,306 MWh during the fixed 10-year crediting period, which replace the power generation of those fossil fuel-fired and other non-renewable power plants delivered to the SIN under the baseline

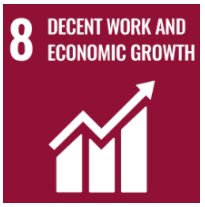
scenario.

Also, the project is expected to achieve greenhouse gas emissions reductions of **8,636 tCO2e annually**. The total emission reductions during the fixed **10-year crediting** period are **86,356 tCO2e**.

The project is expected to contribute to **SDG 7**, **8** and **13**.

SDG 7 Energy: The project contributes to SDG Target 7.2 "By 2030, increase substantially the share of renewable energy in the global energy mix" by the utilization of solar power as a renewable energy source.

SDG 8 Economic Growth: The project creates direct and indirect employment opportunities during construction and operation phases, so it contributes to SDG Target 8.5 "By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities and equal pay for work of equal value".



SDG 13 Climate Change: The project produces clean renewable energy by diminishing CO_2 emissions. Therefore, it contributes to SDG Target 13.3 "Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning".

Additional specific benefits are:

- Employment of local workforce during different project phases.
- Local development.
- Electricity generation with zero emissions of GHG gases or pollutants.
- Contribution on minimizing Brazil's fossil fuels use.
- Much lower impact on environment than usual power plants used in Brazil, such as hydroelectric.
- Contribution to clean energy investments and local providers development.
- Energy cost reduction; and
- Potentializing renewable energy share on Brazil's energy matrix.

A.2. Do no harm or Impact test of the project activity>>

There is no harm associated with project activity, and hence an environmental impact assessment study wasn't required by Brazilian regulations: according to the National Environment Council's (CONAMA) Resolution nº 1/19861, electricity generation plants under 10 MW are exempted from preparing an environmental impact study to be submitted for approval by the competent state body.

Thus, no mitigation measures are applicable. Instead, there are social, environmental, economic and technological benefits which contribute to sustainable development, as described:

Social benefits:
● Employment opportunities created for the local workforce during project's construction and implementation phases.
● Employment opportunities to be created throughout the lifetime of the project activity.
● Development of rural and remote regions around project activity.

Environmental benefits:
● Use of solar energy - a clean energy source - for generating electricity.
● Power generation with zero emissions of GHG gases or specific pollutants like SOx, NOx, and SPM.
● Effort to minimize the dependence of the Brazilian energy matrix on fossil fuels.
● Use of solar energy, which is also a renewable energy source, contributes to the conservation of natural resources.
● Minimum impact on land, water and soil on project surroundings.

Economic benefits:
● It fosters clean technology and clean energy investments in Brazil.
● It fosters the business development of local service providers in Brazil.
● Project activity can also provide new opportunities for industries and economic activities to be set in the area around the projects, developing rural and remote regions.
● It promotes energy cost reduction to consumers.
● Success of these kinds of projects will pave the way for the expansion of the shared distribution generation model in the national scenario, and therefore the consolidation of solar photovoltaic energy generation as one of the main sources in Brazil.

Table 2. Licenses related to the project.

Project	Power Plant	License number	Issued on	Valid to
I Solar Power Project by Future Energy	UFV Desidério III	SEMATUR 2024-014/TEC/LS-012	06/05/2024	06/05/2027 [to be renewed]
	UFV Desidério IV	SEMATUR 2024-014/TEC/LS-012	06/05/2024	06/05/2027 [to be renewed]
	UFV Poço Redondo	2024/TEC/LO-0211	02/12/2024	02/12/2027 [to be renewed]

A.3. Location of project activity >>

The location of each solar power plant for the current project is presented below.

Table 3. Location of each to the project.

Power Plant	Country	State	Municipality	Latitude	Longitude
UFV Desidério III	Brazil	Bahia	São Desidério	-45°9'28.11"	-12°41'37.45"
UFV Desidério IV	Brazil	Bahia	São Desidério	-45°9'26.34"	-12°41'41.16"
UFV Poço Redondo	Brazil	Sergipe	Poço Redondo	-37°48'5.98"	-9°49'39.69"

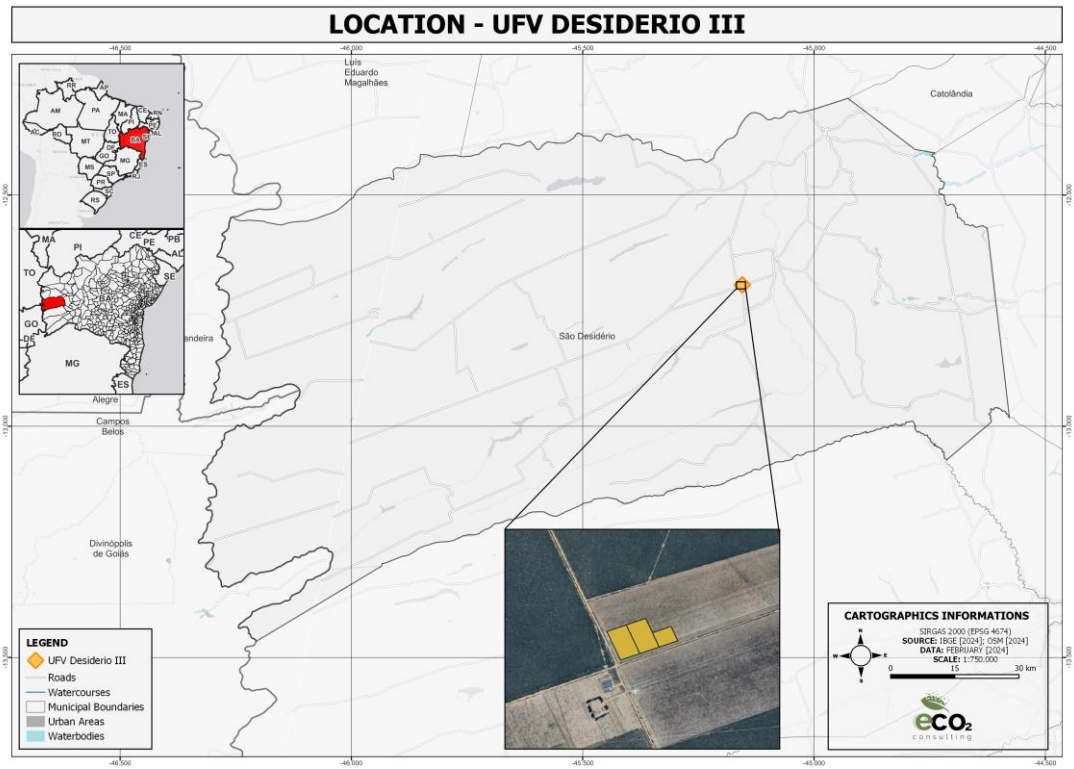


Figure 1. Geographical location of UFV Desiderio III.

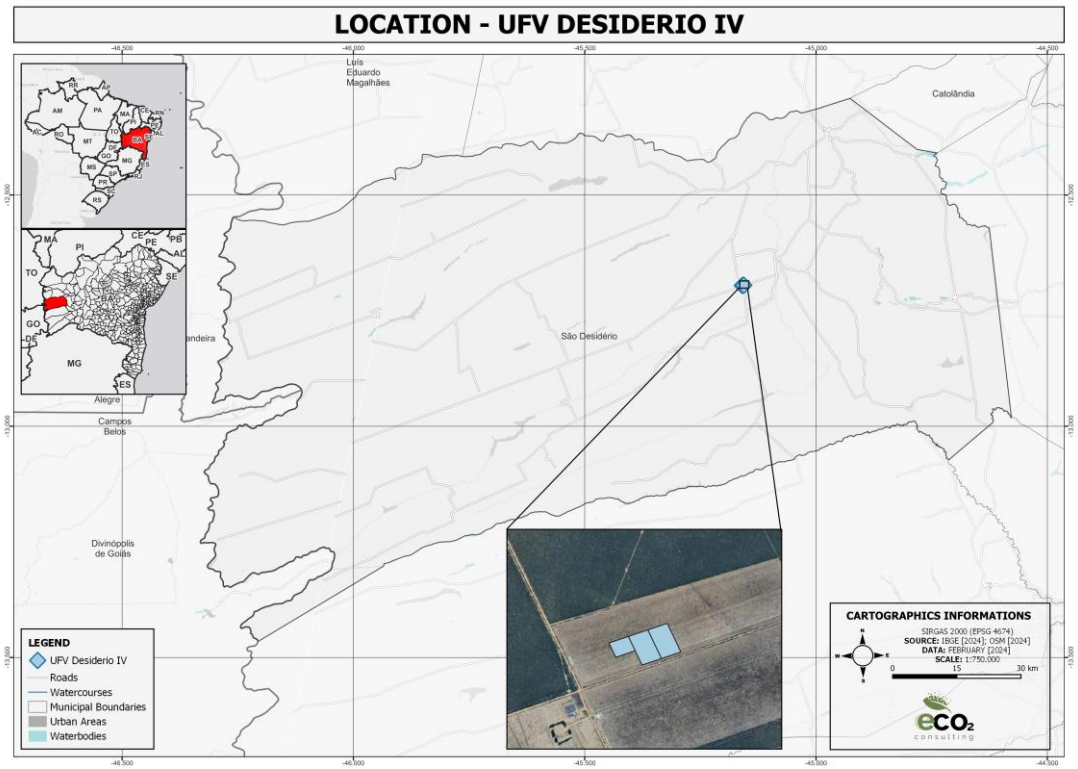


Figure 2. Geographical location of UFV Desiderio IV.

Figure 3. Aerial photography of UFV Desiderio III and UFV Desiderio IV.

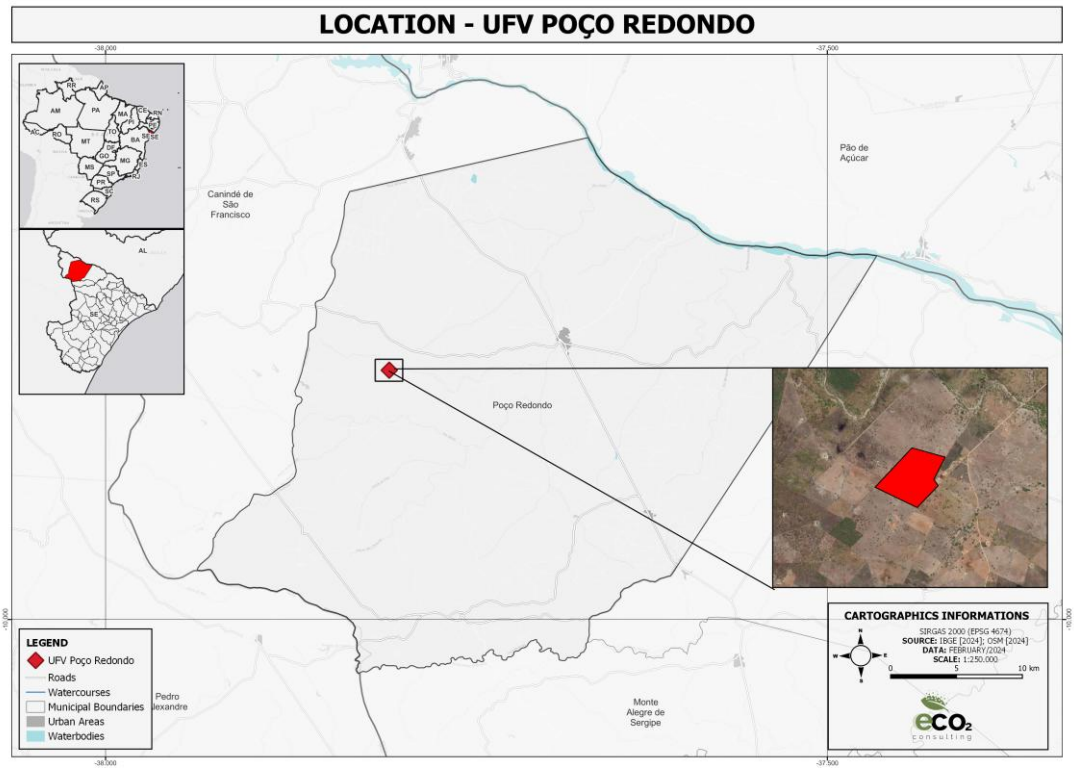


Figure 4. Geographical location of UFV Poço Redondo.

Figure 5. Aerial photography of UFV Poço Redondo.

A.4. Technologies/measures >>

Electricity can be generated using a wide range of technologies. Each country has unique characteristics that influence its ability to produce electricity, such as wind conditions, biomass availability, and hydrological potential.

In Brazil, there is an abundance of water resources, which supports electricity generation through hydroelectric power plants. However, this often comes with negative environmental and social impacts, such as flooding and the displacement of local populations. Due to Brazil's proximity to the equator, there is also significant potential for solar energy generation through solar power plants, which have far fewer negative impacts. In fact, they can offer positive benefits, such as reducing atmospheric emissions and creating jobs. As previously mentioned, this project involves the implementation of three new solar power plants in the municipalities of São Desidério and Poço Redondo, in areas that are currently unused.

Table 4. Detailed description of the equipment in UFV Desidério III.

Parameter	Unit
Power Plant	UFV Desidério III
Capacity (MW)	3.21 MW
Area (ha)	9.9 ha
Module Type	RSM132-8-695BHDG/695W
Number of Modules	4,650
Inverter Manufacturer	SUNGROW
Inverter Model	SG125HV
Inverter Capacity	125 kW
Number of Inverters	20

Table 5. Detailed description of the equipment in UFV Desidério IV.

Parameter	Unit
Power Plant	UFV Desidério IV
Capacity (MW)	3.21 MW
Area (ha)	9.9 ha
Module Type	RSM132-8-695BHDG/695W
Number of Modules	4,650
Inverter Manufacturer	SUNGROW
Inverter Model	SG125HV
Inverter Capacity	125 kW
Number of Inverters	20

Table 6. Detailed description of the equipment in UFV Poço Redondo.

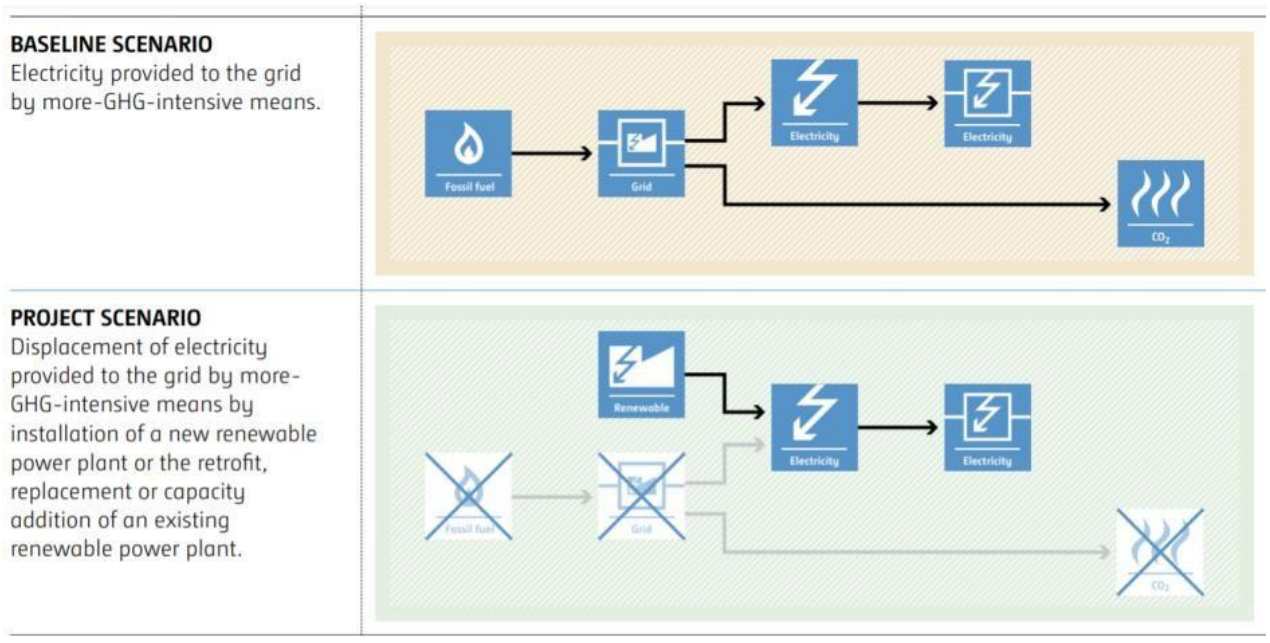
Parameter	Unit
Power Plant	UFV Poço Redondo
Capacity (MW)	2.59 MW
Area (ha)	13.5 ha
Module Type	RSM132-8-690BHDG/690W
Number of Modules	3,748
Inverter Manufacturer	HUAWEI
Inverter Model	SUN2000-215KTL-H3
Inverter Capacity	200 kW
Number of Inverters	12

A.5. Parties and project participants >>

Party (Host)	Participants
Brazil	**Project Owner:** FUTURE ENERGY ONE BRASIL INTEGRADORA E COMERCIALIZADORA DE ENERGIA LIMPA LTDA. Address: Rua Líbero Badaró 158, Centro, São Paulo SP, Brazil. Code 01008-904 Email: marcelo@futureenergy.one
Brazil	**Project Aggregator:** ECO_2 CONSULTING LTDA. Address: Rua Mamoré 1161, Mercês, Curitiba PR, Brazil. Code 80810-080 Email: mateus@eco2consulting.com.br

A.6. Baseline Emissions>>

Since the project is related to the installation and operation of a new grid-connected renewable power plant, the baseline scenario fits "electricity delivered to the grid by the project activity that would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the next pages of this document, in topic 'B.5. Establishment and description of baseline scenario'.



A.7. Debundling>>

Project **I Solar Power Project by Future Energy** is not a debundled component of a larger project activity.

SECTION B. Application of methodologies and standardized baselines

B.1. References to methodologies and standardized baselines >>

SECTORAL SCOPE – 01, Energy industries (Renewable/Non-renewable sources)

TYPE – I - Renewable Energy Projects

CATEGORY – AMS. I.D. (Title: "Grid connected renewable electricity generation", version 18)

B.2. Applicability of methodologies and standardized baselines >>

Project activity involves generation of grid connected electricity from the construction and operation of solar power-based power projects with an installed capacity of 8.998 MW, qualifying as a small-scale project activity under Type-I of the Small-Scale methodology. The project status corresponds to the methodology AMS-I.D. version 18, and its applicability is discussed below:

Applicability Criterion	Project Case
1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: (a) Supplying electricity to a national or a regional grid; or (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling	All project activities include the installation of a renewable energy (solar photovoltaic) generation plant that supplies electricity to the Brazilian regional grid. Therefore, the project satisfies the applicability conditions (a).
2. This methodology is applicable to project activities that: (a) Install a Greenfield plant; (b) Involve a capacity addition in (an) existing plant(s); (c) Involve a retrofit of (an) existing plant(s); (d) Involve a rehabilitation of (an) existing plant(s); or (e) Involve a replacement of (an) existing plant(s)	The project activity is a Greenfield plant and meets applicability condition (a) by involving the installation of new solar photovoltaic power plants in Brazil.
3. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: (a) The project activity is implemented in existing reservoir, with no change in the volume of the reservoir; or (b) The project activity is implemented in existing reservoir, where the volume of the reservoir(s) is increased and the power density as per definitions given in the project emissions section, is greater than 4 W/m^2. (c) The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m2.	The project activity involves the installation of solar photovoltaic plants; therefore, this criterion does not apply.
4. If the new unit has both renewable and non-renewable components (e.g., a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil	The proposed project is an 8.8 MW solar power project, with no non-renewable components involved. Therefore, this criterion is not applicable.

fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	
5. Combined heat and power (co-generation) systems are not eligible under this category	This is not relevant to the project activity, as it involves only solar photovoltaic power generating units.
6. In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	There are no other existing renewable energy power generation facilities at the project site. Therefore, this criterion is not applicable.
7. In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement power plant/unit shall not exceed the limit of 15 MW.	The project activity is a new installation and does not involve any retrofit measures or replacements; therefore, it is not applicable.
8. In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid, then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as "AMS I. C.: Thermal energy production with or without electricity" shall be explored	This is not relevant to the project activity, as it involves only solar photovoltaic power generating units.
9. In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.	This is not relevant to the project activity, as it exclusively involves solar photovoltaic power generating units.

B.3. Applicability of double counting emission reductions >>

There is no double counting of emission reductions for the project activities for the following reasons:

- Each solar power plant is distinctly identifiable based on their location coordinates.
- The project possesses dedicated commissioning certificates and assigned connection points.
- The project is associated with energy meters exclusively designated for the consumption points of the project developers.

B.4. Project boundary, sources and greenhouse gases (GHGs) >>

As per applicable methodology AMS-I.D., version 18:

"The spatial extent of the project boundary includes the project power plant, and all power plants connected physically to the electricity system that the project power plant is connected to."

Thus, the project boundary includes the solar photovoltaic modules and the respective Brazilian grid system, as per the following scenario:

Scenario	Source	GHG	Included?	Justification/Explanation
Baseline	Electricity generation infossil fuel fired power that is dispatched due tothe project activity	CO_2	Yes	Main emission source
		CH_4	No	Not identified in the baseline methodology
		N_2O	No	Not identified in the baseline methodology
Project Activity	Electricity generation in the project activity	CO_2	No	Zero-emissions grid connected electricitygeneration from renewable energy
		CH_4	No	Zero-emissions grid connected electricitygeneration from renewable energy
		N_2O	No	Zero-emissions grid connected electricity generation from renewable energy

B.5. Establishment and description of baseline scenario (UCR Standard or Methodology) >>

As approved consolidated methodology AMS-I.D. (v. 18), if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

"*The baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid*".

In the absence of the renewable energy generated by this project, the electricity would be supplied by grid-connected power plants with a higher potential for GHG emissions. Therefore, the baseline for the project is the equivalent amount of power produced by the conventional Brazilian grid.

A "grid emission factor" refers to a CO2 emission factor (tCO2/MWh) which will be associated with each unit of electricity provided by an electricity system. As per the most recent data from Brazil's Ministry of Science and Technology (data of 2024) and the proper calculation methodology, the grid emission factor of Brazil is **0,4473 tCO2/MWh**.

$$EF_{grid,y} = 0.4473 \text{ tCO2/MWh}$$

Emission Reductions:

$$ER_y = BE_y - PE_y - LE_y$$

Where:
ERy = Emission reductions in year y (tCO2/y);
BEy = Baseline Emissions in year y (tCO2/y);
PEy = Project emissions in year y (tCO2/y);
LEy = Leakage emissions in year y (tCO2/y).

Baseline Emissions:

Baseline emissions are related to CO_2 emissions from electricity generation in power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants.

The baseline emissions are to be calculated as follows:

$$BE_{y1} = EG_{PJy} \, . EF_{grid,y}$$

Where:

BE_{y1}= Baseline emissions in year y (tCO_2);

EG_{PJy} = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh); and

$EF_{grid,y}$ = Combined margin CO2 emission factor for grid connected power generation in year y calculated using the latest version of the "*Tool to calculate the emission factor for an electricity system*" (tCO_2e/MWh).

Then, it was possible to calculate the ex-ante mitigated emissions for the period by multiplying the calculated emission factor by the generation potential of energy (considering energy generation 24/7 over the years).

$$BE_{y1} = EG_{PJ1} \,.EF_{grid,1}$$

$$0.4473 \,.\, 19{,}306.12 = 8{,}636 \; t\, CO_2e/year$$

Total mitigated emissions considered the **10-year crediting period**, with same quantity of mitigated emissions every year, resulting in **86.356 tCO_2e**.

Project Emissions:

As per AMS-I.D. (v. 18), for most renewable energy project activities emissions are zero. However, categories related to operation of geothermal power plants and emissions from water reservoirs should have emissions considered. Since project is related to photovoltaic power plants, emissions are not considered under this scope.

Hence, $PE_y = 0$.

Leakage:

As per AMS-I.D. (v. 18), 'If the energy generating equipment is transferred fromanother activity, leakage is to be considered.' The methodology also foresees calculation of leakage emissions for projects related to use of biomass residues. In the project activity, since there is no transfer of energy generating equipment and use of biomass residues, leakage emissions are considered as zero.

Hence, $LE_y = 0$.

Carbon offset units of project will be submitted as part of monitoring and verification activities. However, for ex-ante estimation purposes, this document presents the following calculation for estimated emission reductions:

$$ER_y = BE_y - PE_y - LE_y$$

$$ER_y = 8{,}636 - 0 - 0$$

$$ER_y = 8{,}636 \; t\, CO_2e/year \text{ (i.e., CoUs/year)}$$

Specific annual estimated reductions can be also found for each year of the crediting period below:

Year	Baseline emissions (tCO_2e)	Project emissions (tCO_2e)	Leakage (tCO_2e)	Emission reductions (tCO_2e)
Feb-2025	6,959	0	0	6,959
2026	8,636	0	0	8,636
2027	8,636	0	0	8,636
2028	8,636	0	0	8,636
2029	8,636	0	0	8,636
2030	8,636	0	0	8,636
2031	8,636	0	0	8,636
2032	8,636	0	0	8,636
2033	8,636	0	0	8,636
2034	8,636	0	0	8,636
Total	**84,683**	**0**	**0**	**84,683**
Total number of crediting years	**10**			
Annual average over the crediting period	**8,636**			

B.6. Prior History>>

The project activity has not applied to any other GHG program for generation or issuance of carbon offsets or credits for the mentioned crediting period.

B.7. Changes to start date of crediting period >>

There is no change in the start date of crediting period.

B.8. Permanent changes from PCN monitoring plan, applied methodology or applied standardized baseline >>

There are no permanent changes from the registered PCN monitoring plan and applied methodology.

B.9. Monitoring period number and duration>>

Total Monitoring Period: 9 Years and 10 Months.
Date: 06/02/2025 to 31/12/2034.
First Issuance Period (assumption): 1 Year and 10 Months (from 06/02/2025 to 31/12/2026).
Second Issuance Period (assumption): 2 Years (from 01/01/2027 to 31/12/2029).
Third Issuance Period (assumption): 2 Years (from 01/01/2030 to 31/12/2031).
Fourth Issuance Period (assumption): 2 Years (from 01/01/2032 to 31/12/2033).
Fifth Issuance Period (assumption): 1 Year (from 01/01/2034 to 31/12/2034).

B.8. Monitoring plan>>

Since the mentioned methodology calculates GHG emissions using an emission factor for the grid (a combined margin factor, in this case), associated with the amount of energy being generated and supplied to regional grid, the parameters to be monitored will be those, using different methodologies:

1) Official data provided by Brazilian government; and
2) Electricity generated by the power plants detected by electricity meters.

Data and Parameters available at validation (ex-ante values):

Data/Parameter	$EF_{grid,y}$
Data unit	tCO_2e /MWh
Description	CO_2 emission factor of the grid electricity in year y. Combined margin factor has been used to find a value as close as possible of reality. The result founded was 0,2799 t CO2/MWh.
Source of data	https://www.gov.br/mcti/pt-br/acompanhe-o-mcti/sirene/dados-e-ferramentas/fatores-de-emissao
Measurement procedures	Calculated.
Monitoring frequency	
Comments	Ex-ante fixed parameter. Necessary to calculate emission factor of the grid.

Data and Parameters to be monitored (ex-post monitoring values):

Data/Parameter	$EG_{PJ,Y}$
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y.
Source of data	Electricity meter(s)
Measurement procedures	The net electricity generation by the solar power plant is recorded by the project proponent in the record logs. At the end of every month, Energy bill is generated based on the total monthly electricity exported to the grid.
Monitoring frequency	Monthly.
Comments	Quantity of net electricity supplied to grid will be cross checked from invoices generated by project owner.