



PROJECT CONCEPT NOTE

CARBON OFFSET UNIT (CoU) PROJECT



Title: Neutral Carbon by AXS – 35.5 MW Decentralized Solar Power Projects in Brazil

Version 1.0

Date: 19/08/2025

First CoU Issuance Period: 1 years, 7 months

Date: 25/05/2023 to 31/12/2024



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

BASIC INFORMATION	
Title of the project activity	Neutral Carbon by AXS – 35.5 MW Decentralized Solar Power Projects in Brazil
Scale of the project activity	Large Scale
Completion date of the PCN	19/08/2025
Project participants	Project Owner: AXS ENERGIAS S/A Project Aggregator: Kosher Climate India Private Limited
Host Party	BRAZIL
Applied methodologies and standardized baselines	Applied Baseline Methodology: ACM0002.: “Grid connected electricity generation from renewable sources”, version 22.0 Standardized Methodology: Not Applicable
Sectoral scopes	01 Energy industries (Renewable/NonRenewable Sources)
Estimated amount of total GHG emission reductions	25,392 CoUs (25,392 tCO _{2eq})

SECTION A. Description of project activity

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

The project “Neutral Carbon by AXS – 35.5 MW Decentralized Solar Power Projects in Brazil” in Brazil consist of several project activities installed across different states including Sao Paulo, Parana, Minas Gerais and Mato Grosso. The promoter of the project is AXS ENERGIA.S/A, a company which has the full ownership of the project activity.

The details of the registered project are as follows:

Purpose of the project activity:

The purpose of the project activity is to generate electricity by harnessing the solar energy, making use of solar photovoltaic technology. The proposed project activity involves installation of Solar photovoltaic power generation projects at different locations, with a total capacity of 35.5 MW.

Project Activity	Power Plant Name	Village/State	Energy Source	Installed capacity in MW	Annual generation in MWh/year	Commissioning date
1	Macatuba	Sao Paulo	Solar	4	7,574	25/05/23
2	Miguelópolis	Sao Paulo	Solar	1	2,306	30/09/23
3	Frei Inocêncio I	Minas Gerais	Solar	2.5	4,730	17/10/23
4	Guaraci	Parana	Solar	2.5	5,489	15/09/23
5	Torrezan	Sao Paulo	Solar	3	6,369	25/09/23
6	Guaxupé	Parana	Solar	2.5	5,103	21/11/23
7	Santa Luzia I	Parana	Solar	5	11,529	09/10/23
8	Campo Verde I	Mato Grosso	Solar	2.5	5,275	11/09/23
9	Claudia I	Mato Grosso	Solar	2.5	5,544	20/10/23
10	Palotina I	Parana	Solar	2.5	4,550	26/12/23

11	Alto Paraná I	Parana	Solar	2.5	4,628	24/01/24
12	Cidade Gaúcha I	Parana	Solar	2.5	4,775	14/12/23
13	Limeira	Sao Paulo	Solar	2.5	5,231	15/01/24

Having each power plant an installed capacity equal or under 5 MW, they are classified as *mini-generation* units under the *electricity compensation system* regulated by Brazil's ANEEL (National Electric Energy Agency), in accordance with normative resolutions n. 482/2012, n. 687/2015, and federal law n. 14.300/2022. Under the electricity compensation system, the active energy injected by a consumer unit with distributed mini-generation is transferred, through a free loan, to the local distributor and then subsequently compensated with consumption offsetting.

By installing solar plants to offset the consumption of businesses, Project Owner is able to provide them with energy from the Solar Plants within the energy compensation scheme: the generated electricity is injected into the national grid, whereas customers receive credits that are offset in their monthly energy bill. Therefore, the project activity has the purpose of contributing to the transformation of the Brazilian energy matrix through the economic incentives of a clean, renewable, and also cheaper energy source.

Emission reduction and impact of the project activity:

It is expected that the project activity displaces an estimated average of **88,367 MWh/year** from the combined generation of 13 power plants. The, project activity will inject **88,367 MWh** of renewable and clean energy into the Brazilian grid, mitigating the total GHG emission reductions of **25,392 tCO₂e**. Project activity, thus, contributes to climate change mitigation efforts.

Being a clean renewable energy source, solar power plants cause no negative impact on the environment. The project activity is thus promoting sustainable development, as defined by the United Nations, since economic advancement and progress have been fostered “without compromising the ability of future generations to meet their own needs” (United Nations General Assembly, 1987, p. 43).

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 is not 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.

With regards to the Local Stakeholder Consultation (LSC), consulting the local population is foreseen by the environmental licensing process: it is decided by the competent local environmental bodies whether a project shall conduct an LSC or not. However, since the individual project activities are small-scale plants with no harm associated with its activity, all 13 project activities were dismissed from the environmental licensing process - which means that, as per the local environmental body, the project activities are not subjected to environmental licensing. And hence, no consultation with local stakeholders took place.

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 emission of GHG gases or specific pollutants like SO_x, NO_x, 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 at 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

¹ Reference:

<https://www2.ima.al.gov.br/wizard/docs/RESOLU%c3%87%c3%83O%20CONAMA%20N%c2%ba001.1986.pdf>

A.3. Location of project activity >>

Project activity consists of 13 Solar photovoltaic power generation plants installed at different locations:

Project Activity	Power Plant	Country	State	Latitude	Longitude
1.	Macatuba	Brazil	Sao Paulo	-22.50	-174.71
2.	Miguelópolis	Brazil	Sao Paulo	-20.1573	-48.0268
3.	Frei Inocêncio I	Brazil	Minas Gerais	18.523327°	41.932256°
4.	Guaraci	Brazil	Parana	434.814 m E	7,458,388 m N
5.	Torrezan	Brazil	Sao Paulo	-20.1004	-47.7878
6.	Guaxupé	Brazil	Parana	21.287126°	46.679679°
7.	Santa Luzia I	Brazil	Parana	450.738.096 m E	7.460.195.551 m N
8.	Campo Verde I	Brazil	Mato Grosso	-15.536	-55.201
9.	Claudia I	Brazil	Mato Grosso	-11.5122	-54.8402
10.	Palotina I	Brazil	Parana	-24.3063	-53.8519
11.	Alto Paraná I	Brazil	Parana	-23.1725	-52.3212
12.	Cidade Gaúcha I	Brazil	Parana	-23.3977	-52.9644
13.	Limeira	Brazil	Sao Paulo	-22.5349	-47.3537

A.4. Technologies/measures >>

Project Activity	Name of Plant	Number of PV Modules	Capacity of PV Modules (Wp)	Manufacturer/Model of PV Modules	Number of Inverters	Capacity of Inverters	Manufacturer/Model of Inverters
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1	Macatuba	8960	590	CS7L-590MB-AG	32	125kw	SUNGRO W-SG125HV
2	Miguelópolis	1984	660	Canadian Solar CS7L-660MB-AG 1500V	8	125kw	SUNGRO W-SG125HV
3	Frei Inocência I	4960	660	Canadian Solar	20	125kW	SUNGRO W-SG125HV
4	Guaraci	5542	585	Canadian CS7L-585 MB-AG	20	125kW	SUNGRO W-SG125HV
5	Torrezan	5952	660	Canadian Solar CS7L-660MB-AG 1500V	24	125kW	SUNGRO W-SG125HV
6	Guaxupé	4960	660	Canadian Solar CS7N-655/660MB-AG 1500V	20	125kW	SUNGRO W-SG125HV
7	Santa Luzia I	9792	595	Canadian Solar CS7L-590/595MB-AG 1500V	40	125kW	SUNGRO W-SG125HV
8	Campo Verde I	4960	660	Canadian Solar CS7L-660MB-AG 1500V	20	125kW	SUNGRO W-SG125HV
9	Claudia I	4960	660	Canadian Solar CS7N-660MB-AG 1500V	20	125kW	SUNGRO W-SG125HV
10	Palotina I	1984	660	Canadian Solar CS7L-660MB-AG 1500V	20	125kW	SUNGRO W-SG125HV
11	Alto Paraná I	4960	655	Canadian Solar CS7N-655MB-AG 1500V	20	125kW	SUNGRO W-SG125HV
12	Cidade Gaúcha I	4960	660	Canadian Solar CS7N-655/660MB-AG 1500V	20	125kW	SUNGRO W-SG125HV

13	Limeira	4960	660	Canadian Solar CS7L-660MB-AG 1500V	20	125kW	SUNGROW-SG125HV
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A.5. Parties and project participants >>

Party (Host)	Participants
Brazil	Project Owner: AXS ENERGIA S/A
India	Project Aggregator: KOSHER CLIMATE INDIA (P) LTD. Address: Zee Plaza, No. 1678, 27th Main Rd Bangalore, Karnataka, India Code 560102 Email: narendra@kosherclimate.com

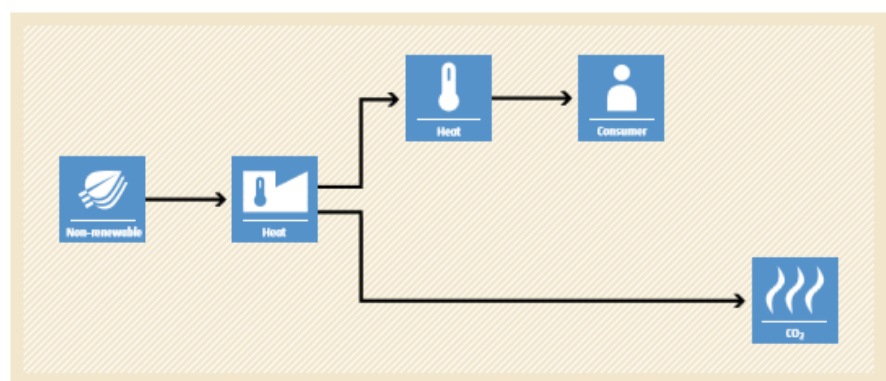
A.6. Baseline Emissions>>

The baseline scenario identified at the PCN stage of the project activity is:

Project activity involves harnessing the power of solar energy to produce electricity and to supply it to the local distributor, subsequently offsetting the energy consumption of the customers. In the absence of the project, the equivalent amount of power would have been supplied by the operation of grid-connected power plants and by the addition of other-more-GHG-intensive generation sources. Therefore, the baseline scenario for the project activity is the equivalent amount of electricity generated from the Brazilian national grid

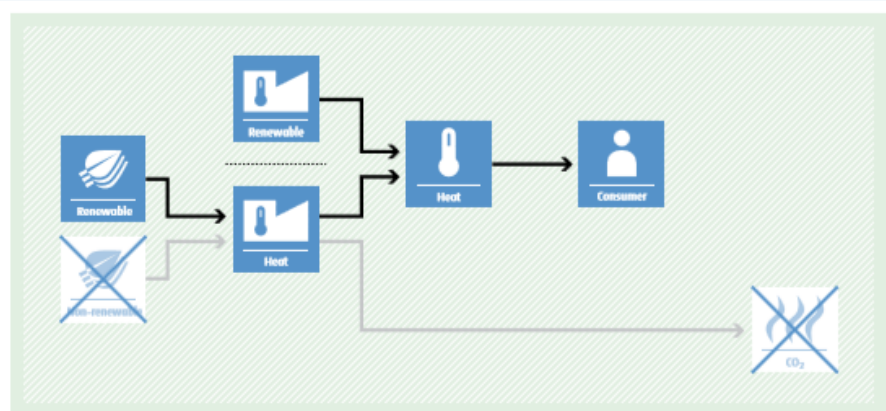
BASELINE SCENARIO

Thermal energy would be produced by more-GHG-intensive means based on the use of non-renewable biomass.



PROJECT SCENARIO

Use of renewable energy technologies for thermal energy generation, displacing non-renewable biomass use.



A.7. Debundling>>

The Solar Power Projects in Brazil by AXS Energia 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 – ACM0002.: “Grid connected renewable electricity generation from renewable sources”, version 22.0

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

Applicability Criteria	Applicability status
<p>This methodology is applicable to grid-connected renewable power generation project activities that:</p> <ul style="list-style-type: none">(a) install Greenfield power plant;(b) involve a capacity addition to (an) existing plant(s);(c) involve a retrofit of (an) existing plant(s)/unit(s);(d) involve a rehabilitation of (an) existing plant(s)/unit(s); or(e) involve a replacement of (an) existing plant(s)/unit(s).	<p>The project activities are newly installed green field solar energy-based electricity generation projects connected to the national grid.</p> <p>Therefore, it confirms to the said criteria.</p>
<p>In case the project activity involves the integration of a BESS, the methodology is applicable to grid-connected renewable energy power generation project activities that:</p> <ul style="list-style-type: none">(a) Integrate BESS with a Greenfield power plant;(b) Integrate a BESS together with implementing a capacity addition to (an) existing solar photovoltaic or solar power plant(s)/unit(s);(c) Integrate a BESS to (an) existing solar photovoltaic or solar power plant(s)/unit(s) without implementing any other changes to the existing plant(s);(d) Integrate a BESS together with implementing a retrofit of (an) existing solar photovoltaic or solar power plant(s)/unit(s).	<p>The project activity involves the installation of a new grid connected renewable solar power projects and does not involve the integration of a Battery Energy Storage System (BESS).</p> <p>This condition is not applicable for the project activities.</p>
<p>The methodology is applicable under the following conditions:</p> <ul style="list-style-type: none">(a) Hydro power plant/unit with or without reservoir, solar power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;(b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for solar, solar, wave or tidal power capacity addition projects) the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity;(c) In case of Greenfield project activities applicable under paragraph 5 (a) above, the project participants shall demonstrate that the BESS was an integral part of the design of the renewable energy project activity (e.g., by referring to feasibility studies or investment decision documents);(d) The BESS should be charged with electricity generated from the associated renewable energy power plant(s). Only during exigencies 2 may the BESS be charged with electricity from the grid or a fossil fuel electricity generator.	<p>The project activities involve the installation of solar power plant/unit without BESS integration.</p> <p>Therefore, the said criteria is not applicable.</p>

<p>In such cases, the corresponding GHG emissions shall be accounted for as project emissions following the requirements under section 5.4.4 below. The charging using the grid or using fossil fuel electricity generator should not amount to more than 2 per cent of the electricity generated by the project renewable energy plant during a monitoring period. During the time periods (e.g., week(s), months(s)) when the BESS consumes more than 2 per cent of the electricity for charging, the project participant shall not be entitled to issuance of the certified emission reductions for the concerned periods of the monitoring period.</p>	
<p>In case of hydro power plants, one of the following conditions shall apply:</p> <p>(a) The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of reservoirs; or</p> <p>(b) The project activity is implemented in an existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (3) is greater than 4 W/m²; or</p> <p>(c) The project activity results in new single or multiple reservoirs and the power density calculate equation (3), is greater than 4 W/m².</p> <p>(d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density of any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/m², all of the following conditions shall apply.</p> <p>(i) The power density calculated using the total installed capacity of the integrated project, as per equation (4) is greater than 4W/m²;</p> <p>(ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity;</p> <p>(iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m²shall be:</p> <p>(a) Lower than or equal to 15 MW; and Less than 10% of the total installed capacity of integrated hydro power project.</p>	<p>The project activities involve the installation of a solar power plant/unit.</p> <p>Therefore, the said criteria is not applicable.</p>
<p>In the case of integrated hydro power projects, project proponent shall:</p> <p>(a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or</p> <p>Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability indifferent seasons to optimize the water flow at the inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to</p>	<p>The project activities involve the installation of a solar power plant/unit.</p> <p>Therefore, the said criteria is not applicable.</p>

implementation of CDM project activity.	
<p>The methodology is not applicable to:</p> <p>(a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site.</p> <p>(b) Biomass fired power plants;</p>	<p>a) The project activities involve the installation of new solar power plant/unit. Which does not involve switching of grid-connected power plant.</p> <p>b) The project activities involve the installation of new solar power plant and not Biomass fired power plant.</p> <p>Therefore, the said criteria is not applicable.</p>
<p>In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is “the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance”.</p>	<p>The project activities involve the installation of new solar power plant/unit that does not involve retrofits, rehabilitations, replacements, or capacity additions.</p> <p>Therefore, the said criteria is not applicable</p>

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

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

- Installations are uniquely identifiable based on its location coordinates;
- Project has dedicated commissioning certificates and connection points;
- Project is associated with energy meters which are dedicated to the consumption point for project developers.

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

Scenario	Source	GHG	Include d?	Justification/Explanati on
Baseline	Electricity generation in fossil fuel fired power that is dispatched due to the project activity	CO ₂	Yes	Main emission source
		CH ₄	No	Not identified in the baseline methodology
		N ₂ O	No	Not identified in the baseline methodology
Project Activity	Electricity generation in the project activity	CO ₂	No	Zero-emissions grid connected electricity generation from renewable energy
		CH ₄	No	Zero-emissions grid connected electricity generation from renewable energy
		N ₂ O	No	Zero-emissions grid connected electricity generation from renewable energy

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

As per the methodology ACM0002, Version 22.0, 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.”

The project activity involves setting up new wind power plants to harness the power of wind energy and inject electricity into the Brazilian regional grid. In the absence of the project activity, the equivalent amount of power would have been generated by the operation and/or insertion of more- GHG-intensive grid-connected power plants. Hence, the baseline for the project activity is the equivalent amount of power produced at the 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, Technology and Innovation² (data of 2024) and the proper calculation methodology, the grid emission factor of Brazil is **0.3485 tCO₂/MWh**.

Net GHG Emission Reductions and Removals:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y = Emission reductions in year y (tCO₂/y)

BE_y = Baseline Emissions in year y (t CO₂/y)

PE_y = Project emissions in year y (tCO₂/y)

LE_y = Leakage emissions in year y (tCO₂/y)

Baseline Emissions:

Baseline emissions include only CO₂ 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:

$$BE_y = EG_{PJ,y} \times EF_{grid,y}$$

Where:

BE_y = Baseline emissions in year y (t CO₂)

EG_{PJ,y} = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of this project activity in year y (MWh)

EF_{grid,y} = Brazilian Ministry of Science and Technology recommends an emission factor of 0.3485

² [CO2 emission factors for electricity generation in the National Interconnected System of Brazil - Base Year 2023](#).

tCO₂/MWh.

As per para 49 of ACM0002, version 22.0, when the project activity is installation of Greenfield power plant, then:

$$EG_{PJ,y} = EG_{facility,y}$$

Where,

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)

$EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)

Project Emissions:

As the project activity consists of the installation of a new grid-connected wind power plant and does not involve any project emissions from fossil fuel, operation of dry, flash steam or binary geothermal power plants, and from water reservoirs of hydro power plants. Therefore, project emissions are:

$$PE_y = 0.$$

Where,

PE_y = Project emissions in year y (t CO₂e/yr)

Leakage Emissions:

No other leakage emissions are considered. The emissions potentially arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. Extraction, processing, transport etc.) are neglected.

Hence Emission reductions will be calculated as per the below equation:

$$ERY = BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$$

The estimated emission reduction achieved during the crediting period has been demonstrated below as a part of first monitoring and verification. However, for the purpose of an ex-ante estimation, following calculation has been submitted:

Project Activity -1

Estimated annual baseline emission reductions (BE_y)

$$\begin{aligned} &= 7,574 \text{ MWh/year} \times 0.3485 \text{ tCO}_2/\text{MWh} \\ &= 4237.9 \text{ tCO}_2/\text{year} \text{ (i.e., 4237.9 CoUs/year)} \end{aligned}$$

Project Activity -2

Estimated annual baseline emission reductions (BE_y)

$$\begin{aligned} &= 2,306 \text{ MWh/year} \times 0.3485 \text{ tCO}_2/\text{MWh} \\ &= 1008.5 \text{ tCO}_2/\text{year} \text{ (i.e., 1008.5 CoUs/year)} \end{aligned}$$

Project Activity -3

Estimated annual baseline emission reductions (BEy)

$$= 4,730 \text{ MWh/year} \times 0.3485 \text{ tCO}_2/\text{MWh}$$
$$= 1991.7 \text{ tCO}_2/\text{year (i.e., 1991.7 CoUs/year)}$$

Project Activity -4

Estimated annual baseline emission reductions (BEy)

$$= 5,489 \text{ MWh/year} \times 0.3485 \text{ tCO}_2/\text{MWh}$$
$$= 2479.1 \text{ tCO}_2/\text{year (i.e., 12479.1 CoUs/year)}$$

Project Activity -5

Estimated annual baseline emission reductions (BEy)

$$= 6,369 \text{ MWh/year} \times 0.3485 \text{ tCO}_2/\text{MWh}$$
$$= 2815.7 \text{ tCO}_2/\text{year (i.e., 2815.7 CoUs/year)}$$

Project Activity -6

Estimated annual baseline emission reductions (BEy)

$$= 5,103 \text{ MWh/year} \times 0.3485 \text{ tCO}_2/\text{MWh}$$
$$= 1978.3 \text{ tCO}_2/\text{year (i.e., 1978.3 CoUs/year)}$$

Project Activity -7

Estimated annual baseline emission reductions (BEy)

$$= 11,529 \text{ MWh/year} \times 0.3485 \text{ tCO}_2/\text{MWh}$$
$$= 4942.8 \text{ tCO}_2/\text{year (i.e., 4942.8 CoUs/year)}$$

Project Activity -8

Estimated annual baseline emission reductions (BEy)

$$= 5,275 \text{ MWh/year} \times 0.3485 \text{ tCO}_2/\text{MWh}$$
$$= 2402.6 \text{ tCO}_2/\text{year (i.e., 2402.6 CoUs/year)}$$

Project Activity -9

Estimated annual baseline emission reductions (BEy)

$$= 5,544 \text{ MWh/year} \times 0.3485 \text{ tCO}_2/\text{MWh}$$
$$= 2318.6 \text{ tCO}_2/\text{year (i.e., 2318.6 CoUs/year)}$$

Project Activity -10

Estimated annual baseline emission reductions (BEy)

$$= 4,550 \text{ MWh/year} \times 0.3485 \text{ tCO}_2/\text{MWh}$$
$$= 1611.8 \text{ tCO}_2/\text{year (i.e., 1611.8 CoUs/year)}$$

Project Activity -11

Estimated annual baseline emission reductions (BEy)

$$= 4,628 \text{ MWh/year} \times 0.3485 \text{ tCO}_2/\text{MWh}$$

= 1511.3 tCO₂/year (i.e., 1511.3 CoUs/year)

Project Activity -12

Estimated annual baseline emission reductions (BE_y)

= 4,775 MWh/year x 0.3485 tCO₂/MWh

= 1746.2 tCO₂/year (i.e., 1746.2 CoUs/year)

Project Activity -13

Estimated annual baseline emission reductions (BE_y)

= 5,231 MWh/year x 0.3485 tCO₂/MWh

= 1753.2 tCO₂/year (i.e., 1753.2 CoUs/year)

Total baseline emission reductions (BE_y) = 25,392 CoUs /year (25,392 tCO_{2eq}/yr)

Estimated Emissions Reduction - First CoUs Issuance Period: from 16/10/2020 to 31/12/2024					
Project Activity	Annual generation (MWh/year)	Commissioning Date	Estimated Generation of 1st Issuance (MWh)	Grid Emission Factor (tCO ₂ /MWh)	Estimated Total of CoUs 1st Issuance (tCO ₂)
1	7,574	25/05/2023	12159.90	0.3485	4237.9
2	2,306	30/09/2023	2893.56	0.3485	1008.5
3	4,730	17/10/2023	5714.88	0.3485	1991.7
4	5,489	15/09/2023	7113.14	0.3485	2479.1
5	6,369	25/09/2023	8079.03	0.3485	2815.7
6	5,103	21/11/2023	5676.21	0.3485	1978.3
7	11,529	09/10/2023	14182.25	0.3485	4942.8
8	5,275	11/09/2023	6893.63	0.3485	2402.6
9	5,544	20/10/2023	6652.80	0.3485	2318.6
10	4,550	26/12/2023	4624.79	0.3485	1611.8
11	4,628	24/01/2024	4336.37	0.3485	1511.3
12	4,775	14/12/2023	5010.48	0.3485	1746.2
13	5,231	15/01/2024	5030.36	0.3485	1753.2

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 said crediting period.

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

The start date of crediting under UCR is considered as 25/05/2023.

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

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

B.9. Monitoring period number and duration>>

First Issuance Period: 1 year 7 months- 25/05/2023 to 31/12/2024

B.8. Monitoring plan>>

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

Data / Parameter:	EG _{PJ,y}
Data unit:	MWh/year
Description:	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of this project activity in year y (MWh)
Source of data:	PVSyst
Measurement procedures (if any):	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
QA/QC procedures:	Cross Checking: Quantity of net electricity supplied to the grid will be cross checked from the invoices raised by the project participant to the grid.
Any comment:	-

Data and Parameters available during monitoring (ex-post values):

Data/Parameter	Brazilian Government recommended emission factor
Data unit	tCO ₂ /MWh
Description	A "grid emission factor" refers to a CO ₂ emission factor (tCO ₂ /MWh) which will be associated with each unit of electricity provided by an electricity system. The Brazilian Ministry of Science, Technology and Innovation publishes yearly emission factors for the energy generation. Applying the referred methodology calculations, the applicable estimated emission factor is 0.2953 tCO ₂ /MWh
Source of data Value(s) applied	0.3485
-	Emission Factor will be monitored and updated, as published by the Ministry of Science, Technology and Innovation.
Monitoring frequency	Ex-ante fixed parameter
Purpose of data	Calculation of Emission Factor of the grid