HELIOS SANTA ROSA SOLAR PV PLANT

Document prepared by Leonel Mingo

Name of the project	*Helios Santa Rosa Solar PV plant*
Project holder	*Tassaroli S.A.*
Account holder	*The account holder in the Global CarbonTrace registry*
Legal representative	*Legal Representative of the account holder in the Global CarbonTrace registry*
Project holder's contact information	*Carlos Alberto Tassaroli* *carlos@tassaroli.com.ar* *+54 260 444 2200* *www.tassaroli.com.ar* *Avenida Mitre 3495 San Rafael (5600) – Mendoza Argentina*
Other project participants	-
Version	*1*
Date	*01/10/2024*
Project type	Activities in the energy sector

Grouped project	*Its not a group project*
Applied Methodology (ies)	AMS I.D. Grid connected renewable electricity generation Version 18.0
Project location (City, Region, Country)	*City of Santa Rosa, Province of Mendoza, Argentina*
Starting date	*04/01/2022*
Quantification period of GHG emissions reduction	01/04/2022 to 31/03/2029
Estimated total and average annual GHG emission reduction/removals amount	65,724 TCO_2 9,389 tCO_2/year
Sustainable Development Goals	*SDG 4: Quality Education* *SDG 5: Gender Equality* *SDG 7: Affordable and clean energy* *SDG 9: Industry, innovation and infrastructure* *SDG 13: Climate action*
Special category, related to co-benefits	-

Table of contents

1 Project type and eligibility

1.1 Scope in the BCR Standard

The scope of the BCR Standard is limited to:	
The following greenhouse gases, included in the Kyoto Protocol: Carbon Dioxide (CO_2), Methane (CH_4) and Nitrous Oxide (N_2O).	x
GHG projects using a methodology developed or approved by BioCarbon, applicable to GHG removal activities and REDD+ activities (AFOLU Sector).	
Quantifiable GHG emission reductions and/or removals generated through implementation of GHG removal activities and/or REDD+ activities (AFOLU Sector).	
GHG projects using a methodology developed or approved by BioCarbon, applicable to activities in the energy, transportation and waste sectors.	x
Quantifiable GHG emission reductions generated through implementation of activities in the energy, transportation and waste sectors.	x

The project activity consists of a grid-connected solar photovoltaic plant with an installed capacity of 10.2 MW. The Helios Santa Rosa Solar Photovoltaic Plant has 2 implementation stages with 2 years of difference: 5 MW + 5.2 MW and is connected to the Argentinean electricity grid at two interconnection points at 13.2 kV. The first one was enabled on 01/04/2022 and the second one on 01/05/2022 dates where they started to inject electricity to the Argentinean power grid. The commercial authorizations can be found in the supplementary documents folder.

Baseline emissions include only CO_2 emissions from electricity generation in power plants that are displaced due to project activity.

According to the document Guidelines for the Certification and Registration of Energy Sector Projects Non-Conventional Renewable Energy Sources (NCRE) Version 1.1 in its section 3 in the scope of the Biocarbon Registry standard can be certified and registered renewable energy generation projects that include power generation with non-conventional renewable energy sources such as solar energy, which is the situation of the proposed project.

The methodology selected for this project is AMS I.D. Grid connected renewable electricity generation Version 18.0 from the CDM, being this methodology approved by Biocarbon Registry according to the document Guidelines for the Certification and Registration of Energy Sector Projects Non-Conventional Renewable Energy Sources (NCRE) Version 1.1 in Appendix A where the applicable approved methodologies are expressed.

1.2 Project type

Activities in the AFOLU sector, other than REDD+	
REDD+ Activities	
Activities in the energy sector	x
Activities in the transportation sector	
Activities related to Handling and disposing of waste	

1.3 Project scale

Small scale. The project will have an installed capacity of 10.2 MW, below the Clean Development Mechanism limit of 15 MWe[1].

[1] https://cdm.unfccc.int/methodologies/documentation/meth_booklet.pdf#AMS_I_D

2 General description of the project

The project activity consists of the generation of grid-connected renewable electricity based on Solar Photovoltaic technology. It is a Green Field project (made from scratch) located in the department of Santa Rosa, province of Mendoza, Argentina. Prior to the project activity, there were no crops, forests or any economic activity on the property. The project activity is small scale and has 2 stages of implementation 2 years apart: 5 MW + 5.2 MW. Each stage is connected to the Argentine grid at 13.2 kV and each has its own interconnection point.

The first stage of the project activity (Helios Santa Rosa I, 5 MW) has been supplying electricity to the grid since 01/04/2022 and its commercial authorization is dated 29/03/2022. The second stage (Helios Santa Rosa II, 5.2 MW) has been supplying electricity since May 2024, so for the first verification period in October 2024 the power generation of this plant will not be considered. In the first year of operation (01/04/2022 to 31/03/2023), 13,541.35 MWh were supplied to the grid. In its second year of operation (01/04/2023 to 31/03/2024) 12,946 MWh were supplied to the grid. In the current verification period, 29,946 MWh was added to the grid, equivalent to 12,207.96 TCO2 equivalent.

In the baseline scenario, all electricity delivered to the grid by the project activity would have been generated in existing power plants connected to the grid and by adding new generation sources. The Argentine electricity system has a mix of generation sources that includes hydro, nuclear, fossil fuel-based thermal generation and a small portion of wind, solar PV, biomass and biogas. Thermal power generation accounts for approximately 60% and relies primarily on natural gas, but also uses fuel oil, diesel and coal.

The project activity generates electricity by sustainable means, without causing any negative impact on the environment, which is supplied to the Argentinean Interconnection System (SADI)[2]. For the first 7-year crediting period (01/04/2022 to 31/03/2028), the estimated electricity production of the Helios Santa Rosa solar PV plant is 24,460 MWh/year and the total GHG emission reductions are expected to be 65,724t CO2e.

For the 21-year crediting period, the total electricity delivered to the grid is expected to be 514,444 MWh and the GHG emission reductions are expected to reach 233,097.61 t CO2e.

[2] https://nuclea.cnea.gob.ar/items/06f9187d-5920-4d9b-ae83-e99c03855634

The specific benefits of the project are as follows:

- Reduce GHG emissions in the Argentine electricity system with respect to the reference scenario.
- Help stimulate private sector participation in solar power plants in Argentina.
- Contribute to the dynamization of distributed energy plants connected to the distribution grid at 13.2 kV.
- Job creation during the construction and operation phase of the plant.
- Contribute to reducing NOx and SOx emissions from fossil fuels, with respect to the reference scenario.
- Diversify the electricity generation portfolio and reduce dependence on imports of other energy sources.

2.1 GHG project name

Helios Santa Rosa Solar PV Plant

2.2 Objectives

The project aims to:

- Produce renewable electricity through solar photovoltaic means to be supplied to the Argentine Electricity System called SADI (Argentine Interconnected System).
- Reduce carbon emissions compared to the baseline scenario, create employment and economic growth in the area.
- This power generation will reduce demand in the area from the national system, improving grid reliability throughout the region.
- Power generation close to demand will reduce transmission and distribution losses in Argentina's electricity system.

2.3 Project activities

The project activity consists of electricity generation based on grid-connected Solar PV technology.

The renewable electricity supplied to the grid by the project activity will displace electricity with a more intensive CO_2 emission factor as approximately 60% of the grid electricity is produced from fossil fuels, mainly natural gas, but also diesel, fuel oil and coal.

In the first accreditation period of 7 years, the project activity will displace an average of 26,460 MWh/year.

Equipment and relevant aspects for each stage of implementation are presented below:

Table 1: Project stages

Project Stage	Santa Rosa I	Santa Rosa II
Start date of mitigation activity (displacing electricity from the grid)	01/04/2022	01/04/2024
Available capacity at the point of interconnection	5MW	5.2 MW
Maximum installed capacity	6,322,290 Wp	6,391,110 Wp
Total number of photovoltaic modules	11,687	9,735
Quantity and capacity of monocrystalline back-sheet modules.	4,805 of 540 Wp	3,131 of 535 Wp
Number and capacity of Inverters:	28 of 215 kWca	20 of 330 kWca
Number and type of Trackers	144 - Independent horizontal single-axis N-S single-axis trackers Range: ± 60º. Control system: 1 controller per tracker. Astronomical	160 - N-S single-axis single-row trackers. Range: ± 60º. Controller: Electronic

	algorithms + closed-loop tilt sensor.	electronic board with microprocessor
Transformer	Vasile brand: 6300 kVA 13.8 kV output, 50 Hz Transformer Cooling Type ONAN. Transformer Oil Type: Mineral Oil (PCB Free).	Huawei brand: Jupiter 6000k-H1. Smart Transformer Station. AC 6600 kVA @40ºC. 800 V input, Output 13.2 kV, 50 Hz. Transformer Cooling Type ONAN. Transformer Oil Type: Mineral Oil (PCB Free).

Helios Santa Rosa I connect to EDESTE[3] existing 13.2 kV line3 which is adjacent to the Solar PV Park site. Helios Santa Rosa II connects to the grid at the Santa Rosa substation owned by EDESTE. The 13.2 kV line between the Helios Santa Rosa II facility and the interconnection point which is 5.16 km long is part of the project activity.

2.4 Project location

The Helios Santa Rosa Photovoltaic Solar Power Plant is located approximately 5 km northwest of the city of Santa Rosa in the province of Mendoza, Argentina.

The energy evacuated from Santa Rosa II will be injected into the Santa Rosa Electrical Substation (ET SR) located to the west of the city of Santa Rosa, on Provincial Route 50 and 2 km from National Route 7. The 13.2 kV line between the Helios Santa Rosa II facilities and the interconnection point is part of the project activity and has a length of 5.16 km.

[3] https://www.argentina.gob.ar/noticias/enre-autoriza-acceso-capacidad-transporte-energia-electrica-parque-solar-andes-mendoza

Geographical coordinates of the location of each stage of the Helios Santa Rosa Solar PV Plant:

Table 2: Coordinates of the solar parks

Helios Santa Rosa I	Helios Santa Rosa II
Latitude 33° 12‘ 51.73’ South	Latitude 33° 12‘ 38.17’ South
Longitude: 68° 10‘ 01.93’ West	Longitude: 68° 09‘ 56.29’ West
Altitude: 621 m above sea level	Altitude: 619 m above sea level

The geographical coordinates of the interconnection points are as follows:

Table 3: Coordinates of Interconnection Points

Helios Santa Rosa I	Helios Santa Rosa II
Latitude 33° 13‘ 02.29’ South	Latitude 33° 14‘ 57.45’ South
Longitude: 68° 10‘ 08.74’ West	Longitude: 68° 09‘ 42.35’ West
Altitude: 622 m above sea level	Altitude: 611 m above sea level

Figure 1: Location of the project area

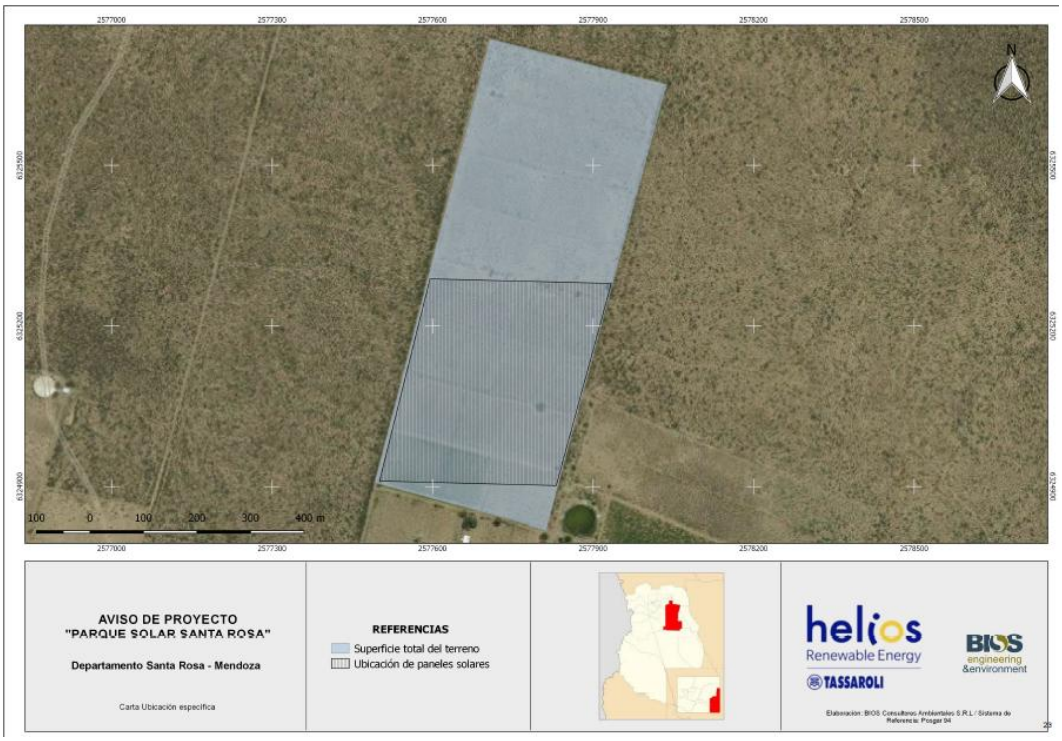
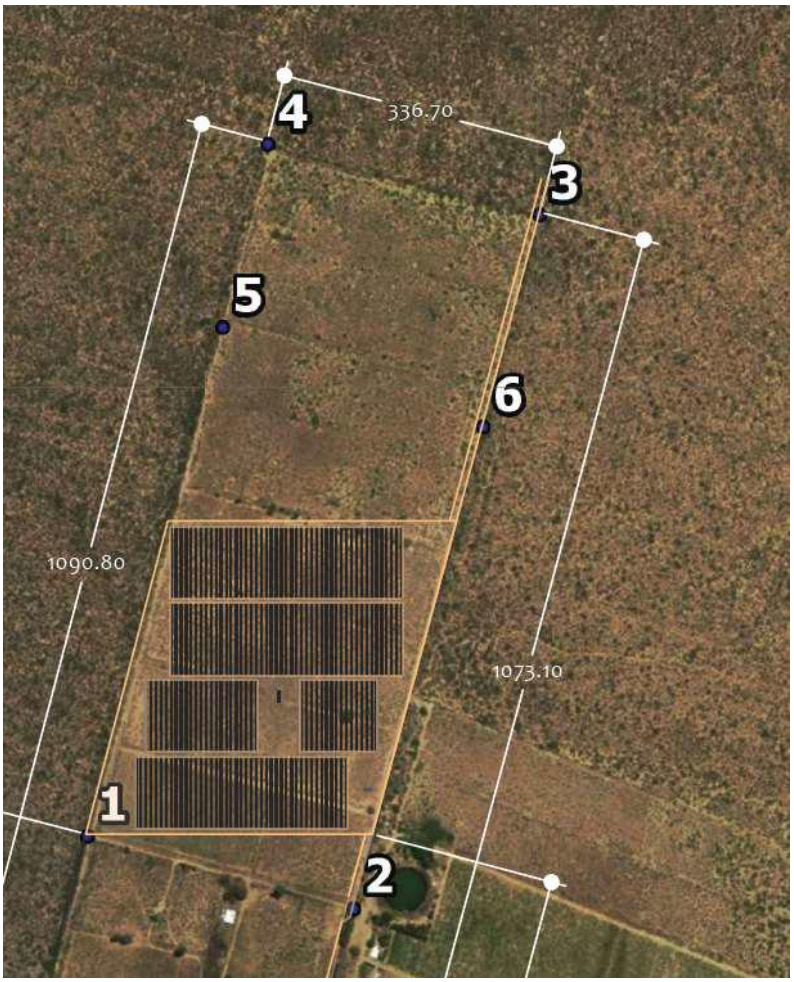


Figure 2: surface to be occupied by solar panels



2.5 Additional information about the GHG Project

The site was selected due to the high level of solar irradiation in the area and the absence of shadows caused by buildings and/or vegetation and/or orographic features. The surface is suitable for the installation and orientation of the photovoltaic modules.

The total area of the Helios Santa Rosa Solar Photovoltaic Plant is 26.12 ha (Santa Rosa I: 12.91 ha and Santa Rosa II: 13.2 ha). The surface area of the land owned by Tassaroli S.A., where the Santa Rosa I and Santa Rosa II facilities are located, is 27.8 ha. The 13.2 kV line between the Santa Rosa II facilities and the interconnection point is also part of the project activity and is 5.16 km long.

Tassaroli S.A. purchased the land on which the Helios Santa Rosa Solar Photovoltaic Plant is installed on 05/03/2021. The Helios Santa Rosa Photovoltaic Solar Plant is in Fraction A of the Measurement and Subdivision Plan approved by the Provincial Cadaster Directorate No. 11-81118-6.

On 21 January 2020, the project 'Planta Solar Photovoltaic Helios Santa Rosa (both phases)' was authorized by the environmental agency of the Government of Mendoza (Resolution 019/2020 Ministry of Environment and Land Management).

The decision to drive the structure into the ground and then fix it using one of these methods will depend on the load-bearing capacity of the soil, and therefore the corresponding soil study will have to be carried out prior to the construction of the park, in order to work with a certain resistance and firmness for the structure. At this point it is essential that the correct levelling of the support is carried out, which has a direct impact on the optimum orientation of the modules, considering the foreseen inclination. As far as the electrical connections are concerned, each structure must be earthed by means of a bare cable.

The following image shows a model of the supporting structure from a side view, with its respective approximate dimensions and shows the alternatives for fixing the structure to the ground.

Figure 3: Side view of fixed support structure model. Isolated bases

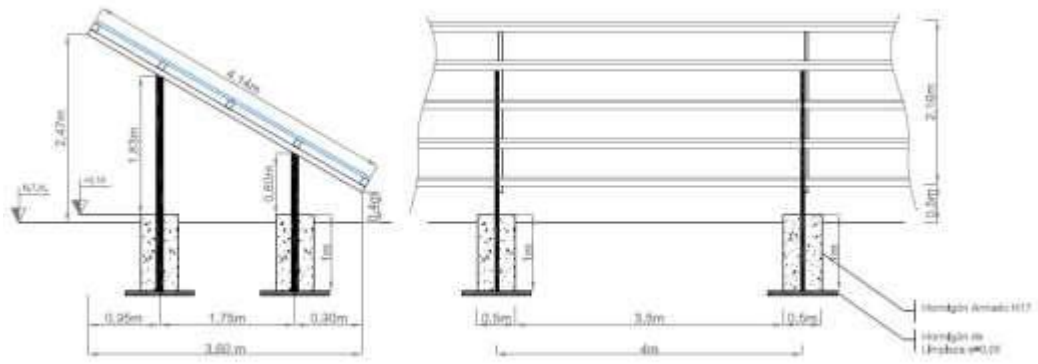
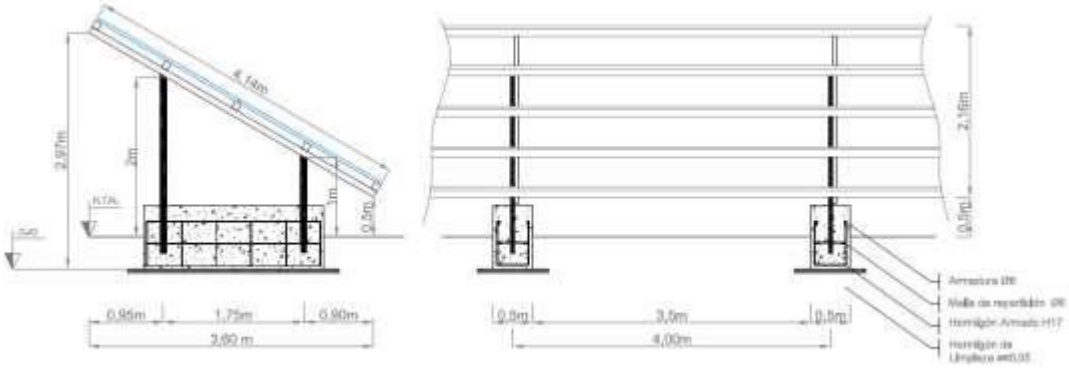


Figure 4: Side view of fixed support structure model. Isolated bases



3 Quantification of GHG emissions reduction

3.1 Quantification methodology

The UNFCCC methodology and related tools used are:

Title: Type I, Renewable Energy Project

- Methodology: AMS I.D. Small scale Methodology 'Grid-connected renewable electricity generation' version 18.0[4]
- TOOL 07: Tool for calculating the emission factor of an electricity system - Version 07.0[5]
- Tool 21: Demonstration of additionality of small-scale project activities Version 13.1[6].
- BCR Tool Sustainable Development Safeguards (SDSs Tool) Biocagon Registry version1.1[7]
- BCR Tool Avoiding Double Counting version 2.0[8]
- BCR Tool Sustainable Development Goals version [9]
- Tool Permanence and Risk Managment version 1.1[10]

3.1.1 Applicability conditions of the methodology

The following table shows how the project activity meets all the applicability conditions of the selected methodology.:

Table 4: Conditions of applicability

N°	Condition of applicability	Fulfilment of the requirement
1	This methodology is applicable to project activities that: (a) Install a Greenfield plant; (b) Involve a capacity addition at an existing plant(s); (c) Involve a modernization of an existing plant(s); (d) Involve the rehabilitation of an existing plant(s)/unit(s); or (e) Involve the replacement of an existing plant(s).	The project activity was a 'Greenfield project'. It therefore fulfils option (a) of the above criterion.

[4] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf
[5] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf
[6] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-21-v13.1.pdf
[7] https://biocarbonstandard.com/wp-content/uploads/BCR_Sustainable_development_safeguards.pdf
[8] https://biocarbonstandard.com/wp-content/uploads/BCR_avoiding-double-counting.pdf
[9] https://biocarbonstandard.com/wp-content/uploads/BCR_Herramienta-ODS.xlsx
[10] https://biocarbonstandard.com/wp-content/uploads/BCR_risk-and-permanence.pdf

2	Hydropower plants with reservoirs that meet at least one of the following conditions are eligible to apply this methodology: (a) The project activity is implemented on an existing reservoir with no change in reservoir volume; (b) The project activity is implemented on an existing reservoir, where the reservoir volume increases and the power density of the project activity, according to the definitions given in the emissions section of the project, is higher than 4 W/m3 , and (c) The project activity is implemented on an existing reservoir, where the power density of the project activity, according to the definitions given in the emissions section of the project, is higher than 4 W/m3 , and the power density of the project activity is higher than 4 W/m3 T4he project activity results in new reservoirs and th5e power density of the power plant, according to the6 definitions given in the emissions section of the project, is higher than 4 W/m2.	project, is greater than 4 W/m2; (c) The project activity is implemented in an existing reservoir. The project activity involves a solar photovoltaic power plant. Therefore, this criterion is not applicable.
3	If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the 15 MW eligibility limit for a small-scale CDM project activity applies only to the renewable component. If the new unit burns fossil fuels, the capacity of the entire unit will not exceed the 15 MW limit.	The CCMP has only one renewable component with less than 15 MW. This is a solar PV plant with an installed capacity of 10.2 MW. Therefore, it meets the above-mentioned criterion.
4	Combined heat and power (CHP) systems are not eligible in this category.	The CCMP is not a CHP project and therefore meets this criterion.
5	In the case of project activities involving the addition of capacity of renewable energy generation units to an existing renewable energy generation facility, the aggregate capacity of the units added by the project	As the CCMP was a Greenfield project, this condition does not apply.

	must be less than 15 MW and must be physically distinct from the existing units. existing units.	
6	In the case of modernization, rehabilitation or replacement, in order to qualify as a small-scale project, the total output of the modernized, rehabilitated or replacement power plant/unit shall not exceed 15 MW. exceed the limit of 15 MW.	As the CCMP was a Greenfield project, this condition is not applicable.
7	In the case of landfill gas, waste gas, wastewater treatment and agribusiness 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 the procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration, then other applicable Type I methodologies shall be explored, such as 'Type I'. applicable Type I methodologies shall be explored, such as 'AMS-I.C.: Thermal energy production with or without electricity'.	The CCMP is a grid-connected solar PV plant, so this criterion is not applicable.
8	In case the biomass comes from dedicated plantations, the applicability criteria of the tool 'Project emissions from biomass cultivation' shall be applied. biomass cultivation' tool shall be applied.	The CCMP VVBs did not use biomass from dedicated plantations. dedicated plantations, so this criterion is not applicable.

3.1.2 Methodology deviations (if applicable)

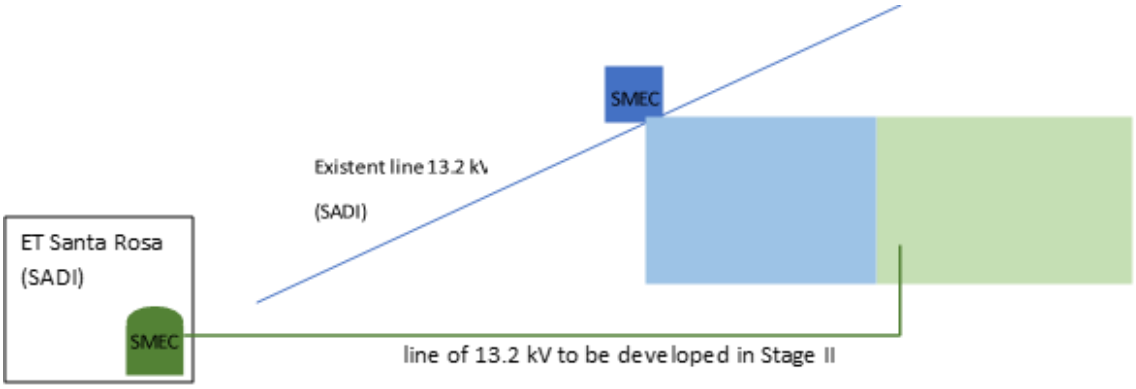
Biocarbon Registry did not approve any methodological deviations from the selected methodology and therefore does not apply.

3.2 Project boundaries, sources and GHGs

According to the methodology, AMS I.D. 'Grid-connected renewable electricity generation' version 18.0, the spatial extent of the project boundaries includes the project power plant and all power plants physically connected to the electricity system to which the project power plant is connected. The latter is the Argentine Interconnection System (SADI)[11].

Also part of the project activity is the 5.16 km of the 13.2 kV line linking the Helios Santa Rosa II facilities and the interconnection point with the national grid.

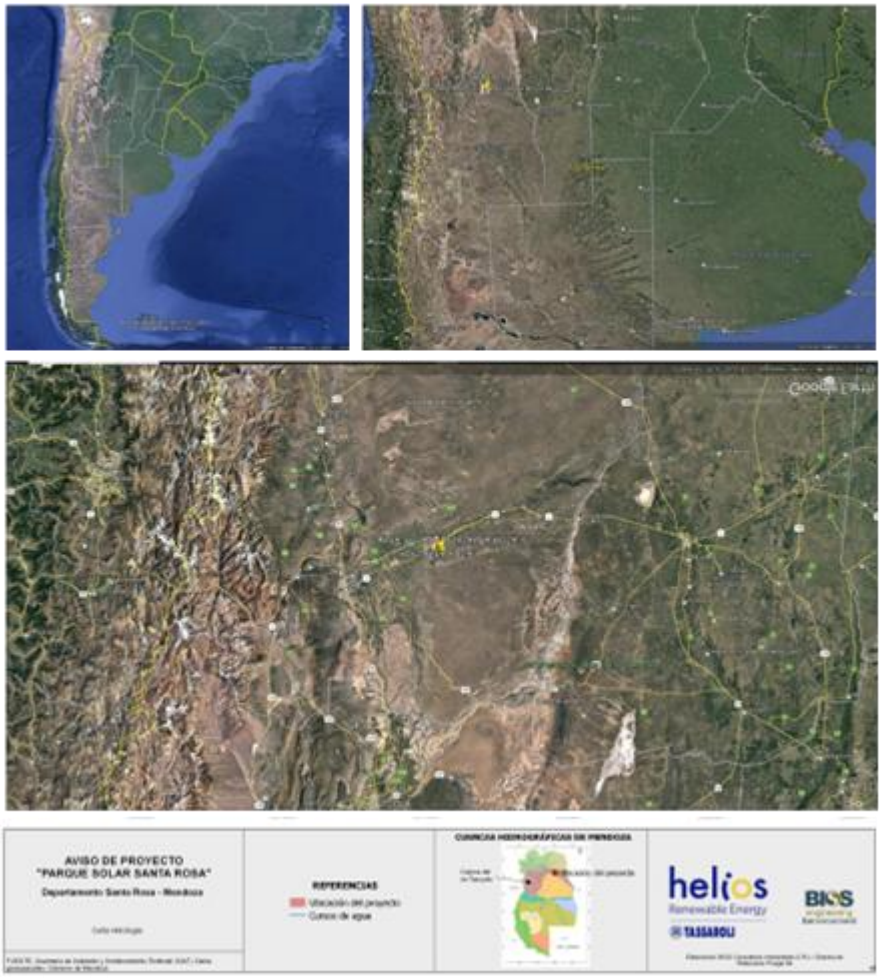
Figure 4: Interconnection point



3.2.1 Spatial limits of the project

[11] https://aplic.cammesa.com/geosadi/

Figure 5: location of the project



The solar photovoltaic power plant is located on a plot of land of approximately 27.8 ha designated as Fraction A of the Measurement and Subdivision Plan approved by the Provincial Directorate of Cadaster No. 11-81118-6. The location of Argentina, the province of Mendoza, the project area and the spatial boundaries of the CCMP are presented in the following images:

Figure 6: Aerial view of the project

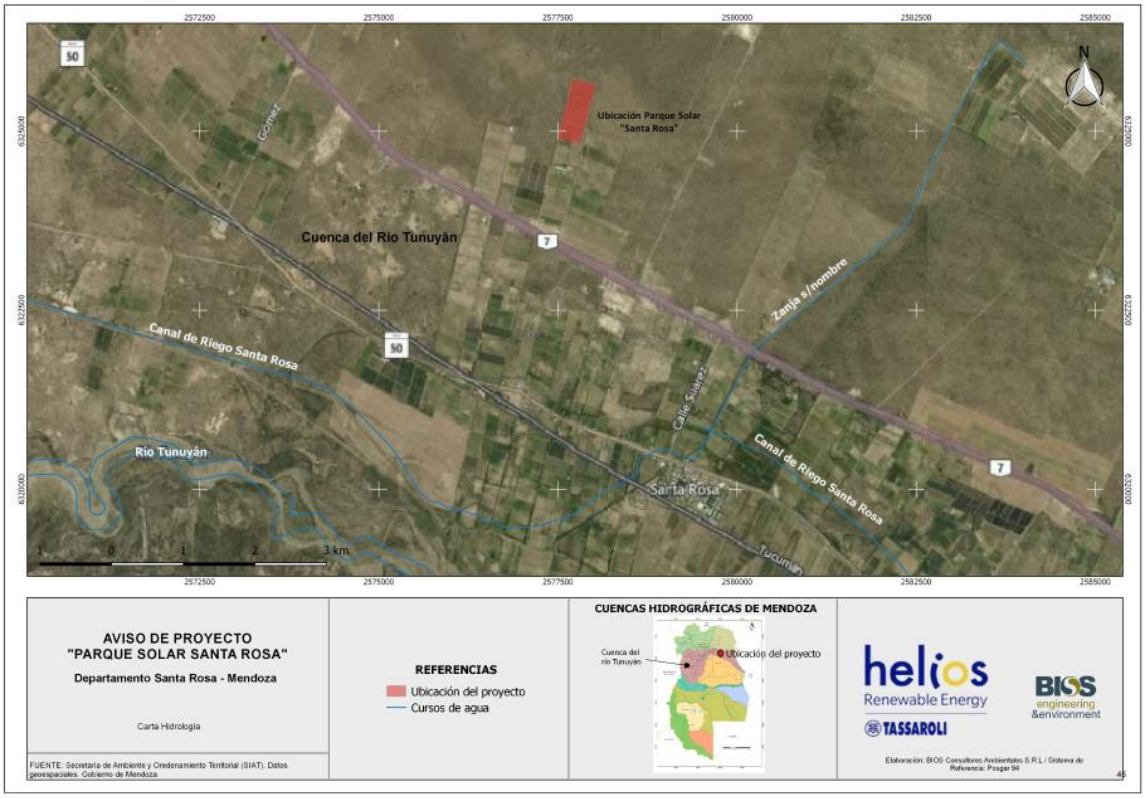


Figure 7: Aerial view Santa Rosa 1

Figure 8: Aerial view Santa Rosa 2

3.2.2 *Carbon reservoirs and GHG sources*

Source or reservoir	GHG	Included (Yes/No/Optional)	Justification
Source or reservoir 1	CO_2	yes	Main source of emissions.
	CH_4	no	Not included according to AMS I.D.
	N_2O	no	Not included according to AMS I.D.
Source or reservoir 2	CO_2	no	does not apply
	CH_4	no	does not apply
	N_2O	no	does not apply
Source or reservoir n	CO_2	no	does not apply
	CH_4	no	does not apply
	N_2O	no	does not apply

According to the project activity and methodology, there are no project leakages or emissions at the solar PV plant.

3.2.3 *Time limits and analysis periods*

The time limits of the projects correspond to the crediting periods during which GHG emission reductions are quantified. The crediting periods are defined in section 11.5 of the BCR Standard version 3.4 For activities in the energy, transport and waste sectors, the crediting periods shall be those established by the Clean Development Mechanism.

Therefore, the crediting period for the project activity is 21 years (7 years renewable twice).

3.2.3.1 *Project start date*

The start date of the project's activity is: 01/04/2022, which is when the permit was obtained and energy started to be supplied to Argentina's energy system.

3.2.3.2 *Quantification period of GHG emission reductions/removals*

First accreditation period (7 years): From 01/04/2022 to 31/03/2028.

3.2.3.3 Monitoring periods

Frequency of verification events (monitoring periods): annually or every 2 years.

3.3 Identification and description of the baseline or reference scenario

The project activity consists of a grid-connected Photovoltaic Solar Plant. It is a greenfield project and has 2 stages of implementation. The first stage of 5 MW started operation in April 2022 and the second stage in May 2024.

The AMS I.D. Methodology 'Grid-connected renewable electricity generation', version 18.0 established:

Reference or baseline emissions include only CO_2 emissions from electricity generation in power plants that are displaced due to project activity. The methodology assumes that project electricity generation above baseline levels would be generated by existing grid-connected power plants and the addition of new grid-connected plants, as reflected in the combined margin (CM). As a result, the baseline emissions (BEy in tCO_2) are the product of the baseline emissions factor (EFy in tCO_2/MWh), and the electricity supplied by the project activity to the grid (EGy in MWh).

According to paragraph 22 of AMS I.D. version 18.0, reference emissions include only CO_2 emissions from electricity generation in power plants that are displaced due to the project activity.

The Argentine electricity system is operated by CAMMESA. This entity is in charge of dispatch and commercial transactions in the Wholesale Electricity Market, known as MEM. Each month CAMMESA publishes a report that includes all relevant data.

Historically, the composition of installed power generation has been strongly marked by thermal generation based on fossil fuels with a very low presence of renewable energies. Analyzing the historical evolution from 2002 to 202310 it can be seen that the proportion of fossil fuels remained relatively stable during the period under analysis:

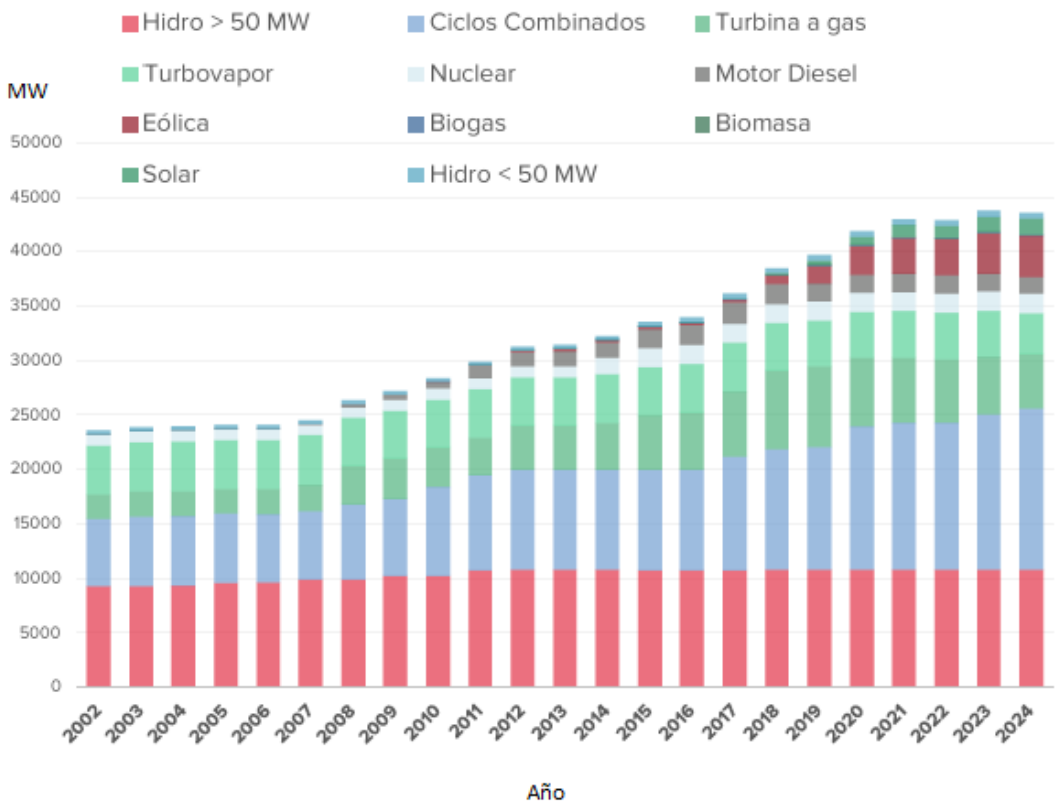
- Year 2002 - 55%.
- Year 2009 - 55%.
- Year 2016 - 61% Year 2023 - 58% Year 2023 - 58% Year 2023 - 58% Year 2023 - 58
- Year 2023 - 58%.

With regard to energy from renewable sources, it is important to note that, in June 2016, in accordance with Law 27191 on Renewable Energy[12] , hydro units with a capacity of less than 50 MW are classified as renewable units. Nevertheless, CAMMESA continues to report and discriminate the composition of energy sources between renewables and renewables with hydro. The evolution of renewable sources without the hydro component during the period of analysis was:

- Year 2002 - 1.6%.
- Year 2009 - 1.3%.
- Year 2016 - 2% Year 2023 - 13% Year 2023 - 13% Year 2023 - 13% Year 2023 - 13
- Year 2023 - 13%.

Figure 9: Annual evolution of installed capacity by technology (MW)

[12] https://servicios.infoleg.gob.ar/infolegInternet/anexos/250000-254999/253626/norma.htm



Source: CAMMESA

In the monthly report of June 2024[13] , CAMMESA published that the installed capacity in the Argentine electricity system is 43,603 MW where 58% of the electricity generation corresponds to thermal generation based on fossil fuels represents approximately 13% (without considering hydropower of the total installed capacity and came to cover approximately 14.3% of the total energy demand. comes from renewable sources).

According to the information presented, the Argentinean electricity system is still dependent on fossil fuels and carbon-intensive technologies are still the predominant sources of electricity production in Argentina.

13 file:///C:/Users/Leonel%20Mingo/Downloads/Consultorias/Clientes/Tassarolli/informes%20cammesa/Informe%20Mensual_2024-06%20cammesa.pdf

The project activity will have an installed capacity of 10.2 MW which is less than 0.024% of the total, so the amount of energy supplied by the project activity could, in the absence of the project, be provided by the units already serving the Argentine electricity system and by the addition of new power plants to the system.

The commercial SMEC meter installed at the photovoltaic projectis managed by CAMMESA, the state-owned entity responsible for the operation of the electricity market in Argentina. This equipment officially and bindingly registers the energy generated and injected into the grid, so its management and control are strictly regulated under national regulations. In other words, all generation plants in Argentina have a SMEC belonging to CAMMESA and obtain energy measurements in the same way.

Although the SMEC is physically located in the solar park facilities, there is no authorization to manipulate it or modify its parameters, as it is protected with seals that guarantee its inviolability. Any intervention, whether for repair or verification in the event of an emergency, must be formally requested to CAMMESA, which authorizes or not the maneuver and, if it authorizes the cutting of the seals, then sends authorized personnel to check the correct operation and reseal the seals.

According to the information provided by CAMMESA, meter calibration is carried out only when values outside the parameters defined as 'in class' are detected, according to the applicable technical standards. For this process, injectors and energy standards certified by the National Institute of Industrial Technology (INTI) are used, ensuring the accuracy of the measurements in accordance with IRAM 2421 and IEC 60687 standards. Although the regulations do not establish a specific periodicity for preventive recalibrations, it is possible, if deemed necessary, to contract companies approved by INTI to carry out periodic calibrations.

The current scheme guarantees that the calibration process is carried out under international technical standards and with certified equipment, ensuring the reliability of the measurements. Being under the exclusive administration of CAMMESA, the independence and transparency of the recorded data is protected, which is fundamental for the validity of the carbon credits associated with the photovoltaic project. For these reasons, the Company has no responsibility or authorization to perform direct calibrations on the SMEC, as this task falls exclusively to CAMMESA and the bodies authorized by the national regulatory framework. This procedure ensures that measurements are reliable, complying with the requirements of carbon credit certification standards.

Any renewable project in Argentina that is currently generating carbon credits is based exclusively on the data recorded by CAMMESA through the SMEC commercial meter. This

data is the only data recognized as valid, reliable and auditable by national and international standards. This guarantees the transparency and accuracy necessary to support the issuance of carbon credits and ensure their acceptance in the markets.

3.4 Additionality

In compliance with the Biocarbon Registry Standard, energy projects must use the Tools from the Clean Development Mechanism for the demonstration of project additionality.

Section 3 of the approved CDM methodology AMS-I.D Small-scale Methodology Grid-connected renewable electricity generation (version 18.0) states that for the demonstration of additionality, Annex A of Appendix B of the Simplified Modalities and Procedures for small-scale CDM project activities (version 06, 30 September 2005) must be followed. As additionality cannot be demonstrated automatically, Tool 21 Demonstration of additionality of smallscale project activities states that additionality must be demonstrated by applying Tool 1 'Tool for the demonstration and assessment of additionality version 07.0.0. All the steps set out in the above-mentioned Tool will be carried out.

Step 0: Demonstration of whether the project activity is Fisrt-of-its-kind

According to official CAMMESA data for the year 20231 in Argentina, the installed capacity in 2023[14] was 43,774 MW. Renewable energies accounted for only 13% of the installed capacity. Of the 16,580 MW of renewable energy generated, photovoltaics contributed 1,366 MW. Only 3% of the total installed capacity.

14 file:///C:/Users/Leonel%20Mingo/Downloads/Consultorias/Clientes/Tassarolli/informes%20cammesa/Informe%20Mensual_2024-06%20cammesa.pdf

Table 5: Installed capacity by source and technology

FUENTE	2022	2023	% Variación	% Participación	ALTAS / INCREMENTOS	BAJAS / DISMINUCIÓN	VARIACIÓN TOTAL
Térmica	25 275	25 437	**0.6%**	58%	906	744	162
Renovables	15 897	16 581	**4.3%**	38%	690	5	685
Renovable HIDRO > 50	10 834	10 834	**0.0%**	25%	0	0	0
Renovable Según Ley 26 190	5 062	5 747	**13.5%**	13%	690	5	685
Nuclear	1 755	1 755	**0.0%**	4%	0	0	0
POTENCIA INSTALADA [MW]	**42 927**	**43 774**	**2.0%**	100%	**1 596**	**749**	**847**

FUENTE	TECNOLOGÍA	2022	2023	ALTAS/ INCREMENTOS	BAJAS/ DISMINUCIÓN	VARIACIÓN TOTAL
Térmica	Ciclos Combinados (*)	13 500	14 235	848	113	735
	Motor Diesel	1 696	1 660	2	38	-36
	Turbina a gas (*)	5 828	5 291	56	593	-537
	Turbovapor	4 251	4 251	0	0	0
Renovables	Hidráulica > 50 MW	10 834	10 834	0	0	0
	Hidráulica < 50 MW	524	524	0	0	0
	Biogas	70	78	14	5	9
	Biomasa	73	73	0	0	0
	Eólica	3 309	3 705	396	0	396
	Solar	1 086	1 366	280	0	280
Nuclear	Nuclear	1 755	1 755	0	0	0
POTENCIA INSTALADA [MW]		**42 927**	**43 774**	**1 596**	**749**	**847**

Source: CAMMESA

Therefore, while photovoltaic technology has existed in Argentina for a few years, its share of the total installed capacity is so low that one could argue that these types of projects are part of First-of-its-kind. Nevertheless, the following steps for the demonstration of additionality will be followed.

Step 1: Identification of alternatives to the project activity

Sub-step 1a: identification of alternatives to the project activity

Tassaroli is a metal-mechanical manufacturing company that provides inputs mainly to the mining and oil industry with more than 70 years of experience in the market. It has never been involved in the generation of renewable energy or any other type of energy. The decision for the current project is due to the company's commitment to comply with the 2030 agenda and the desire to achieve carbon neutrality exclusively through its own measures.

There are three identified alternatives that will be analyzed throughout the implementation of this Tool. The first is the modernization of the industrial plant's heat treatment furnaces.

The furnace modernization project was planned for 2021 with the aim of incorporating state-of-the-art technology that would significantly increase steel processing capacity. With this new technology, the plant would be able to heat up to 10 times more steel in each cycle, which would represent a significant increase in operational efficiency and production capacity.

The next project alternative would be to build the solar park connected to the Argentine grid without the additional income generated by trading carbon credits.

Finally, it is also a real and credible alternative that Tassaroli decides not to carry out either of the two alternatives (solar project and kiln modernization). On the one hand, Tassaroli has been in the market for more than 70 years and has never carried out any energy generation project, let alone solar energy. On the other hand, the company's production is heavily based on the use of thermal furnaces for the manufacture of its parts and, up to the date of preparation of this project, they had not been modernized. Therefore, it is credible that the company could decide not to implement either of the two alternatives.

Result of Step 1a: The above analysis leads to two credible alternatives

Scenario 1: Modernization of the kilns

Scenario 2: Develop the Solar PV Plant connected to the Argentinean grid without carbon credit revenues

Scenario 3: Not realizing any of the alternatives

Step 1b: Consistent with all legislation and regulations

The alternative identified in the previous sub-step is part of Tassaroli's daily activity for more than 70 years. It complies with all national, provincial and local legislation as can be seen in section 4 of this report.

With regard to the construction of the photovoltaic project connected to the Argentine grid without carbon credit revenues, it also complies with all national, provincial and local legislation as can be seen in section 4 of this document.

Regarding the alternative of not carrying out any of the above alternatives, of course it complies with all legislation.

Result sub step b:

Scenario 1: Modernization of the kilns

Scenario 2: Develop the Photovoltaic Solar Plant connected to the Argentinean grid without carbon credits income.

Scenario 3: Do not realize any of the alternatives.

Step 2: Investment Analysis

This step serves to determine which of the likely land use alternatives identified in Step 1 is the most attractive in economic or financial terms.

Sub-step 2a: Determine the most appropriate method of analysis

An investment comparison analysis will be carried out to demonstrate that the project activity, without the revenues from the sale of Verified Carbon Credits (VCCs), is the most attractive in economic or financial terms.

Sub-step 2b option II: Investment comparison analysis

The most appropriate financial indicator to carry out a comparative analysis between the alternatives that were identified in step 1 is the Net Present Value Analysis (NPV) and the Internal Rate of Return. These indicators incorporate the time value of money in the determination of the net cash flows of the business or project, in order to be able to make correct comparisons between cash flows in different periods over time.

Sub step 2c: Calculation and comparison of financial indicators

Next, a financial analysis will be performed on the two scenarios identified in step 1.

In 2021, the year in which it was decided to realize the current photovoltaic project, the possibility of modernizing the heat treatment furnaces of the industrial plant was analyzed. The furnace modernization project was planned with the aim of incorporating state-of-the-art technology that would significantly increase steel processing capacity. With this new technology, the plant would be able to heat up to 10 times more steel in each cycle, which would represent a significant increase in operating efficiency and production capacity.

The projected investment for the modernization of the furnaces cannot be made public for confidentiality reasons. However, they will be available on request. This alternative could allow a 10-fold increase in production due to the new heat treatment capacity[15].

To simplify the analysis and for conservative reasons, only the economic indicators of the products that have the greatest impact on current production in terms of the amount of steel used in production will be analyzed. In this case, these are the products of the Mining business unit. With the current furnaces, Tassaroli produces an average of 1,600 units of products of the mining business unit.

On the other hand, the alternative of developing the photovoltaic park without the extra income from the sale of carbon credits represented a higher investment outlay (for confidentiality reasons, the amount spent on the construction of the solar project is not included in this document, but is available to any stakeholder upon request), and has lower NPV and IRR indicators than the expansion of the furnaces.

On the other hand, the alternative of the photovoltaic park with the extra income from the sale of carbon credits is superior to the alternative without the sale of these credits (this is enhanced by the Argentinean situation which will be analyzed in detail in Step 3 of this Tool)

[15] See additional information folder for details

and competitive in comparison to the alternative of the modernization of the furnaces. This can be seen below

Table 6: NPV and IRR indicators for the kiln expansion project + Solar project connected to the grid without carbon credit income + Solar project connected to the grid with carbon credit income

Photovoltaic project without the sale of carbon credits	
Indicator	Annual
RATE	6%
NPV	USD 1,208,840
IRR	8.04%
Photovoltaic Project with Carbon Credit Sales	
Indicator	Annual
RATE	6%
NPV	1,633,739
IRR	8.75%
Furnace extension project	
Indicator	ANNUAL
RATE	6%
NPV	USD 353,025

IRR	9.47%

The alternative of extending the furnaces is an economically profitable option. Tassaroli has been producing and supplying mainly the Argentinean market of metal-mechanical parts for more than 70 years. However, as this company is an SME (small medium-sized enterprise), it does not have the capital to face this type of project without financing, let alone both at the same time (this financial barrier will be analyzed in Step 3 of barriers). However, it can be seen that the alternative of building the solar park with the sale of carbon credits has a similar IRR to the alternative of expanding the furnaces and is also higher than the alternative of building the solar park without the sale of carbon credits, which demonstrates the need to have this extra income from the sale of carbon credits in order to be able to carry out the project.

Tassaroli's objective for the realization of the current photovoltaic project was mainly due to its commitment to be carbon neutral through its own activities and collaboration with the fulfilment of the 2030 agenda.

Therefore, it is also important to analyze the amount of CO_2 emissions emitted by one project over the other.

The decision was based on the environmental benefits offered by the project. The solar park will contribute to an estimated reduction of 10,800 tons of CO_2 per year, aligning with emission reduction targets and positioning the company as a committed player in climate change mitigation.

While retrofitting the furnaces would have been a more economically favorable option, it would not have generated a significant environmental impact or contributed to emissions reductions. Instead, the construction of the solar park represents an additional impact on emissions reduction that would not have occurred in a business as usual scenario. The investment in the photovoltaic project, despite being larger and less profitable, will allow the company to generate carbon credits and contribute to decarbonization, something that the furnace modernization would not have achieved.

Therefore, the decision to invest in the photovoltaic project reflects a clear commitment to sustainability and climate change mitigation, choosing a less economic path, but with a tangible environmental benefit. The difference between the CO_2 emissions that would have been emitted if the kiln expansion project went ahead versus the current photovoltaic project

can be seen below, where the emissions from the photovoltaic project correspond to 0.13% compared to the kiln project.

Finally, the alternative of not carrying out any of the alternatives is not subject to any of these variables.

Table 7: Comparison between the hourly emissions of ton CO_2 eq. between both investment projects:

Emisiones Helios SR		Valor	Unidad	Emisiones	
Electricidad	Consumo E anual	17,140.00	kWh/año		
	Consumo E hora	1.96	kWh/h	**0.00045**	**tCO2e/h**
	Factor emisión	0.0002302	tCO2e/kWh		

Emisiones proyecto térmico		Valor	Unidad	Emisiones	
Gas natural	Pot. Cal. gas natural	1,616,518	kcal/h		
	Fac emis	0.0019	tCO2e/m3	**0.330**	**tCO2e/h**
	Poder caloríf GN	9,300.00	kcal/m3		
Electricidad	Potencia	120	kW		
	Fac emis	0.0002302	tCO2e/kWh	**0.028**	**tCO2e/h**
			TOTAL	**0.36**	**tCO2e/h**

Step 3: Barrier Analysis

This step serves to identify barriers and assess which alternatives are impeded by these barriers.

Sub-step 3a: Identification of Barriers to Project Implementation

Establish that there are realistic and credible barriers that would prevent the implementation of the proposed project activity if it is not registered as a CDM activity. Such realistic and credible barriers may include, but are not limited to:

Investment barriers:

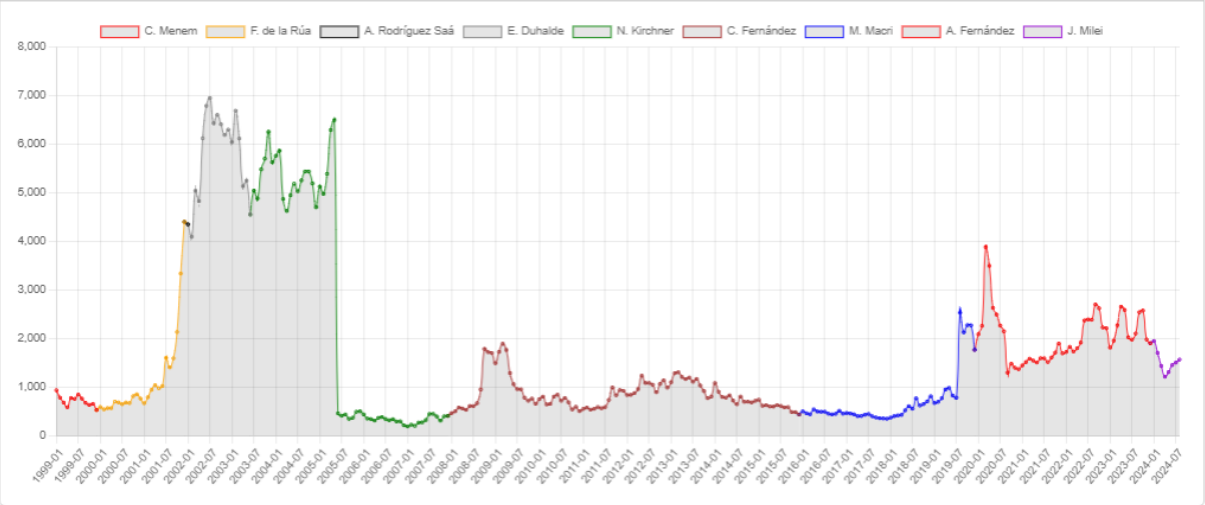
Firstly, it is important to highlight the Argentinean economic climate that acts as a barrier to the realization of any type of investment. These barriers apply to both scenarios analyzed. Subsequently, the particular barriers affecting each of them will be analyzed.

In turn, and as a complement to the investment barrier, it is important to bear in mind the complex Argentinean context that hinders this type of project. Prolonged inflation, economic risk, political and economic instability and the devaluation of the national currency make any long-term investment a high-risk decision. The long history of debt default is reflected in its high interest rate differential.

The Emerging Bond Index Plus created by JP Morgan15 measures the risk a country represents for foreign investors. This index specifies the interest rate that a country would have to pay when issuing debt abroad. It covers both the public and private sector of a country. That is to say, national, provincial and municipal governments as well as private companies of any kind. The value given by the Country Risk Index is how much more interest a country's debt securities have to pay than US Treasury bonds. To make this measurement, JP Morgan takes the yield on debt securities of a given maturity (e.g. ten years) and compares it to the yield on a US Treasury bond of the same maturity.

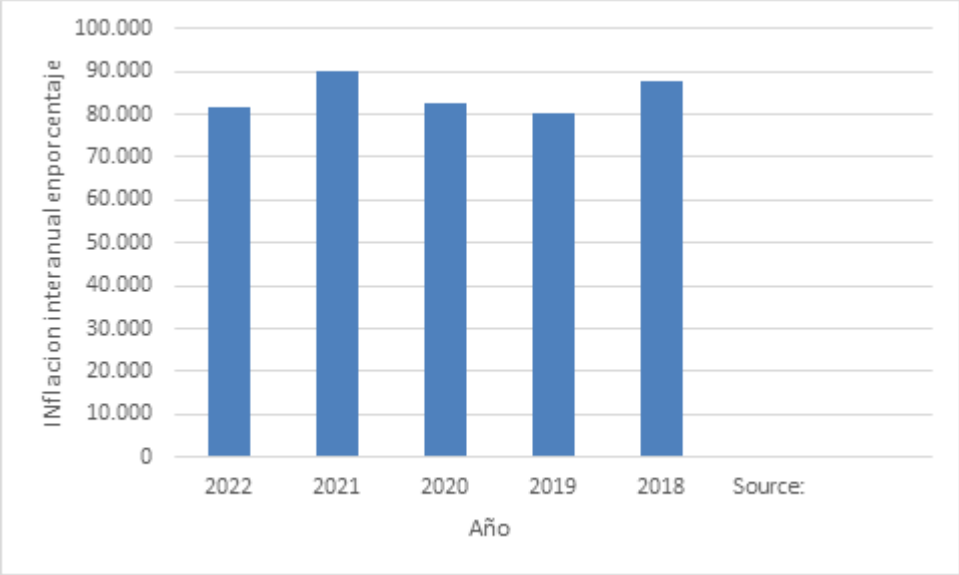
In general, in order to measure risk and affordability, rating agencies take into account a number of factors. Among them, the general economic situation of the country, where some variables such as the fiscal deficit, growth, trade openness, among others, are taken into account. Political, social and institutional factors are also taken into account.

Figure 10: Country Risk Evolution Argentina August 1999- July 2024



Source: JP Morgan

Figure 11: Argentine inflation evolution 2018-June 2024



Source: INDEC [16]

The steady loss of value over time of Argentina's local currency (peso) reflects a weak economy. While the official nominal exchange rate follows a devaluation path, local economic policy is using the exchange rate as a nominal anchor in an economy that accumulates inconsistencies that make the official exchange rate less competitive. There are different exchange rates in Argentina that discourage any long-term investment.

Figure 12: Devaluation of Argentine peso against the dollar

[16] https://www.indec.gob.ar/indec/web/Nivel4-Tema-3-5-31

Source: Tradingview based on data from Banco Nación Argentina.[17]

As can be seen, a US dollar went from being worth below 100 Argentinean pesos in early 2020 to trading above 930 Argentinean pesos in June 2024. This level of devaluation means that any long-term investment in Argentina is considered high risk not only for foreign but also for domestic investors. The incentive of a carbon credit that is paid in US dollars would be an incentive to develop any CCMP because the dollar, unlike the peso, is a stable currency for which there is a high degree of certainty of its long-term value.

In addition to macroeconomic instability, the climate for doing business in the country is one of the most hostile in the world. The renowned Doing Business survey (World Bank), which provides objective measures of business regulations and their enforcement in 190 selected economies and cities at sub-national and regional levels, places Argentina near the bottom of the ranking each year. This survey was recently replaced by a new measure called Business Enabling Environment (BEE) to be published in the second quarter of 2023. The latest 2020 survey shows that Argentina ranked 126th out of 190 countries:

Figure 12: Doing Business survey (World Bank).

[17] https://es.tradingview.com/symbols/USDARS/

Rank	Economy	DB score	Rank	Economy	DB score	Rank	Economy	DB score
1	New Zealand	86.8	65	Puerto Rico (U.S.)	70.1	128	Barbados	57.9
2	Singapore	86.2	66	Brunei Darussalam	70.1	129	Ecuador	57.7
3	Hong Kong SAR, China	85.3	67	Colombia	70.1	130	St. Vincent and the Grenadines	57.1
4	Denmark	85.3	68	Oman	70.0	131	Nigeria	56.9
5	Korea, Rep.	84.0	69	Uzbekistan	69.9	132	Niger	56.8
6	United States	84.0	70	Vietnam	69.8	133	Honduras	56.3
7	Georgia	83.7	71	Jamaica	69.7	134	Guyana	55.5
8	United Kingdom	83.5	72	Luxembourg	69.6	135	Belize	55.5
9	Norway	82.6	73	Indonesia	69.6	136	Solomon Islands	55.3
10	Sweden	82.0	74	Costa Rica	69.2	137	Cabo Verde	55.0
11	Lithuania	81.6	75	Jordan	69.0	138	Mozambique	55.0
12	Malaysia	81.5	76	Peru	68.7	139	St. Kitts and Nevis	54.6
13	Mauritius	81.5	77	Qatar	68.7	140	Zimbabwe	54.5
14	Australia	81.2	78	Tunisia	68.7	141	Tanzania	54.5
15	Taiwan, China	80.9	79	Greece	68.4	142	Nicaragua	54.4
16	United Arab Emirates	80.9	80	Kyrgyz Republic	67.8	143	Lebanon	54.3
17	North Macedonia	80.7	81	Mongolia	67.8	144	Cambodia	53.8
18	Estonia	80.6	82	Albania	67.7	145	Palau	53.7
19	Latvia	80.3	83	Kuwait	67.4	146	Grenada	53.4
20	Finland	80.2	84	South Africa	67.0	147	Maldives	53.3
21	Thailand	80.1	85	Zambia	66.9	148	Mali	52.9
22	Germany	79.7	86	Panama	66.6	149	Benin	52.4
23	Canada	79.6	87	Botswana	66.2	150	Bolivia	51.7
24	Ireland	79.6	88	Malta	66.1	151	Burkina Faso	51.4
25	Kazakhstan	79.6	89	Bhutan	66.0	152	Mauritania	51.1
26	Iceland	79.0	90	Bosnia and Herzegovina	65.4	153	Marshall Islands	50.9
27	Austria	78.7	91	El Salvador	65.3	154	Lao PDR	50.8
28	Russian Federation	78.2	92	San Marino	64.2	155	Gambia, The	50.3
29	Japan	78.0	93	St. Lucia	63.7	156	Guinea	49.4
30	Spain	77.9	94	Nepal	63.2	157	Algeria	48.6
31	China	77.9	95	Philippines	62.8	158	Micronesia, Fed. Sts.	48.1
32	France	76.8	96	Guatemala	62.6	159	Ethiopia	48.0
33	Turkey	76.8	97	Togo	62.3	160	Comoros	47.9
34	Azerbaijan	76.7	98	Samoa	62.1	161	Madagascar	47.7
35	Israel	76.7	99	Sri Lanka	61.8	162	Suriname	47.5
36	Switzerland	76.6	100	Seychelles	61.7	163	Sierra Leone	47.5
37	Slovenia	76.5	101	Uruguay	61.5	164	Kiribati	46.9
38	Rwanda	76.5	102	Fiji	61.5	165	Myanmar	46.8
39	Portugal	76.5	103	Tonga	61.4	166	Burundi	46.8
40	Poland	76.4	104	Namibia	61.4	167	Cameroon	46.1
41	Czech Republic	76.3	105	Trinidad and Tobago	61.3	168	Bangladesh	45.0
42	Netherlands	76.1	106	Tajikistan	61.3	169	Gabon	45.0
43	Bahrain	76.0	107	Vanuatu	61.1	170	São Tomé and Príncipe	45.0
44	Serbia	75.7	108	Pakistan	61.0	171	Sudan	44.8
45	Slovak Republic	75.6	109	Malawi	60.9	172	Iraq	44.7
46	Belgium	75.0	110	Côte d'Ivoire	60.7	173	Afghanistan	44.1
47	Armenia	74.5	111	Dominica	60.5	174	Guinea-Bissau	43.2
48	Moldova	74.4	112	Djibouti	60.5	175	Liberia	43.2
49	Belarus	74.3	113	Antigua and Barbuda	60.3	176	Syrian Arab Republic	42.0
50	Montenegro	73.8	114	Egypt, Arab Rep.	60.1	177	Angola	41.3
51	Croatia	73.6	115	Dominican Republic	60.0	178	Equatorial Guinea	41.1
52	Hungary	73.4	116	Uganda	60.0	179	Haiti	40.7
53	Morocco	73.4	117	West Bank and Gaza	60.0	180	Congo, Rep.	39.5
54	Cyprus	73.4	118	Ghana	60.0	181	Timor-Leste	39.4
55	Romania	73.3	119	Bahamas, The	59.9	182	Chad	36.9
56	Kenya	73.2	120	Papua New Guinea	59.8	183	Congo, Dem. Rep.	36.2
57	Kosovo	73.2	121	Eswatini	59.5	184	Central African Republic	35.6
58	Italy	72.9	122	Lesotho	59.4	185	South Sudan	34.6
59	Chile	72.6	123	Senegal	59.3	186	Libya	32.7
60	Mexico	72.4	124	Brazil	59.1	187	Yemen, Rep.	31.8
61	Bulgaria	72.0	125	Paraguay	59.1	188	Venezuela, RB	30.2
62	Saudi Arabia	71.6	126	Argentina	59.0	189	Eritrea	21.6
63	India	71.0	127	Iran, Islamic Rep.	58.5	190	Somalia	20.0
64	Ukraine	70.2						

Source: Doing Business database.

Note: The rankings are benchmarked to May 1, 2019, and based on the average of each economy's ease of doing business scores for the 10 topics included in the aggregate ranking. For the economies for which the data cover two cities, scores are a population-weighted average for the two cities. Rankings are calculated on the basis of the unrounded scores, while scores with only one digit are displayed in the table.

Source: Doing Business survey (World Bank).

In addition, there is a further obstacle facing any company that decides to invest in Argentina. In May 2020, Official Communication 'a '[18] 7030 of the Central Bank of the Argentine Republic established severe restrictions for companies to access the Single Free Foreign Exchange Market (MULC), making it difficult to make transfers abroad to pay for new equipment. If the investment is profitable, current legislation and problems related to the stock of foreign currency at the Central Bank of Argentina make it extremely difficult to access dollars to transfer abroad as dividends.

Scenario 1: Modernization of the furnaces

If this type of project could have been realized, it would have meant a better expected return on investment from an economic point of view only (as analyzed in Step 2).

However, it is important to note that due to the economic context in Argentina in recent years, it is extremely difficult to access credit to finance this type of work. Tassaroli is a solvent company with more than 70 years in Argentina. However, it is still an SME, which makes it impossible for it to finance this type of project with its own resources.

Most of Tassaroli's production is marketed in Argentina. This means that sales prices, and therefore income, are in the local Argentinean currency which, as analyzed above, has been going through constant periods of devaluation for many years, added to the socio-economic context which makes it difficult to foresee, in the short term, being able to sell the surplus production that the expansion of the furnaces would entail.

Therefore, this scenario is strongly impacted by the economic situation in Argentina, to such an extent that even at the date of preparation of this report in 2024 it has not been realized.

Scenario 2: Developing the Photovoltaic Solar Plant connected to the Argentine grid without income from carbon credits.

This alternative, although it is more expensive to develop and delivers a lower NPV and IRR than scenario 1 of modernizing the furnaces, there are some national programmed that help to promote this type of project, which will be analyzed in detail in the institutional barrier analyzed below.

[18] https://www.bcra.gob.ar/pdfs/comytexord/A7024.pdf

Since 2016, with the renewable energy auctions developed by the Argentinean government called RenovAr[19] 1, 1.5, 2 and 3 the government is developing strategies to reduce GHG emissions in the electricity sector and meet the Argentinean NDC targets. The province of Santa Fe also developed a tender for solar and wind projects during 2019. Without long-term PPAs with tariffs expressed in USD/MWh, no renewable energy projects were built. In the first half of 2022, some of the PPAs signed with a USD/MWh tariff were even terminated because developers were unable to access financing.

According to the results of the RenovAr auctions, PPAs were signed by technology with the following capacity:

Table 8: RenovAr auction results

	Wind power	**Solar power**	**Mini-Hydro**	**Biomass**	**Biogas**	**Biogas landfill**	
	MW						
RenovAr 1*	707.45	400	11.37	14.5	7.44	1.2	
RenovAr 1.5*	765.35	516.18					
RenovAr 2*	993.43	816.25	20.77	143.22	56.22	13.12	
RenovAr 3*	154.5	128	8.37	8.5	19.2	5	
Total MW with PPAs by technology	2620.73	1860.43	40.51	166.22	82.86	19.32	4790
Participation	**54.71%**	**38.84%**	**0.85%**	**3.47%**	**1.73%**	**0.40%**	100%

Source: RICSA[20]

[19] https://www.argentina.gob.ar/economia/energia/energia-electrica/renovables/renovar

[20] https://app.powerbi.com/view?r=eyJrIjoiY2U4NGM3ZDItYTFlOS00Zjk2LWE3NTItYjZmOTRjMWZiMTEwIiwidCI6ImI4OWJhYTMxLWZlMmMtNGYyZi1iY2YyLTczNDViNzUzOTgyYyIsImMiOjR9

As of May 2022, of the 147 projects with signed PPAs, 101 are operational and 46 projects have terminated their PPAs due to lack of access to financing for a total of 1,091.3MW[21].

Although there are programs that support the development of this type of projects, they continue to be strongly affected by the economic situation in Argentina. Contracts made through the Renovar program have the advantage that they are for 20 years, but as they are in local currency and Argentina is going through high inflation rates, prices are very quickly delayed, making long-term projections very unstable and complex.

The first stage of the project, which started delivering electricity to the grid in April 2022, sells its electricity in dollars and charges in pesos at the official dollar exchange rate, i.e. an exchange rate that represents less than 50% of the MEP exchange rate (an exchange rate that operates in the capital market and represents a more real value than the official exchange rate). Revenues from the sales of carbon credits reduce the risk of investing in Argentina, will contribute to cash flow

In the MATER program, the contracts are more short-term, which means that the price is not as strongly affected as in the Renovar program, although it is still affected and the exchange rate remains in Argentinean pesos. For these reasons, only 3% of the installed capacity in Argentina comes from solar energy[22] .

Finally, the alternative of not undertaking any of the alternatives is not affected by this barrier.

Revenues from carbon credits will help to overcome the identified barriers, as they will improve the CCMP's cash flow and reduce risk. The solution to this barrier lies solely in the additional revenue from trading carbon credits. This is because such trading would be done in US dollars, which not only implies additional income to the project, but also provides stability and predictability to the income projections of the current project.

The above-analyzed context of economic barriers explains Tassaroli's need to be able to count on the additional income from carbon credits in order to be able to afford long-term investments that will allow it to make this type of investment.

[21]https://econojournal.com.ar/2022/05/renovar-ya-se-liberaron-600-mw-por-rescision-de-contratos-ppa/
[22] https://cammesaweb.cammesa.com/

It can be concluded from the above analysis that both Scenario 1 of modernizing the furnaces and Scenario 2 of Developing the Solar PV Plant connected to the Argentine grid without carbon credit revenues are strongly affected by the investment barriers analyzed above to the point that they are not feasible. The only viable alternative in this context is the realization of the PV project with the extra income that the trading of carbon credits would imply.

Institutional barriers:

Scenario 1: Furnace Modernization

In Argentina there are not many lines of credit that are benefits for SMEs. At the time when the modernization of the Furnaces was analyzed, the PRODEPRO[23] credit line existed. The problem for Tassaroli and most SMEs with this type of credit lines arises regarding the conditions that, although there were various lines of credit that the company could access, they all presented specific challenges, particularly related to the collateral required. As a small and medium-sized enterprise (SME), Tassaroli faced difficulties in meeting these requirements.

Financial entities requested real guarantees as a condition for granting credit, which implied the need to mortgage the industry to obtain financing for the modernization of the ovens. This scenario faced a strong institutional barrier.

Scenario 2: Construction of photovoltaic project without carbon credits

Law 27.191[24] established as a goal to achieve a contribution of renewable energy sources until reaching to Large Users 8% of the national electric energy consumption, as of December 31, 2017, increasing to 20% of the national electric energy consumption, as of December 31, 2025. By virtue of this, the national state in 2019 creates supply programs in search of compliance with global targets.

The RenovAr[25] plan is a program for the supply of electricity from renewable sources promoted by the national government to add electricity supply to the country, which is

[23] https://servicios.infoleg.gob.ar/infolegInternet/anexos/340000-344999/340217/norma.htm
[24] https://www.energia.gob.ar/contenidos/verpagina.php?idpagina=3876#:~:text=Ley%2027.191%3AR%C3%A9gimen%20de%20Fomento,Modificaci%C3%B3n.&text=Ley%2026.639%3A%20R%C3%A9gimen%20de%20presupuestos,glaciares%20y%20del%20ambiente%20periglacial.
[25] https://www.argentina.gob.ar/economia/energia/energia-electrica/renovables/renovar

encouraged by the use of renewable sources for the production of electricity. They constitute a long-term State policy with the aptitude to ensure the benefits of clean energies for the country and its inhabitants: they ensure a 20-year Power Purchase Agreement (PPA) with the Argentine Wholesale Electricity Market Administration Company (CAMMESA) for the sale of electricity from renewable sources to generators registered in the Wholesale Electricity Market, such as Tassaroli.

The signing of this contract for a company such as Tassaroli would mean ensuring an income for 20 years that would help to ensure the permanence of the project in the long term. However, it is important not to lose sight of the fact that, due to Argentina's historical and, mainly, current economic problems (see details in the explanation of the investment barrier), this 20-year contract implies that, as the years go by, the amount of income would be progressively devaluated. Tassarolli entered this program with the first part of the project (Helios Santa Rosa I) in 2022 and at the end of 2024, the date of preparation of this document, it is already suffering the devaluation problems of the signed contract. For confidentiality reasons, the terms and value signed cannot be disclosed in this document but is available upon request.

In order to mitigate the risks of permanence in the second stage of the project and in the absence of national programs to ensure the permanence through the RenovAr program, Tassaroli opted for the TERM MARKET Regime (MATER) regulated by Res. 281-E/2017[26] of the Ministry of Energy and Mining.

The purpose of the MATER is to regulate a mechanism for the purchase of Electric Energy that allows the acquisition through private agreement between the parties, so that the Large Users of the Wholesale Electricity Market (MEM), with power demands equal to or greater than 300 kW, can acquire energy between private parties and not directly from CAMMESA as it was previously established.

This implies that the negotiation guidelines are different, since they are not regulated and the prices that can be agreed tend to be higher and more competitive than those established by CAMMESA due to the contracts are for a shorter term.

Tassaroli entered this regime with the second part of the project (Helios Santa Rosa II) and managed to sell its energy to the Argentine Water and Sanitation Company (AySA) for a two-

[26] https://www.argentina.gob.ar/normativa/nacional/resoluci%C3%B3n-281-2017-278429

year term with the possibility of renewal for dollarized values at the official dollar exchange rate BNA divisa (for confidentiality reasons, the energy sale contract is not public, but it is available upon request).

In conclusion, both programs serve as an incentive for the creation of this type of projects, however, these programs alone are not enough for the development of solar projects to proliferate in Argentina. For these reasons, only 3% of the installed capacity in Argentina comes from solar energy[27].

The only alternative to overcome this barrier is thanks to the carbon credits that this project will generate. Since the sale of these credits is made at dollar value, this currency being stable in the long term, it not only means an extra income for Tassaroli but also allows long-term predictability.

Finally, scenario 3 of not carrying out any of the alternatives is not affected by these barriers.

Table 9: Sub-step 3b: Degree to which the identified barriers affect the project alternatives.

BARRIERS	Scenario 1: Furnace Modernization	Scenario 2: Construction of solar project with no carbon credits	Scenario 3: No implementation of any of the above alternatives.
Investment Barrier	HIGH	HIGH	LOW
Institutional Barriers	HIGH	MEDIUM	LOW

The tool used establishes that the identified barriers constitute sufficient evidence to demonstrate additionality of the project if it prevents the project proponents from

[27] https://cammesaweb.cammesa.com/informe-anual/

undertaking the project without the incentives of carbon credits. Therefore, for the demonstration of additionality it is necessary to show that the identified barriers do not affect at least one of the alternatives to the proposed project.

The scenario of not realizing any of the alternatives is of course not affected by the identified barriers. In the case analyzed both the Furnace Modernization scenario and the scenario of building the solar project under either of the national programs are strongly affected by the barriers. It is important to highlight that Tassaroli, being an SME company, does not have its own capital to be able to carry out both projects in parallel, which makes it necessary to seek financing. The alternative of modernizing the furnaces, since it requires a high initial investment, is strongly affected by the Argentine economic situation, which makes long-term projection very difficult. Similarly, the alternative of building the solar project without carbon credits requires an even higher initial investment than that of modernizing the furnaces.

Therefore, it is strongly affected by the economic situation in Argentina, which does not allow for long-term projections. On the other hand, the existing national programs for the development of this type of technologies can serve as a palliative aid for the project, but it is not enough for them to be maintained in the long term, an issue that is reflected by the limited existence of this type of technologies in the Argentinean energy matrix. The only alternative to overcome these barriers is thanks to the creation and subsequent commercialization of carbon credits, since these revenues, being in dollars, not only mean an extra income, but also provide long-term predictability.

Step 4: Common Practice Analysis

The above generic additionality tests will be complemented by an analysis of the extent to which the proposed project type (e.g., technology or practice) has already diffused in the relevant sector and region. This test is a credibility check that complements the investment analysis (Step 2) or the barrier analysis (Step 3).

This was addressed in Step 0 of this analysis. According to official CAMMESA data in 2023[28] in Argentina the installed power in 2023 was 43,774 Mw. Renewable energies represented only 13% of the installed power. Of the 16,580 MW of renewable energy generated,

[28] https://cammesaweb.cammesa.com/informe-anual/

photovoltaic energy contributed 1,366 MW. Only 3% of the total installed capacity (see Table 5).

Therefore, while photovoltaic technology has existed in Argentina for some years, its share in the total installed capacity is so low that it could be argued that this type of projects are common practice.

Therefore, it is concluded that the present project is additional.

3.5 Uncertainty management

GHG emission reductions are calculated as the product between the electricity delivered to the grid and the grid emission factor.

At each injection point, the electricity delivered to the grid is continuously measured by two energy meters, one SMEC[29], which is the main and official meter, and another backup electricity meter belonging to the distributor EDESTE. The energy meters will be calibrated according to national regulation/CAMMESA[30] requirements (SMEC)17 and according to the manufacturer's specifications (electricity meters). SMEC class: 0.2s,

Class of the backup electricity meter: 0.5s.

For the calculation of BM and OM all relevant data are from CAMMESA18 , official and publicly available. The CO_2 emission factors of fossil fuels used for the calculation of the grid emission factor are those published in reports of the Secretariat of Energy based on data from Argentina's Third BUR[31] before the UNFCCC.

The SMEC commercial meter installed in the solar farm is managed by CAMMESA, the state entity responsible for the operation of the electricity market in Argentina. This equipment officially and bindingly registers the energy generated and injected into the grid, so its management and control are strictly regulated under national regulations. That is to say, all

[29] https://cammesaweb.cammesa.com/inicio-smec/
[30] https://cammesaweb.cammesa.com/
[31] https://www.argentina.gob.ar/ambiente/cambio-climatico/tercer-informe-bienal

generation plants in Argentina have a SMEC belonging to CAMMESA and obtain energy measurements in the same way.

Although the SMEC is physically located in the solar park facilities, there is no authorization to manipulate it or modify its parameters, since it is protected with seals that guarantee its inviolability. Any intervention, either for repair or verification in case of an emergency, must be formally requested to CAMMESA, who authorizes or not the maneuver and, in case of authorizing the cutting of the seals, then sends authorized personnel to check the correct operation and reseal the seals.

According to the information provided by CAMMESA, meter calibration is carried out only when values outside the parameters defined as "in class" are detected, according to the applicable technical standards. For this process, injectors and energy standards certified by the National Institute of Industrial Technology (INTI) are used, ensuring the accuracy of the measurements in accordance with IRAM 2421 and IEC 60687 standards. Although the regulations do not establish a specific periodicity for preventive recalibrations, it is possible, if deemed necessary, to hire companies approved by INTI to carry out periodical tests.

The current scheme ensures that the calibration process is carried out under international technical standards and with certified equipment, ensuring the reliability of the measurements.

Being under the exclusive administration of CAMMESA, the independence and transparency of the recorded data is protected, which is essential for the validity of the carbon credits associated with the solar farm.For these reasons, the company has neither the responsibility nor the authorization to perform direct calibrations on the SMEC, as this task falls exclusively on CAMMESA and the agencies authorized by the national regulatory framework. This procedure ensures that the measurements are reliable, complying with the requirements demanded by the carbon credit certification standards. According to the information provided by CAMMESA, meter calibration is carried out only when values outside the parameters defined as "in class" are detected, according to the applicable technical standards. For this process, injectors and energy standards certified by the National Institute of Industrial Technology (INTI) are used, ensuring the accuracy of the measurements in accordance with IRAM 2421 and IEC 60687 standards. Although the regulations do not establish a specific periodicity for preventive recalibrations, it is possible, if deemed necessary, to hire companies approved by INTI to carry out periodic tests.

Every renewable project in Argentina which is currently generating carbon credits is based exclusively on the data recorded by CAMMESA through the SMEC commercial meter. These data are the only ones recognized as valid, reliable and auditable by national and international standards. This guarantees the transparency and accuracy necessary to support the issuance of carbon credits and ensure their acceptance in the markets.

Both meters are located in a closed and sealed area, so they cannot be tampered with. If any type of inconvenience occurs that requires action to be taken on the meters, Cammesa must be notified in advance and must wait for authorization to break the seals and enter to carry out the work. Once the work has been completed, Cammesa must be contacted again and they will send authorized personnel to the site to verify the correct operation and reseal the meters.

EDESTE's backup meter is used by Cammesa only in case data cannot be obtained from the main SMEC meter.

From the above mentioned, data fidelity is guaranteed, so the risk of uncertainty is very low.

3.6 Leakage and non-permanence

According to section 5.7 42 of AMS I.D. “Renewable Electricity Generation Connected to the Grid”, version 18.0, leakage must be analyzed in biomass projects. The CCMP is a solar photovoltaic project, so leakage is zero.

The lifetime of the solar panels is 25 years (the data sheet with details of the solar panels is available in the supporting documentation folder. Monitoring the results of the project activity, through verification every year or every two years, will assess the permanence of the project activity and the GHG emission reductions. The GHG reduction resulting from the displacement of electricity from the grid with a CO_2 emissions factor is measurable and permanent.

At the same time, it is important to note that the greatest cost to develop a photovoltaic project is generated at the stage of purchasing the solar panels with all the necessary accessories and the construction of the project. Once it is operational, as in the case of this project, the maintenance required to ensure the maintenance of the project is a very low amount in proportion to what is needed for its construction.

Finally, Tassaroli has insurance policies which cover the entire photovoltaic project for all material damage caused by any contingency. The coverage includes coverage against

hurricanes, windstorms, wind and/or tornadoes; hail; earthquakes or tremors; theft of contents in general; water damage, flooding; civil liability, etc.

For confidentiality reasons, the insurance policies cannot be made public but are available upon request.

3.7 Mitigation results

According to section 5.8 paragraph 43 of AMS I.D. version 18.0. Emission reductions should be calculated as follows:

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y - LE_y \quad (1)$$

Where:

ERy = Emission reductions in year y (t CO_2)

BEy = Baseline Emissions in year y (t CO_2)

PEy = Project emissions in year y (t CO_2)

LEy = Leakage emissions in year y (t CO_2)

For more information, see the Excel file called: Emission Reductions. Solar PV Plant Santa Rosa I & II

According to paragraph 39 of AMS I.D. "Grid-connected renewable electricity generation", version 18.0 emissions related to the operation of geothermal power plants (e.g. non-condensable gases, electricity/fossil fuel consumption) and emissions from water reservoirs of hydropower plants shall be calculated. According to paragraph 40, project emissions include CO_2 emissions from on-site consumption of fossil fuels due to the project activity and shall be calculated using the latest version of the "Tool for calculating project CO_2 emissions or leakage from fossil fuel combustion". Finally, according to paragraph 41, in case the biomass comes from dedicated plantations, the procedures of the "Project Emissions from Biomass Cultivation" tool shall be used.

The CCMP is a solar photovoltaic power plant. It does not use fossil fuel combustion; therefore, project emissions are Zero.

According to paragraph 42 of AMS I.D. "Renewable Electricity Generation Connected to the Grid", version 18.0, leakage must be analyzed in biomass projects. The CCMP is a solar PV project, so leakage is zero.

Since leakage and project emissions are zero, the emission reductions are the baseline emissions.

According to the methodology, AMS I.D. "Grid-connected renewable electricity generation", version 18.0 baseline emissions include only CO_2 emissions from electricity generation at power plants that are displaced due to project activity. The methodology assumes that all project electricity generation would have been generated by existing grid-connected power plants and by the addition of new grid-connected power plants.

Baseline emissions will be calculated as follows:

$$BE_y = EG_{PJ,y} \times EF_{grid,y} \qquad \text{Equation (2)}$$

Where:

BEy = Baseline emissions in year y (t CO_2)

$EGPJ,y$ = 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)

$EFgrid,y$ = Combined margin CO_2 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" (t CO_2/MWh)

According to paragraph 23, the CO_2 emission factor of the network shall be calculated in a transparent and conservative manner. The selected option is the Combined Margin (CM) Option (a), consisting of the combination of the Operating Margin (OM) and the Building Margin (BM) according to the procedures prescribed in the "Power System Emission Factor Calculation Tool" version 07.0.

According to paragraph 24, calculations shall be based on data from an official source (when available) and made publicly available. This PDD uses official data publicly available on the

website of the Secretariat of Energy of the Nation20 and on CAMMESA's website (dispatch center)[32] for the calculation of OM and BM margins.

Prior to the implementation of the project activity there was nothing on the site. This is a brand new solar photovoltaic power plant and according to paragraph 26:

$EG_{PJ,y}=EG_{PJ,facility,y}$ Equation (3)

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

Generation data is recorded on a daily basis. Monthly reports are developed based on daily data. Monthly generation is cross-checked with data reported by CAMMESA on the amount of electricity delivered to the grid by each generation unit in the grid, including the Helios Santa Rosa I and II Photovoltaic Solar Plant.

The generation data is measured continuously with calibrated electricity meters. The information is publicly available on the website of CAMMESA, which is in charge of the dispatch center and administrator of transactions in the Wholesale Electricity Market.

The grid emission factor is calculated by an external consultant based on the CO2 emission factors used by Argentina in official and publicly available documents. The generation data, quantity and type of fossil fuel used by each generation unit are reported in CAMMESA's monthly public reporting database[33].

3.7.1 Eligible areas within GHG project boundaries (AFOLU sector projects)

Does not apply

[32] https://cammesaweb.cammesa.com/criterios-de-despacho/
[33] https://cammesaweb.cammesa.com/

3.7.2 Stratification (Projects in the AFOLU sector)

L

Does not apply

3.7.3 GHG baseline emissions.

The baseline of the project activity is described according to the approved CDM AMS-I.D Small-scale Methodology Grid-connected renewable electricity generation (version 18.0), so it is the installation of a Greenfield power plant, which uses renewable energy sources and supplies electricity to a national grid, in accordance with the eligibility limit of 15 MW for the definition of a small-scale CDM project activity.

Baseline or reference scenario emissions in tCO2/year y, are calculated as the product between the electricity delivered by the project activity to the grid in year y (EGPJ,facility,y) in MWh/year and the grid emission factor of year y (EFgrid,y) in tCO2/MWh.

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

BEy = Baseline emissions in year y (t CO_2)

$EGPJ,y$ = 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)

$EFgrid,y$ = Combined margin CO_2 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" (t CO_2/MWh)

For more information, see the Excel file called: Emission Reductions. Solar PV Plant Santa Rosa I & II.

The emission factor has been calculated transparently and conservatively as a combined margin (CM), consisting of the combination of the operating margin (OM) and the

construction margin (BM) according to the procedures prescribed in the "TOOL07: Tool to calculate the emission factor for an electricity system "[34].

Section 6 of the Tool to calculate the CO_2 emission factor for an electricity system (TOOL07, version 07.0) defines six steps for the calculation of $EF_{grid,y}$

Step 1. Identify relevant power systems.

To determine the electricity emission factors, project participants shall identify the relevant electricity system of the project.

According to paragraph 17, project participants may delineate the project's electricity system using any of the following options:

(a) Option 1. A delineation of the project electricity system and connected electricity systems published by the NDA or NDA group of the host country(ies). In case the delineation is provided by a group of DNAs, the same delineation should be used by all project participants applying the tool in these countries;
(b) Option 2. A delineation of the project power system defined by the dispatch area of the dispatch center responsible for scheduling and dispatching the electricity generated by the project activity. When the dispatch area is controlled by more than one dispatch center, i.e., a layered dispatch area, the top-level area shall be used as a delineation of the project's electricity system (e.g., when regional dispatch centers are required to fulfill dispatch orders from the national dispatch center, the area controlled by the national dispatch center shall be used);

(c) Option 3. A demarcation of the project's electrical system defined by more than one independent dispatch area, e.g. multinational energy consortia.

Option 2 is selected. In Argentina, CAMMESA is in charge of dispatch and commercial transactions in the Wholesale Electricity Market, called MEM. The relevant electrical system

[34] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf

for the project is the Argentine Interconnection System (SADI)[35], the only one in the country recognized in official documents and statistics.

Step 2 (optional). Choose whether to include off-grid power plants in the electrical system.

Project participants can choose between the following two options to calculate the operating margin and construction margin emission factors:

Option I: Only the power plants on the network are included in the calculation.

Option II: Both grid-connected and isolated power plants are included in the calculation.

Option I is chosen: Only plants connected to the grid will be included in the calculations.

Step 3: Select a method to determine operating margin (OM)

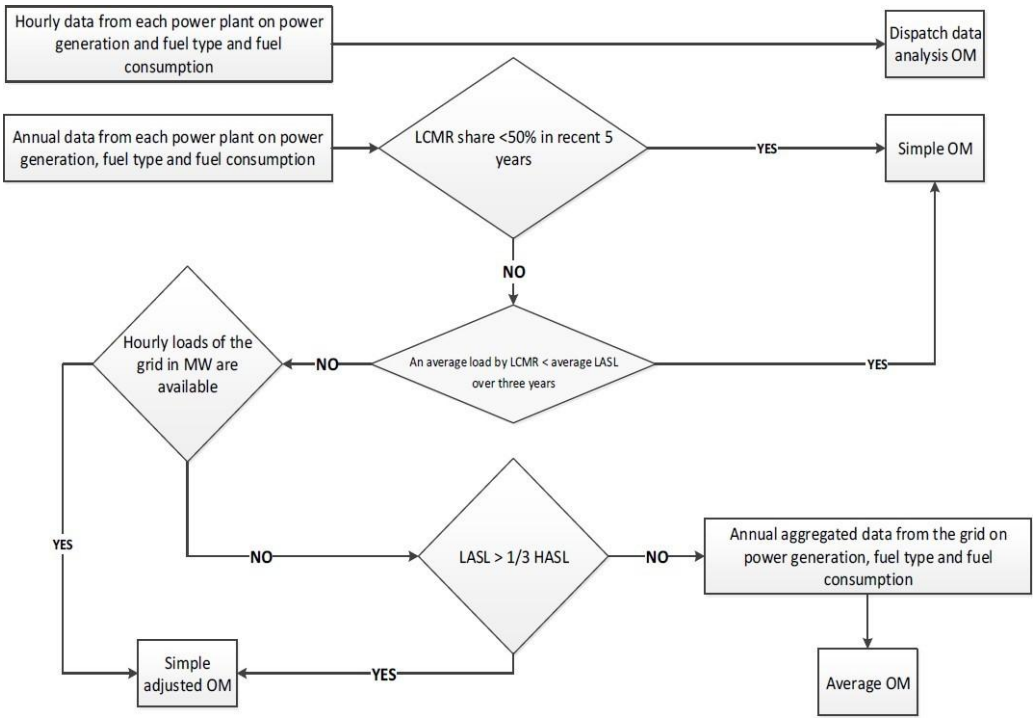
According to paragraph 38, the calculation of the operating margin emission factor ($EF_{grid,OM,y}$) is based on one of the following methods, which are described in Step 4:

(a) simple OM; either
(b) adjusted simple OM; either
(c) Analysis of data from the OM office; either
(d) average OM.

Below is a flowchart with an overview of the application of OM calculation methods according to Tool 7 version 07.0

Figure 13: OM calculation flowchart

[35] https://aplic.cammesa.com/geosadi/



According to paragraph 40. The simple OM method (Option a) can only be used if any of the following requirements are met: (a) Low-cost generation/forced generation constitutes less than 50 percent of the total grid generation (excluding electricity generated by isolated power plants) at: 1) the average of the most recent five years, and the average of the most recent five years will be determined using one of the methods described below; or 2) based on long-term averages for hydroelectric production (minimum period of 15 years): Option (a) is selected and (i) Method 1 is selected, therefore:

$Share_{LCMR}$ = average $[EG_{LCMRy-4} / total_{y-4}, \ldots, EG_{LCMRy} / total_{y}]$

Where,

EG_{LCMRy} = Energy supplied to the Project's electrical system by low-cost/forced generation sources in the year and (MWh)

$total_y$ = Total electrical generation supplied to the Project's electrical system in year y (MWh)

y = The most recent year for which data is available

According to official data published by the dispatch center (CAMMESA), in Argentina low cost/must-run resources (LCMR) constitute 43.19%, on average of the most recent five years (2019-2023). This is less than 50% of the total generation supplied to the grid, so the Simple OM method (option a) can be chosen (Tool 07, paragraph 39, figure 2).

Table 10: Energy generation last 5 years

ENERGY GENERATION (GWh)								
		Low cost/must run (LCMR)						
Year	Thermal	Hydro	Nuclear	Renweables	Imports	TOTAL LCMR	Total Generation	Share LCMR in %
2023	73,020	39,332	8,963	20,086	6,241	74,622	141,401	52.77%
2022	81,751	30,186	7,469	19,340	6,310	63305	138,746	45.60%
2021	90,074	24,116	10,170	17,437	819	52542	141,797	37.10%
2020	82,336	29,093	10,011	12,737	1,204	53045	134,177	39.50%
2019	80,137	35,370	7,927	7,812	2,746	53856	131,246	41.00%
Source:	http://portalweb.cammesa.com/memnet1/Pages/descargas.aspx					Average Share in the last 5 years		43.19%
	Informe Anual 2023 Base de datos			Flap: Generación anual				

According to paragraph 42. for simple OM, the emissions factor can be calculated using either of the following two data periods

a) Ex ante option: If the ex ante option is chosen, the emission factor is determined once at the validation stage, so no monitoring or recalculation of the emission factor is required during the crediting period. For grid power plants, a 3-year weighted generation average is used, based on recent data available when submitting the CDM-PDD to the VVB for validation. For isolated power plants, use a single calendar year within the five most recent calendar years prior to the time of submission of the CDM-PDD for validation.

b) Ex post option: If the ex post option is chosen, the emission factor is determined for the year in which the project activity displaces electricity from the grid, requiring the emissions factor to be updated annually during monitoring. If the data needed to calculate the emission factor for year y is normally only available after six months of the end of year y, alternatively the previous year's emission factor y-1 can be used. If data are normally only available 18 months after the end of year y, the emission factor from the year before the previous year y-2 can be used. The same data period (y, y-1 or y-2) must be used in all crediting periods.

The ex post calculation option (b) is selected. The emission factor must be determined for the year in which the project activity displaces electricity from the grid. Thus, the emission factor will be updated annually during monitoring. Therefore, in this document an emission factor of the year 2022 will be used for both periods because the information for the year 2023 is not available at the date of preparation of this report.

Step 4: Calculate the operating margin emission factor according to the selected method

According to paragraph 46, the simple OM emission factor is calculated as the generation-weighted average CO2 emissions per unit of net electricity generation (t CO2/MWh) of all power plants serving the system, excluding low cost/forced energy.

According to paragraph 47, the simple OM can be calculated using one of the following two options: a) Option A: based on the net electricity generation and a CO2 emission factor of each power generation unit; or (b) Option B: Based on the total net generation of electricity from all power plants serving the system and the fuel types and total fuel consumption of the project's electrical system. Option B can only be used if:

(i) Data needed for Option A is not available; and
(ii) Only nuclear and renewable energy generation are considered low-cost/forced energy sources and the amount of electricity supplied to the grid by these sources is known; and
(iii) Isolated power plants are not included in the calculation (i.e. if Option I has been chosen in Step 2).

Option A is selected.

Option A: Calculation based on the efficiency and average electrical generation of each plant. According to paragraph 48, under this option, the simple OM emission factor is calculated based on the net electricity generation of each generation unit and a corresponding emission factor for each generation unit, as follows:

Where:

$$EFgrid,OMsimple,y=\Sigma EGm,ym\times EFEL,m,y\Sigma EGm,ym \qquad \text{Equation (4)}$$

Where:

$$EF_{grid,OMsimple,y} = \frac{\Sigma EG_{m,ym} \times EF_{EL,m,y}}{\Sigma EG_{m,ym}}$$

Where

$EF_{grid,OMsimple,y}$ = Simple operating margin CO_2 emission factor in year y (t CO_2/MWh)

EGm,y = Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)

EFEL,m,y = CO_2 emission factor of power unit m in year y (t CO_2/MWh)

M = All power units serving the grid in year y except low-cost/must-run power units

Y = The relevant year based on the data analysis period chosen in Step 3 is the year y

CAMMESA published official data for each generation unit: energy generated monthly and annually, volume and type of fossil fuel used[36].

Step 5: Calculate the Build Margin (BM) CO_2 Emission Factor

According to paragraph 72. In terms of data collection periods, project participants can choose between one of the following two options:

a) Option 1: For the first crediting period, calculate the ex ante construction margin emission factor based on the most recent information available on units already built

[36] https://cammesaweb.cammesa.com/informe-anual/

for sample group m at the time of CDM-PDD submission to the VVB for validation. For the second credit period, the construction margin emission factor must be updated based on the most recent information available on the units already built at the time of submitting the credit period renewal application to the VVB. For the third crediting period, the construction margin emission factor calculated for the second crediting period must be used. This option does not require monitoring the build margin (BM) emission factor during the crediting period;

b) Option 2 - For the first crediting period, the construction margin emission factor will be updated annually, ex post, including those units built up to the year of registration of the project activity or, if the information up to the year of registration is still is not available, including those units built until the last year for which information is available. For the second crediting period, the construction margin emissions factor will be calculated ex ante, as described in Option 1 above. For the third crediting period, the construction margin emission factor calculated for the second crediting period must be used.

Option 1 was selected (ex-ante construction margin) for this project activity and therefore the construction margin emission factor is based on the most recent information available on units already built at the time of submission of the PDD. Information for the year 2022 was used to calculate the construction margin. This option does not require monitoring the construction margin emission factor during the crediting period.

$$EF_{grid,BM,y} = \frac{\sum_m EG_{m,y} \times EF_{EL,m,y}}{\sum_m EG_{m,y}}$$

Where,

$EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year y (t CO_2/MWh)

$EG_{m,y}$ = Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)

$EF_{EL,m,y}$ = CO_2 emission factor of power unit m in year y (t CO_2/MWh)

m = Power units included in the build margin

y = Most recent historical year for which electricity generation data is available

Step 6: Calculate the combined margin emissions factor

According to paragraph 82, since there is data available from CAMMESA for the calculation of OM and BM, the combined margin (CM) must be calculated as the weighted average of OM and BM.

The combined margin emissions factor is calculated as follows:

$EFgrid,CM,y=EFgrid,OM,y\times wOM+EFgrid,BM,y\times wBM$

Where:

$EFgrid,BM,y$ = Build margin CO_2 emission factor in year y (t CO_2/MWh)

$EFgrid,OM,y$ = Operating margin CO_2 emission factor in year y (t CO_2/MWh)

W_{OM} = Weighting of operating margin emissions factor (per cent)

W_{BM} = Weighting of build margin emissions factor (per cent)

According to paragraph 86, the following default values for W_{OM} and W_{BM} for wind and solar projects (due to their intermittent and non-dispatchable nature) must be used for the first credit period and for subsequent credit periods:

$W_{OM} = 0.75$ y $W_{BM} = 0.25$

3.7.4 GHG project emissions

According to paragraph 43 of the AMS I.D. version 18.0 emissions reductions should be calculated as follows:

$ER_y = BE_y - PE_y - LE_y$

Where,

Where:

ERy = Emission reductions in year y (t CO_2)

BEy = Baseline Emissions in year y (t CO_2)

PEy = Project emissions in year y (t CO_2)

LEy = Leakage emissions in year y (t CO_2)

For more information, see the Excel file called: Emission Reductions. Solar PV Plant Santa Rosa I & II

Operation Margin (OM)

The simple method for calculating the OM can be used since in the last 5 years low cost/must run generation represented less than 50% of the generation.

Table 11: Energy generation last 5 years

ENERGY GENERATION (GWh)								
		Low cost/must run (LCMR)						
Year	Thermal	Hydro	Nuclear	Renweables	Imports	TOTAL LCMR	Total Generation	Share LCMR in %
2023	73,020	39,332	8,963	20,086	6,241	74,622	141,401	52.77%
2022	81,751	30,186	7,469	19,340	6,310	63305	138,746	45.60%
2021	90,074	24,116	10,170	17,437	819	52542	141,797	37.10%
2020	82,336	29,093	10,011	12,737	1,204	53045	134,177	39.50%
2019	80,137	35,370	7,927	7,812	2,746	53856	131,246	41.00%
Source:	http://portalweb.cammesa.com/memnet1/Pages/descargas.aspx					Average Share in the last 5 years		43.19%
	Informe Anual 2023 Base de datos			Flap: Generación anual				

Table 12: : Om simple year 2022

		emission factor	Total emissions
Thermal Generation in 2022 period + imports	88,061 GW/h		
Fossil fuel consumption in period 1:			
Natural Gas	14,220 mdam3	1.95	27,703,059
FUEL OIL	1,113 kTon	3.17	3,529,444
GAS OIL	2,436 mm3	2.70	6,569,497
Mineral coal	777 kTon	2.34	1,814,554
GHG emissions from fossil fuel consumption in period 1:			39,616,554
OM year 2022	0.4499 tCO2/MW		

source: CAMESSA[37]

OM = 39,616,554 tCO2 / 88,061,000 MWh = 0.4499 tCO2/MWh

Construction Margin (BM)

To calculate the Construction margin, the ex ante calculation was chosen with the latest available information corresponding to 2022 and 2023. The data used is from CAMMESA reports.

The total generation of 2022 and 20% of it are presented:

To calculate the WB, the ex ante calculation was chosen with the latest available information corresponding to 2022 and 2023. The data used is from CAMMESA reports.

Total Generated	138,746,604	(total generation in MWh)
20%	27,749,321	

The m most recently enabled generation units were selected, without considering the units registered in the CDM, until they accumulate at least 20% of the 2022 generation. In total there are 67 generation units that in 2022 generated 25,838,817 MWh that They correspond to 19% of the generation of 2022.

Once the 57 units (m generation units) have been identified, the BM is calculated with the following equation.

$$EF_{grid,BM,y} = \frac{\sum_m EG_{m,y} \times EF_{EL,m,y}}{\sum_m EG_{m,y}}$$

[37] https://cammesaweb.cammesa.com/download/factor-de-emision/

Where,

$EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year y (t CO_2/MWh)

$EG_{m,y}$ = Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh)

$EF_{EL,m,y}$ = CO_2 emission factor of power unit m in year y (t CO_2/MWh)

m = Power units included in the build margin

y = Most recent historical year for which electricity generation data is available = 2022

For the year 2022, the Build Margin is the quotient between the CO_2 emissions of the 57 most recently enabled units that are not units registered in the CDM (the oldest unit that is part of this group of m generation units was enabled in July 2020) and that have generated at least 20% of the total energy generated in 2022:

Hence, the BC is = 0.292 tCO_2/MWh according to official sources that can be seen on the cammesa[38].

Combined margin

Period 1year 2022 $EFgrid,1$ = 0.75 x 0.4499 tCO_2/MWh + 0,25 x 0.292 tCO_2/MWh = 0.4104 tCO_2/MWh

Baseline emissions

Baseline emissions are calculated as the product of the energy delivered to the grid and the grid emissions factor:

Table 13: Baseline emissions

	Net electricity production	Combined margin	Baseline Emissions

[38] https://cammesaweb.cammesa.com/informes-y-estadisticas/

Period (*)	[MWh]	[t CO_2/MWh]	[t CO_2]
1	13521	0.410	5,549
2	12946	0.410	5,313
3	26993	0.410	11,077
4	26869	0.410	11,026
5	26745	0.410	10,975
6	26621	0.410	10,925
7	26460	0.410	10,858
Total, first accreditation period – 7 years	160155		65,724
Annual average	22879		9,389

(*) Each period begins on 04/01 of year y and ends on 03/31 of year y+1.

Complying with paragraph 72 of Tool 7, the MC value calculated ex ante is used for the entire first accreditation period. Therefore, they are estimates based on real data from period 1.

The following table presents the ex ante calculated estimates of GHG emissions reductions over the entire first crediting period of the proposed project.

Year	Emisiones de GEI en el escenario de Línea de Base (tCO_2e)	Emisiones de GEI en el escenario de proyecto (tCO_2e)	Emisiones atribuibles a Fugas (tCO_2e)	Estimación de Reducciones de Emisiones de GEI Netas (tCO_2e)
Year 1	5,549	0	0	5,549
Year 2	5,313	0	0	5,313
Year 3	11,077	0	0	11,077
Year 4	11,026	0	0	11,026
Year 5	10,975	0	0	10,975
Year 6	10,925	0	0	10,925
Year 7	10,858	0	0	10,858
Total in the first crediting period - 7 years (tCO2)	65,724	0	0	65723. 85
Annual Average (tCO2/year)	9,389	0.00	0.00	9,389

For more details refer to the Excel called: Emission Reductions. Solar PV plant Santa Rosa I & II. Biocarbon Registry.

3.7.5 GHG leakages.

According to section 5.7 42 of AMS I.D. "Renewable Electricity Generation Connected to the Grid", version 18.0, leakage must be analyzed in biomass projects. The CCMP is a solar photovoltaic project, so leakage is zero.

4 Compliance with Laws, Statutes and Other Regulatory Frameworks

The mitigation project activity complies with all legal requirements. For detailed information, please refer to the Excel file named: REG-009 Legal Requirements Matrix_Rev 1_ available in the supplementary documents folder.

The Legal Department of the Tassaroli Group consults the Official Gazette, external advisors and web pages on a monthly basis for updates on environmental regulations and electricity generation, both at national and provincial level.

For the consultation of municipal requirements, check the website of the Municipality of Santa Rosa (Public Information) or call the Health and Environment Department.

The Legal Department is responsible for:

- Analyzing if there are new requirements or changes to existing ones.
- Verify if it is applicable to the activity and facilities of the Helios Solar Park.
- Communicate to the Head of Safety and Environment for its effective consideration.
- Update the Legal Matrix identifying the actions taken to comply with the identified requirements.
- The Administration and Finance and Legal areas receive regular information from CAMMESA and ENRE on regulatory changes in the market.

In the event that any of them are related to the environment in the photovoltaic power generation activity, the Head of Safety and Environment is informed to incorporate them into the Legal Matrix for consideration and monitoring.

An annual 'Regulatory Compliance Audit' is carried out by an external law firm to verify compliance with the environmental and photovoltaic energy generation requirements applicable to all activities carried out at Helios Solar Park.

In the event that there are requirements that are not fulfilled or partially fulfilled, they are recorded in an Action Request to provide traceability and continuity in the monitoring of this requirement and ensure compliance.

Based on the results of this assessment, the necessary corrective actions or opportunities for improvement are initiated. In all cases, records are kept of the above-mentioned activities including deviations found if applicable.

The final product obtained is a Legal Matrix that indicates all the National, Provincial and Municipal regulations that are applicable to the activity of Tassaroli as well as Tassaroli Industria and Tassaroli Generación de Energía (Helios Santa Rosa). It is differentiated between 'Compliant (C)' 'Planned Compliance (PC)' 'Not Compliant' and 'Not Applicable'.

For all legal requirements that are mandatory, the supporting documents must be indicated to ensure that the company has complied with them. Due to the extensive and thorough nature of the analysis, this legal matrix will be included in the Legal folder, which contains complementary documents.

The following are the most relevant regulations and the justification for their compliance:

Table 14: Applicable legislation

Regulation or law	Type (legal, environmental, other)	Applicability/compliance (full or partial)	Justification
24065. Electrical Energy Regime[39]	Legal aspects related to the Wholesale Electricity Market	Full applicability for generation agents in Argentina. Rules for the generation, transportation and	The Photovoltaic Solar Power Plant received the status of Generating Agent through

[39] LEY Nº 24.065 del 19/12/91 (infoleg.gob.ar)

	and its rights and obligations	distribution of electricity, object-general policy and agent-transport and distribution. Creates the National Electrical Regulatory Entity (ENRE)	resolution SE 86/2022 dated 02/15/2022. ENRE authorized the Access and Expansion of the Existing Transportation Capacity through resolution 98/2022 of 03/23/2022 for the second stage
Law 27191 (2016) Electricity Promotion Regime[40]	Legal aspects related to the Wholesale Electricity Market and your rights and obligations	Full applicability of the national promotion regime for the use of renewable energy sources, intended for the production of electrical energy. Modification of 24,065. The Public trust fund is created and establishes 20% renewable consumption by 2025.-	As the Solar Power Plant is an agent of MEM, it is covered by said regulations, establishing the objective of using 20% renewable energy. It has an investment plan for renewable energy generators and tax benefits.
SGE Resolution 90/2019 RENOVAR round 3 (miniren)[41]	Regulatory aspects of the call for renewable projects	Full applicability for Helios Santa Rosa stage I under the RenovAr Program Round 3	Under this program, the first stage of the project was able to commit all of its generation to CAMMESA (Company

[40] InfoLEG - Ministerio de Economía y Finanzas Públicas - Argentina
[41] Resolución E 90/2017 | Argentina.gob.ar

			Administrator of the Wholesale Electricity Market) for a period of 20 years at a price USD/mwh
Resolution 281-E/2017 MATER[42]	Regulatory aspects of the call for renewable projects	Full applicability to the second stage of Helios Santa Rosa, under the MATER (Term Market) regulations that allow contracting and sales between private parties.	Under this program, the total energy generated by Helios Santa Rosa II is contracted to a Large User of the Wholesale Electricity Market under voluntary contractual aspects.
Provincial law 5961/1992 and 6649/1999[43]	Environmental requirements in Mendoza	Full Applicability	Environmental Impact Study 01/21/2020-Res 019
Ordinance 60 2022	Municipal Authorization Compliance with Viability, Land Use, Contingency and Evacuation Plan and	Full Applicability	Minutes No. 327 and inspection 297 Municipal Authorization, under file No. 3474/22, 1703-T-2019 and 2237/21

[42] Resolución E 281/2017 | Argentina.gob.ar
[43] http://www.fiscalia.mendoza.gov.ar/ley5961.htm

	CEMEPACI requirements		according to No. 267/23
National Employment Contract Law 20744[44]	Mandatory regulation of labor relations in Argentina.	Full applicability to all personnel dependent on Tassaroli	Tassaroli dependents who are affected by the solar plant project are covered under the national Labor regulations that regulate the conditions that must be respected when hiring.

5 Carbon ownership and rights

5.1 Project holder

Individual or organization	
Contact person:	Carlos Alberto Tassaroli
Job position	President at Tassaroli S.A.
Address	Belgrano 1553 San Rafael Mendoza Argentina

[44] https://servicios.infoleg.gob.ar/infolegInternet/verNorma.do?id=25552

Phone number	+54 9 260 456 6900
Email	carlos@tassaroli.com

5.2 Other project participants

does not apply

5.3 Agreements related to carbon rights

Tassaroli S.A. purchased the land where the Helios Santa Rosa Photovoltaic Solar Plant is installed on 03/05/2021. The Santa Rosa I facility was built with the objective of supplying the grid with renewable energy generated with Solar PV technology and its commercial qualification is dated 29/03/2022. The Santa Rosa II facility is due to be commissioned in April 2023. Both stages of the project activity belong to Tassaroli S.A.

The carbon rights belong to Tassaroli S.A. Tassaroli S.A. does not have any agreements with third parties related to carbon rights.

5.4 Land tenure (Projects in the AFOLU sector)

Does not apply.

6 Climate change adaptation

According to the IPCC[45], adaptation to climate change is defined as the adjustment of natural or human ecosystems in response to current or expected climatic stimuli or their impacts, which reduces the harm caused and enhances beneficial opportunities.

[45] https://unfccc.int/es/topics/adaptation-and-resilience/the-big-picture/que-significa-adaptacion-al-cambio-climatico-y-resiliencia-al-clima

The project activity contributes to the achievement of the objectives set out in the Second Adaptation Communication of the Republic of Argentina[46] , which identified 35 priority adaptation measures in seven sectors of the country to address the different territorial, socio-economic and environmental vulnerabilities to climate change.

Within the energy Sectoral Adaptation Measures, the project activity collaborates with two of the three proposed actions and these are: Develop measures to secure energy supply and access through the adoption of resilient and sustainable infrastructure (e.g. energy transport and distribution, fuel production and power generation, with special emphasis on water resources assessment and hydropower generation). Develop measures to secure supply through technological and territorial diversification and increased access to energy, particularly through sustainable energy sources.

7 Risk management

The Environmental Impact Assessment (EIA) was carried out by Bios Engineering & Environment (an independent company - this study is available for consultation if required) and allowed the type, magnitude and complexity of the project to be analysed in relation to the characteristics of the social, physical and biological environment that could potentially be affected. The methodological analysis used complies with national, provincial and municipal regulations. For the stages of construction, operation and abandonment of the photovoltaic plant, impacts were identified and assessed.

The EIA was approved by the Secretariat of Environment and Land Management of the Province of Mendoza by Resolution No. 019 dated 21/01/2020 available in the supplementary documentation folder.

There is a Code of Ethics and a Manual of Conduct. Both documents are available for the auditors developing the validation and verification of the project activity. In addition, an Integrity Plan according to Law 27401[47] is being developed and should be finalised by 2025.

[46] https://unfccc.int/resource/docs/natc/argnc2s.pdf
[47] https://servicios.infoleg.gob.ar/infolegInternet/verNorma.do?id=296846
https://servicios.infoleg.gob.ar/infolegInternet/verNorma.do?id=296846

7.1 Reversal Risk

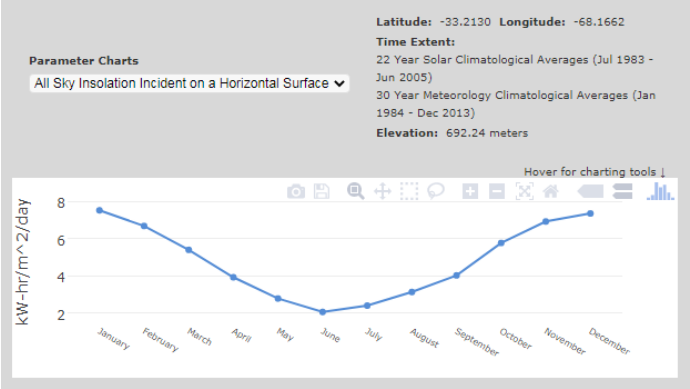
The Biocarbon Registry standard requires the application of the Permanence and Risk Management Tool version 1.1. In section 2 of the Tool, the project proponent is required to identify risks associated with three levels of interference:

- Environmental Risks
- Financial Risks
- Social Risks

Also following this tool, the risks were graded into three levels: high, medium and low, according to their potential impact on carbon benefits. High risk means a risk of reversal associated with this variable that can impact up to 10% of the carbon benefits accrued by the project in each verification event. Medium risk represents a reversal risk that can reach 5-10% of the carbon credit units. Finally, low risk represents a reversal risk of less than 5% of the carbon credits. The probability of occurrence of each of the risks was determined based on official sources (e.g. probability of earthquakes) and those for which no official data or objective data is available were based on Tassaroli's experience (e.g. financial risks).

1. Environmental risks:

Risk	Description	Probability of occurrence	Risk rating
solar radiation	From the point of view of the environmental risks that could affect and put the project at risk, it is important to highlight that the Santa Rosa I and Santa Rosa II solar parks are strategically located to maximize the capture of solar radiation. The selection of the site is mainly motivated by the following factors: High solar radiation received. Surface area suitable for the installation and orientation of the photovoltaic generator. Lack of shadows and crops with which to compete. After the technical, environmental, operational and social analysis, it is considered appropriate to install the 'Santa Rosa' Photovoltaic Solar Park, since it would be difficult to develop any other productive activity. The site where the plant will be located is suitable because the climatic conditions and the terrain (free of shadows) ensure high production. The average irradiation values	LOW	LOW

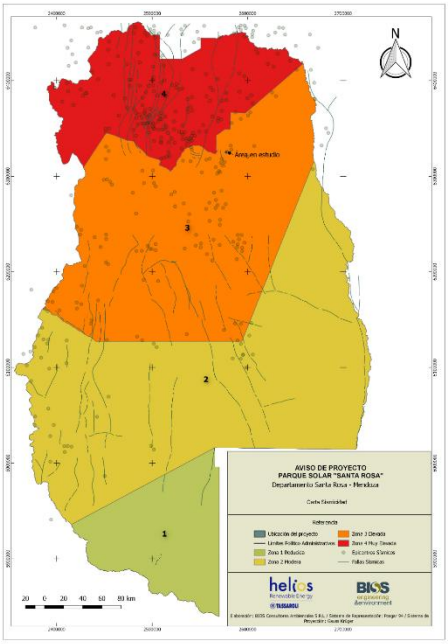
	(kWh/m2) between 1984 and December 2013 can be seen in the following graphs: Figure 14: Daily average irradiation values in Santa Rosa.  Source: Tassaroli Environmental Impact Study As can be observed , the solar radiation that occurs in this area makes this location significantly attractive for the implementation of a photovoltaic project such as the one developed. Therefore, there is no risk of the project being affected by the lack of sun.		
seismic	Seismic hazard is the probability of a given amplitude of ground motion occurring in a fixed time interval, which depends on the level of seismicity of each zone. Seismic Zoning Maps identify zones with different levels of Seismic Hazard. In the Seismic Zoning Map of the INPRES-CIRSOC 10339 Regulation, 5 zones are identified. A value that allows to compare the seismic activity in each of them is the maximum ground acceleration 'as'. This acceleration is expressed in units of 'g', where 'g' is the acceleration of gravity. The Seismic Hazard of the study area corresponds to Zone 3 - High Seismic Hazard. High	HIGH	Although the risk of occurrence is high, the mitigation measures ensure that the impact of the risk on the project is LOW

Zona Sísmica	Peligrosidad Sísmica	As (g)	z
4	Muy Elevada	0.35	1.00
3	Elevada	0.25	1.05
2	Moderada	0.16	1.15
1	Reducida	0.08	1.25
0	Muy Reducida		

Source: National Institute of Seismic Forecasting[48]

as (g) = Aceleración Efectiva de Diseño o Pico Efectivo de aceleración en terrenos firmes, expresada como fracción de g.
Z = Factor Sísmico de la Zona, el cual se utiliza en las prescripciones específicas de Construcciones Sismorresistentes de Hormigón Armado y/o Pretensado. Empleado en forma inversa permite graduar ciertos requerimientos en función de la zona sísmica.

En la siguiente carta se muestran las zonas sísmicas de la provincia de Mendoza, junto con la ubicación del proyecto en estudio.



Risk mitigation methods

The solar park is covered by an insurance policy for all operational risks (TRO).

[48] https://www.inpres.gob.ar/desktop/

	The coverage includes, among others, both property damage and natural disasters. It covers incidents such as fire, floods, storms, hail, earthquakes, tornadoes, theft or vandalism, ensuring the integrity of the essential components of the installation: • Panels Collectors • Inverters Lightning arresters • Tracker kit and accessories • Civil works • ICerres • SCADA • CCTV system On the other hand, the policy includes Loss of Profits. The indemnity period is 6 months, in the event of having the park out of operation for any reason that is included in the policy. The deductible, in this case, is 7 days. By having this protection, operational continuity is guaranteed and financial risks are minimized in the event of any eventuality. Both policies are available in the supporting documentation folder. Therefore, it is concluded that there is a medium earthquake risk, but due to the existing mitigation measures it is reduced to low, because the panels have mechanisms that strongly reduce the possibility of damage from an earthquake and in the event of damage, through the existing insurance policy, the replacement and continuity of the project is insured.		
Climatological	Climatologically, Mendoza can be characterized according to the Kóeppen[49] classification, which is based on seasonal variations in temperature and precipitation and their effects on natural vegetation. The method identifies the different climatic regions by letter combinations corresponding to initials of German words. It uses capital letters to identify the climate of a place in broad terms and subscripts with lower case letters to identify its smaller-scale (regional or point) characteristics. Due to the diversity of climatic regions into	Medium	Although the risk of occurrence of these risks is medium, the mitigation

[49] https://ri.conicet.gov.ar/bitstream/handle/11336/233863/CONICET_Digital_Nro.837191ef-c902-4dba-a259-694ddcf75b07_C.pdf?sequence=5&isAllowed=y#:~:text=Zona%20de%20estudio&text=de%20Mendoza%20(790msnm).,2762%20horas%20anuales%20de%20sol).

	which Kóeppen divides the earth, only those that characterize the sector prevailing in the immediate vicinity of the study area will be mentioned. Therefore, for the project area, due to its low temperatures and scarce rainfall, it corresponds to the climate type precipitation, it corresponds to the climate type BW: dry desert climate k: cold in winter with average annual temperature lower than 18 ºC. The climatic characteristics of the area under study correspond to the climatic sub-unit of the semi-arid piedmont, characterised by a small Mendoza cold pole. The climate is characterised by irregular and scarce rainfall, hail, frost and Zonda winds. The Mendoza Aero[50] weather station has been used for the study area. It is located at the following coordinates: Location of meteorological station Name | Province | Lat s | Long W | height Mendoza Aero | Mendoza | -32,50 | -66,47 | 704 The normal climatological characteristics produced in the period 1981-2010 are detailed below. Climatological characteristics Period 1981-2010		measures make the impact of the risk on the project to be LOW

[50] http://www.contingencias.mendoza.gov.ar/web1/agrometeorologia/estaciones.html

	En	Feb	Mar	Abr	May	Jun	Jul	Ag	Set	Oct	Nov	Dic
Temperatura (°C)	24.0	36.4	21.3	16.2	11.8	8.4	7.9	10.6	13.9	18.8	22.2	24.9
Temperatura Máxima (°C)	32.3	30.9	27.9	23.2	18.7	15.7	15.0	18.3	21.1	25.9	29.2	31.8
Temperatura Mínima (°C)	18.7	17.4	15.5	10.4	6.2	2.9	2.1	4.2	7.2	11.7	15.1	17.9
Humedad relativa (%)	49.8	53.6	61.8	65.6	68.3	69.4	64.4	55.1	51.3	45.7	44.5	45.8
Velocidad del viento (km/h)	8.3	6.9	6.0	4.9	4.5	4.3	4.9	6.0	6.7	8.1	8.9	8.8
Nubosidad total (octavos)	3.3	3.4	3.4	3.2	3.7	3.5	3.3	3.1	3.2	3.0	3.0	3.1
Precipitación (mm)	50.5	33.7	34.9	16.5	10.5	6.3	8.0	8.0	15.1	10.4	16.4	24.3
Frecuencia de días con precip. > a 0.1 mm	6.1	5.1	4.9	3.5	3.2	2.1	2.7	2.4	3.8	3.0	4.0	4.3

Source: Source: National Meteorological Service[51]

The prevailing winds are south-westerly with an average annual wind speed of 6 km/h and north-easterly with an average annual wind speed of 9 km/h, being more intense in summer and spring.

Average speed by direction and frequency of directions on a scale of 1000

	Ene		Feb		Mar		Abr		May		Jun		Jul		Ago		Set		Oct		Nov		Dic		Anual	
	F	VM	F	VM	F	VM	F	VM	F	VM	F	VM	F	VM	F	VM	F	VM	F	VM	F	VM	F	VM	F	VM
N	47	11	40	10	47	8	54	8	58	9	65	7	59	8	44	10	55	7	50	7	46	10	38	8	50	8
NE	241	8	232	8	196	8	172	9	151	8	169	8	163	8	150	9	182	9	190	9	233	9	252	9	194	9
E	87	7	80	7	87	7	75	6	63	6	50	6	48	6	61	7	66	6	84	7	100	7	107	7	86	7
SE	116	7	78	7	91	6	79	7	60	7	50	5	48	7	60	8	98	8	97	7	119	8	132	7	86	7
S	114	9	139	7	119	6	79	6	75	7	63	9	98	7	102	8	135	7	164	8	142	9	136	9	114	8
SW	115	7	144	6	152	5	220	5	316	5	350	5	337	5	295	6	223	6	159	6	121	7	88	6	210	6
W	17	6	20	7	38	4	92	3	124	4	133	4	126	4	122	5	119	4	79	4	38	4	23	5	78	4
NW	12	7	26	6	12	4	16	4	25	13	19	6	28	5	26	8	22	17	29	9	20	7	14	7	21	8
Calma	251		241		258		213		128		101		93		140		100		148		181		210		171	

Source: Climatological Statistics of the Argentine Armed Forces[52]

climatological Risk Mitigation Methods

Solar Panel Safety System in Critical Conditions

Solar panels are designed to operate efficiently and safely under various weather conditions. To ensure their integrity and optimal performance, safety systems are implemented that consider factors such as wind and adverse weather phenomena such as hail.

Wind conditions: In high wind situations, solar panels are mounted on structures designed to withstand specific wind loads. When strong winds are present, the panels can be adjusted to a 35-degree tilt automatically, taking the measured wind parameter from the transformer station. This angle

[51] https://www.smn.gob.ar/estadisticas
[52] https://www.argentina.gob.ar/defensa/datos-estadisticos-fuerzas-armadas

	reduces the pressure exerted by the wind on the panel surface, minimizing the risk of displacement or damage. **Vertical tilt in case of hail:** In case of expected hail, the solar panels can be positioned at a vertical tilt to reduce direct exposure to hail stones. This adjustment allows the impact to be more evenly distributed and decreases the risk of breakage or damage. In addition, most solar panels are made of tempered glass and resistant materials, giving them a greater ability to withstand impacts. In summary, the solar panel safety system integrates technologies that allow for safe and efficient operation in wind and hail conditions. These mechanisms guarantee the longevity and optimal performance of the solar installations, contributing to a sustainable and reliable energy supply. furthermore, the solar park has an insurance policy in the form of coverage against all operational risks (TRO). The coverage includes, among other things, both property damage and natural disasters. It covers incidents such as fire, floods, storms, hail, earthquakes, tornadoes, theft or acts of vandalism, ensuring the integrity of the essential components of the installation: • Panels / Collectors • Inverters, Lightning Arresters • Tracker Kit and accessories • Civil Works • Closures • Electrical Equipment - Lines Cables etc. • SCADA • CCTV SYSTEM On the other hand, the policy includes Loss of Profits. The indemnity period is 6 months, in the event of having the park out of operation for any reason that is included in the policy. The deductible, in this case, is 7 days. By having this protection, operational continuity is guaranteed and financial risks are minimized in the event of any eventuality. Both policies are available in the supporting documentation folder. Therefore, it is concluded that there is a medium weather risk, but due to the existing mitigation measures it is reduced to low, because the panels have mechanisms that strongly reduce the possibility of damage to these weather		

	events and in the case of damage, through the existing insurance policy, the replacement and continuity of the project is insured.		

2. Financial Risks

Table 16: financial risks

Risk	Description	Probability of occurrence	Risk rating
Financial	It is important to note that these types of photovoltaic projects have a high initial construction cost, however, once installed, the maintenance cost is very low in proportion. Both Santa Rosa I and Santa Rosa II are already fully installed and fully operational. The Santa Rosa project has a 20-year contract for all electricity delivered to the grid, with a defined price in USD/MWh. The buyer is CAMMESA and the payment of the contract is guaranteed with a specific fund established by the National Law 2719134 called FODER. It is also important to note that Tassaroli is a company with more than 70 years of experience in the sector. The company has proven to be a pillar of stability and solidity in the market. Founded in 1953, it has managed to remain at the forefront thanks to a strategy of sustainable growth and the ability to adapt to market fluctuations and technological advances. The company has bases in Colombia, Brazil, Chile and Argentina. Throughout its history, Tassaroli has cultivated a solid financial base, with steady revenue generation and stable cash flow. This track record has enabled the company to successfully overcome various global and regional economic	LOW	LOW

	crises, while maintaining its commitment to customers, suppliers and strategic partners. In addition, Tassaroli has made significant investments in innovation and sustainability, allowing it to not only maintain its leadership in the industry, but also to adapt to the challenges of the future. With a team of highly qualified professionals and a focus on responsible growth, the company is well positioned to further expand its operations and strengthen its presence in the oil, mining and renewable energy markets. Therefore, there is no financial risk that could affect the present project. TASSAROLI S.A. is a thriving company, whose mission is to provide quality products and services for the Energy, Oil and Mining Industry, differentiating ourselves by our commitment to provide comprehensive solutions; improving not only the quality of its products but also the quality of life of all those who are part of this organization.		

3. Social Risks

Table 17: Social Risks

Risk	Description	Probability of occurrence	Risk rating
Social	It is important to note that due to the characteristics of a photovoltaic project, there is no environmental pollution during the life of the project, no noise is generated and no water or air courses are affected. At the same time, the location of this project is far from any urban area. The nearest town, Santa Rosa, is 5km away from the project.	LOW	LOW

	On the other hand, there are no land claims of any kind. The land on which the project is located was acquired from a private person in compliance with all legal requirements. There are and have been no claims or conflicts over this land. These factors were reflected in the public hearing held (see details in section 9 of this document) where not only were there not a single negative comment, but on the contrary there were strong expressions of support. However, in order to ensure social welfare, Tassaroli has several channels open with society so that if any issues arise, they can be identified quickly and dealt with effectively. Finally, it is important to note that Tassaroli has more than 70 years of experience in Argentina, Chile, Colombia and Brazil. It is exempt from any political and social problems of any kind. At all times it has complied and will comply with all local, provincial and national legislation. It also has an internal anti-corruption policy to provide even more transparency both internally and to society. Therefore, there are no social risks that could affect this project.		

7.1.1 Loss Event Report

does not apply

8 Sustainable development safeguards (SDSs)

According to the Biocarbon Registry Standard version 3.4, the Biocarbon Registry's Sustainable Development Safeguards Tool version 1.1 (SSDs) must be applied. The objective of this tool is to be able to identify any socio-economic risks and/or negative impacts that may be generated due to the implementation of this project. The identification of these SSD requirements will help to prevent and/or mitigate the risks arising from any intervention during the project.

According to section 5 of the Tool (SDSs), project proponents shall demonstrate SDSs by identifying potential environmental and/or socio-economic risks, the potential negative impacts of project activities and, where appropriate, demonstrate management of those risks to avoid or, where avoidance is not possible, minimize each of the identified risks.

First of all, it is important to highlight that in accordance with the provisions of Law No. 8830[53], the Secretariat of Environment and Territorial Planning is responsible for the environmental protection of the territory of the province of Mendoza as the enforcement authority of the Provincial Law No. 5961[54] on Preservation, Conservation, Defence and Improvement of the Environment for the purpose of safeguarding the ecological balance and sustainable development. Article 5 of the aforementioned Law establishes the Environmental Impact Assessment Procedure for those projects that may cause modifications to the conditions of the ecological balance of the environment.

The current project was authorized to be carried out on 20 May 2019 by the provincial authorities. This implies that Tassaroli submitted its Environmental Impact Assessment which demonstrated that it did not affect the environment and that it was duly approved by the competent body. This report is more comprehensive than what is required by the Sustainable Development Safeguards Tool version 1.1, including everything that this tool requires and other additional aspects.

Helios Santa Rosa I's commercial authorization is dated 29 March 2022, while Helios Santa Rosa II's commercial authorization is dated 4 May 2024. Both documents are included in the complementary folder, as well as the Environmental Impact Statement for both projects.

Environmental risks

According to section 6 of the Tool Sustainable Development Safeguards version 1.1 the environmental risks to be assessed are:

a) land use: resource efficiency and pollution prevention and management.
b) Water
a) Biodiversity and Ecosystems

[53] https://www.mendoza.gov.ar/wp-content/uploads/sites/19/2018/10/PLP12-8830.pdf
[54] https://www.mendoza.gov.ar/wp-content/uploads/sites/81/2023/02/Ley-N%C2%B0-5961-PRESERVACION-AMBIENTE-TERRITORIO-RESGUARDO-EQUILIBRIO-ECOLOGICO-DESARROLLO-SUSTENTABLES.pdf

b) Climate Change

The following is a summary of the most relevant issues in the Environmental Impact Assessment associated with what is required by the tool.

a) Land use: resource efficiency and pollution prevention and management

The Sustainable Development Safeguards Tool version 1.1 requires ensuring that the project activity does not generate changes in land use that would have negative effects on the environment by polluting air, soil and water, or deplete natural resources that could cause harm to the environment, biodiversity and communities in general.

The current project was built on an area of 20 hectares more than 5km from the nearest town called Santa Rosa. Within the project area there was minor vegetation and no watercourse. As the project is a photovoltaic emergency project it does not require the use of any other input from the environment than the sun. Therefore

b) Water

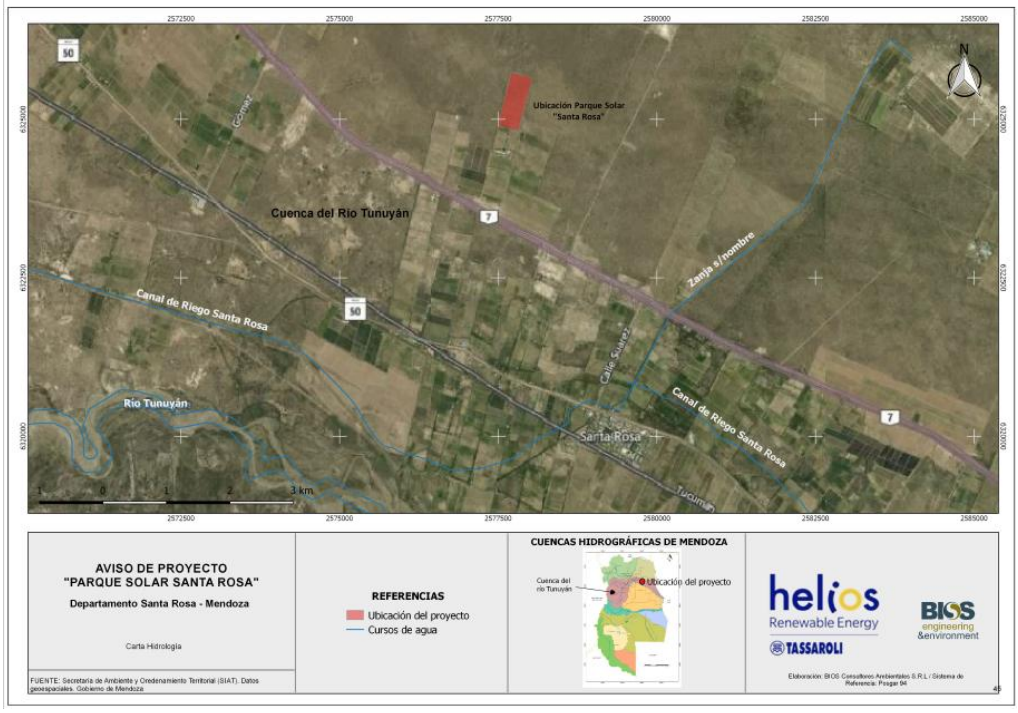
The study area is located in the so-called 'Cuenca Hidrogeológica Norte' (North Hydrogeological Basin) of the province of Mendoza. This region is characterised by a low topographic slope without positive geoforms, generating an alluvial plain environment known as 'Llanura de la Travesía', with the presence of the Tunuyan river as a striking feature.

From the point of view of surface water, the most distinguishing feature of the area is the Tunuyan River, which is located about 5.6km from the Solar Park area, and on the other hand, 3.3km to the south is the Santa Rosa irrigation canal, which is waterproofed.

The river has its imbrífera basin in the Cordillera de los Andes, therefore, the sediments that it has transported and with which it has filled the lower basin, have the same origin. Its regime is of the snowy type, with flood flows from spring to summer and decreasing towards winter. This river has contributed to the formation of two sedimentary basins: the Upper Tunuyán basin and the North basin. In the first part, the flow is diverted for irrigation, a percentage infiltrates, recharging aquifers and the rest continues its movement towards the North basin. This remainder, in the lower part of the Upper Tunuyán basin itself, collects water from the first aquifer level, which thickens it in such a way that the flow at the outlet of this basin is usually somewhat greater than that which it provides.

The Project is located 5.6 km from the Tunuyán River and 3.3 km to the south is the waterproofed San Rosa Risk Canal. The project does not consume water during the operation of the photovoltaic plant. Therefore, Risk of impact Low.

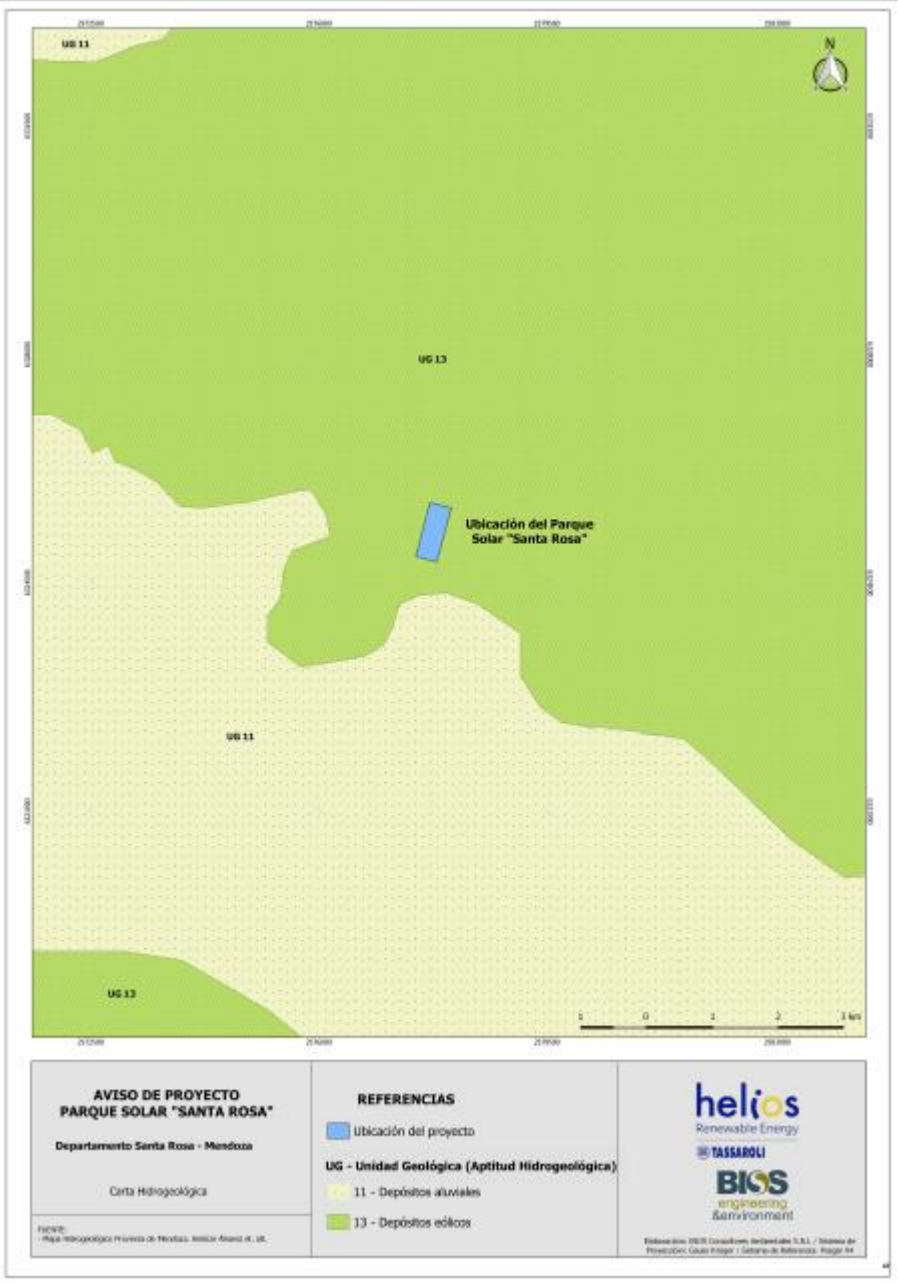
Figure 16: Mendoza hydrographic basins



As can be observed in the hydrogeology chart (figure below), the project is located in the geological unit (Hydrogeological suitability) of Aeolian Deposits, coinciding with the geomorphological characteristics defined by the presence of an eastern fluvio-aeolian plain with Live dunes and inter dune depressions. Finally, there are the alluvial deposits, following the bed of the lower Tunuyan River. In the hydrogeological maps below it can be seen that the project is going to be developed in an area, whose alluvial fill has a thickness of 500m, from which point the aquifers are located. On the other hand, according to the electrical

conductivity curve, the isoconductivity of the zone is 2200 micro/S/cm, located between 100 and 180 m from the surface.

Figure 17: Hydrogeological suitability

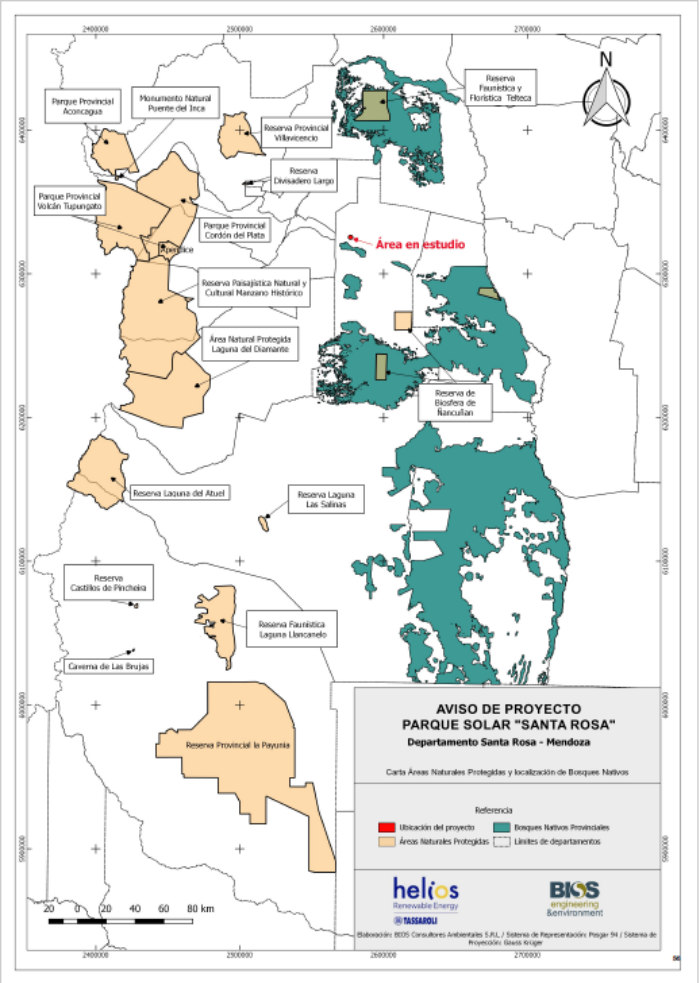


c) Biodiversity and Ecosystems

The province of Mendoza has a reduced diversity of plant and animal species, compared to those found in other regions of Argentina. There are several native species (both animals

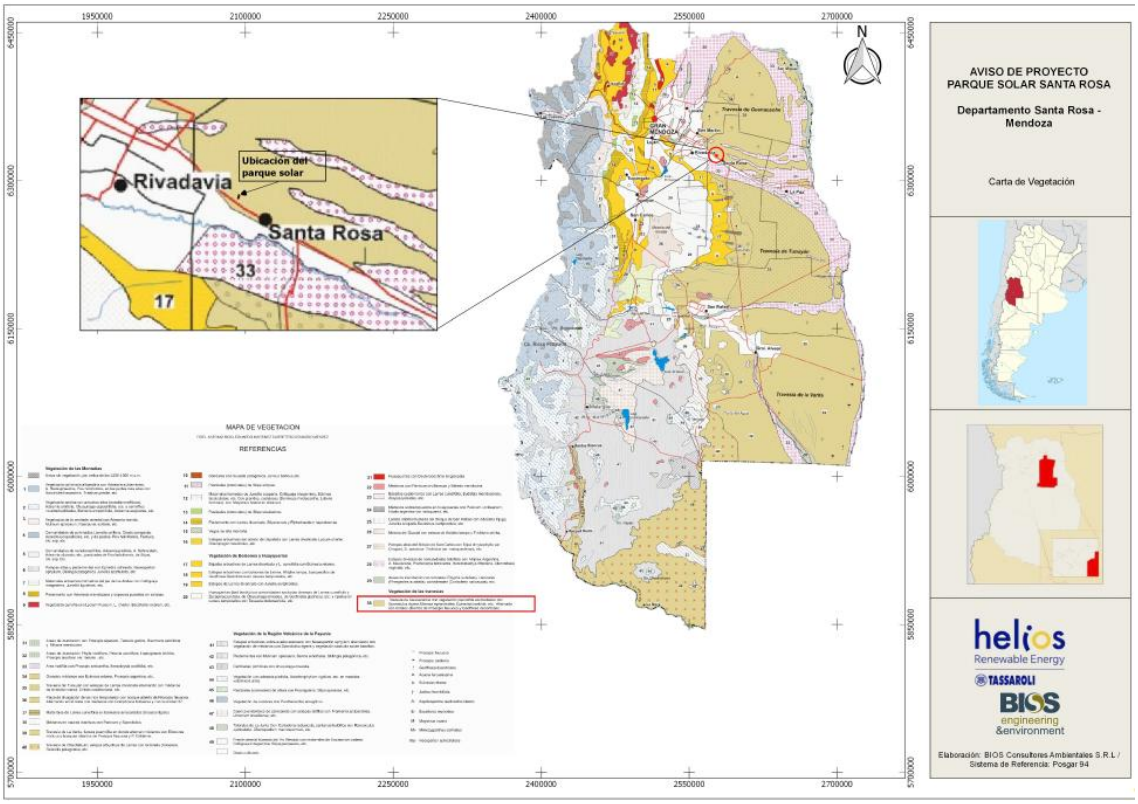
and plants) in this province that are in danger. As a preservation measure, Mendoza created a series of Protected Natural Areas37. Each of them are from different categories and represent each biome in the region. It is important to highlight that the project is not located in areas determined as Protected Areas.

Figure 18: Mendoza protected areas



Regarding the Flora, the project is located within the Phytogeographic region of Monte. It is characterized by the mountain of plains and plateaus, which differs from the ecoregion of plains and pockets due to its geomorphological characteristics. It extends from the south of the province of San Juan to the province of Chubut. The predominant type of vegetation is the high shrub steppe, characterized mainly by the jarillal community, with the presence of columnar cacti or cardones and carob forests in some areas.

Figure 19: Project area vegetation chart



d) Climate change

The current project will generate energy from renewable sources. The renewable electricity supplied to the grid by the project activity will displace electricity with a more intensive CO_2 emission factor since in the grid approximately 60% of electricity is produced from fossil fuels, mainly gas. natural, although diesel, fuel oil and coal are also used.

This project generates energy through photovoltaic panels. Therefore, the impact of the consequences of climate change such as increased temperatures, reduced water availability, salinization of land and fresh water, erosion, desertification, rising sea levels, The acidification of the oceans and the depletion of natural buffer zones, among other issues, affect the project activity in a very slight way and generate a very low risk.

Social Risks

According to section 7 of the Tool Sustainable Development Safeguards version 1. 1, the social risks that must be evaluated are:

a) Human Rights
b) Corruption
c) Economic impact

a) Human rights

This project is located on a 20-hectare plot owned by the Tasarolli company. The closest town is the town of Santa Rosa, which is 5km from the project area. As it is a photovoltaic energy generation project, the impact on the quality of life of local communities is practically zero.

A public hearing was held where everything related to the project was discussed in detail before neighbors and competent authorities in a transparent manner so that anyone who may feel affected by the project has the opportunity to comment on it. There were no negative comments about the project (see the details of the public hearing in section 9 of this report). Therefore, it is considered that there is no type of risk to the human rights of both Tasarolli employees and the communities. local.

- Working conditions: Tasarolli complies with all national, provincial and local laws and regulations regarding the rights of its workers. This company does not use any type of child labor, forced labor or discriminate against any person based on their gender, age, race, religion, country of origin, sexual orientation, disability or any other type of discrimination. Tassaroli has a code of ethics (available upon request) where this whole issue is regulated. In turn, Tassaroli complies with all regulations and demands related to the safety of its employees.
- Gender equality and women's empowerment: Tassaroli promotes gender equality for all its employees, granting them the same possibility of employment and growth within the company, paying primary attention to the empowerment of women. Within Tasarolli, equal pay is respected without distinction of gender. At the same time, the Helios unit was created within the company, which is in charge of the sustainability projects of the company that is in charge of the current photovoltaic project. This unit is made up of 50% women. Details can be found in the Code of Ethics (available upon request)
- Land acquisition, land use restrictions, displacement and involuntary resettlement: The land used for the solar project was acquired in May 2021, from former owner SEXTEL S.A. There were no settlements on said land. Prior to our project, the land was blank, without any type of production, only with native flora.
- Indigenous Communities and Cultural Heritage: There are no claims to this land by any indigenous community or by any local community.

- Community Health and Safety: The closest town, Santa Rosa, to the project is located 5 km away. Being a photovoltaic renewable energy project, the impact on the communities once the project is operational is practically zero.

In the construction stage, impacts associated with:

- Particulate matter from soil movement and vehicle traffic on dirt roads.
- Gases into the atmosphere produced by mobile sources and machinery

In the operation stage, impacts associated with:

- The cleaning of the panels will be carried out only with water, without chemical cleaning products. Depending on the dirt that accumulates, it will be done every 4-6 months. A consumption of 10 liters of water is estimated for each kW installed and per wash. The water will be obtained from a tanker truck.
- Fossil fuel is only used in vehicles for maintenance.

In the abandonment stage, impacts associated with:

- The dismantling and transportation of metal panels and structures to the disposal site, trying to recycle as much as possible.
- Emissions of particulate matter from transportation.
- GHG emissions from fossil combustion in internal combustion engines.

Regarding solid waste:

- During the construction stage, 100 people work, generating approximately 3 thousand kilos of waste comparable to household waste. Everything possible will be recycled.
- In the operation stage there are around 5 people employed. Waste is removed by the Municipal Collection Service.
- Industrial waste from the construction stage will be classified and disposed of in designated sites.
- Hazardous waste: It is generated eventually and to a greater extent in the construction stage, by used oils, paint cans, rags contaminated by eventual lubricant losses. In the operation stage they may be due to paint containers, toner, batteries, solvents, fluorescent tubes.

Regarding liquid effluents:

- During the construction phase there will be chemical toilets and portable showers. The effluents will be removed by an authorized company that will dispose of them in an authorized site.
- In the operation stage, there will be permanent bathroom and shower facilities, and a treatment system for the effluents generated that will respect current regulations.

b) Corruption

Tasarolli has zero tolerance for any act of corruption. It has the complete conviction and commitment to accurately, transparently and honestly report all energy generation, as well as compliance with all national, provincial and local laws. In section 7 of the Code of Ethics (available upon request)

c) Economic impact

The impact of the project on local communities will be positive and will be reflected in the generation of direct and indirect jobs, mainly during construction and later, to a lesser extent, during operation and maintenance. During the construction stage of Helios Santa Rosa I and II, 100 people worked, and with a peak of 145 workers. Currently, in the operation phase of Helios Santa Rosa I, there are 6 workers.

On the other hand, the project will supply renewable electricity in a rural area, improving the availability and reliability of local electrical service in the area. to the grid that will reduce greenhouse gas emissions from the national electrical grid. In turn, the project will supply renewable electricity to the grid that will reduce GHG emissions from the national electrical grid, thus collaborating in the mitigation of climate change.

On the other hand, a community-oriented vocational training program will be carried out that will result in the training and qualification of the workforce, which may be useful in other projects with similar characteristics in the region.

9 Stakeholder engagement and consultation

In Argentina, the body that controls that the companies that provide electricity service comply with their obligations is the National Electricity Regulatory Entity (ENRE)[55]. Because one of the objectives of this project is to inject the renewable energy generated into the country's electrical grid system, the corresponding authorizations had to be obtained.

Tasarolli had to request authorization from ENRE for Access to Existing Transportation Capacity for this project. Through resolution 210/2024[56], article 2 establishes that both CAMMESA and ENRE must post on their respective websites for a period of 5 administrative business days what refers to this project. Furthermore, it grants a period of 5 administrative business days counted from the day after the last publication made, so that whoever considers it appropriate can present an alternative Access project that produces an optimization of the technical-economic functioning of the Argentine System. of Interconnection (SADI) or present observations or oppositions on the basis of the existence of damages to it, in writing, before the ENRE. IN its article 3 establishes that, in the event that there are common well-founded opposition presentations between several users, a Public Hearing will be called in order to allow the applicant to answer them and present their arguments. Finally, in its article 4 it defines that once the deadlines set in article 2 have expired, without any opposition presentations based on the terms described or an alternative project being surpassed, Access to Transport Capacity will be considered granted. Existing. This publication was carried out on the date February 16, 2022 for Helios Santa Rosa I[57] and March 27, 2024 for Helios Santa Rosa II[58].

There was no objection, therefore it was not necessary to hold a public hearing and therefore the requested authorization was obtained.

In the stages of project preparation, informative meetings were held with interested parties. According to Argentine legislation, there is no obligation to hold a public hearing for this type of project. The people consulted belong to the municipality, the provincial government, the university that was involved in the studies and residents of the property where the

[55] https://www.argentina.gob.ar/enre
[56] https://www.boletinoficial.gob.ar/detalleAviso/primera/305365/20240404
[57] https://www.argentina.gob.ar/noticias/mendoza-solicitud-de-acceso-la-capacidad-de-transporte-de-energia-electrica
[58] https://www.argentina.gob.ar/noticias/resolucion-enre-ndeg-2102024-solicitud-de-acceso-la-capacidad-de-transporte-de-energia

photovoltaic solar park is implemented. All comments received were positive. They were very satisfied with the project since it allows the sustainable development of the region through a renewable energy project with very low impact on the ecosystem. The possibility of direct and indirect jobs and the fact of taking advantage of a renewable resource such as solar, which in Mendoza is of very high quality, had great approval from all those consulted.

During the construction period and the first years of operation of the project, the community, like any other stakeholder who had a query, complaint or claim, had an email address available to contact directly with the unit in charge of the project. As of the date of preparation of this document, there were no complaints or claims.

However, by providing all stakeholders with the best tools so that they can channel their complaints, claims or comments, at the end of 2024 a new complaints scheme will be put into operation that is even simpler and more direct to express themselves. The same essence that currently works will be maintained. Any comment, complaint or claim will be processed, and a response will be given. The improvement lies in the fact that with the new system the receipt of claims and/or complaints will be by an outsourced company outside of Tassaroli that will process them and give them the corresponding course. This is done to further ensure the possibility of all stakeholders making their voices heard.

However, to comply with the demands of the Biocarbon Registry, a public hearing was organized on this project in order to provide all the detailed information to the main Stakeholders. The Public Hearing was held on September 11, 2024.

The selected Stakeholders were contacted, first, via telephone contact and then via email with the formal invitation. Inside the complementary documentation folder there is a screenshot of the email sent.

The identification of stakeholders was carried out through an analysis based on their relationship with the project.

Table 18: list of stakeholders

Contact Information		Participation	
interested party	contact person	Present (yes/no)	Description

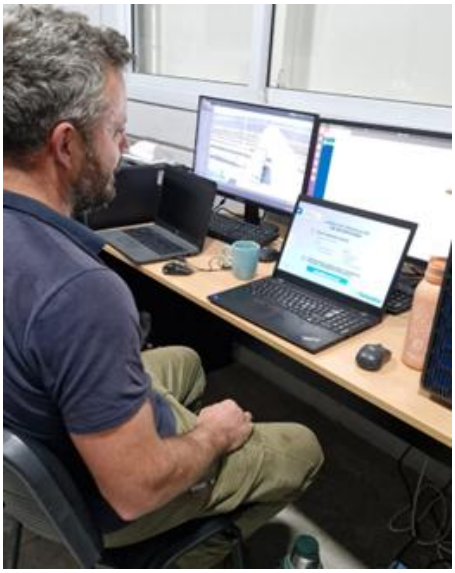
Municipality	Patricia Salomon	yes	Representative of the Environmental area of the municipality of Santa Rosa, the town where the project is located.
Aysa	FRanco Mendez	no	Representative of the main client of Helios Santa Rosa II.
LCE	Germán Brega	yes	Representative of the contracted company that carries out the operation of the park and maintenance.
EERR CLuster	Lucas Spertino	yes	Vice President of the Mendoza Renewable Energy Cluster.
EDESTE S.A	Gabriel López	no	Representative of the energy distributor that has jurisdiction of the distribution network to which the project is connected.
Neighbor 1	Agostini	no	Neighbor of the solar project, which has an easement for the project's output medium voltage line.
Neighbor 2	Franco Settepani	yes	Neighbor of the solar project, who sold the project land and resides in the adjacent property. In turn, it has an easement for the medium voltage line exiting the project.
ICSA	Napolitano Cristian	yes	Representative of the solar park construction company.
Tassaroli	Matías del Pozzi	yes	Representative of the environmental area of the Tassaroli company.

Figure 20: Invitation to public hearing

Figure 21: Public hearing

Since the neighbor who lives closest to the project could not attend, a personalized visit was organized for this neighbor where he was given the same presentation as the rest of the stakeholders.

Figure 22: Second Public Hearing



On September 17, 2024, the public consultation was held with neighbor Franco Settepane, who could not attend the first public consultation for personal reasons. The meeting was held in person at the solar park offices. During the meeting, the same content set out in the general public consultation was presented and explained, with a special focus on the contact methods and complaint channels available for the project.

9.1 Summary of comments received

The most relevant comments made in the public consultation held on September 11, 2024 were:

Matias Del Pozzi: Regarding the channels that Tassaroli has for communication with the community, the people of Santa Rosa, how do they have access to the complaint channels?

Julieta Zanona (Tassaroli): From Tassaroli the channels of communication are sent to the municipality and they communicate them to the community.

Paula Piastrellini (Tassaroli): The important thing is that the communication channels are open to all the people who have relations with Tassaroli: collaborators, suppliers, clients and the community in general who see a situation that goes against their interests, is illegal or calls their attention regarding the solar parks. For the last few years we have been using the email shown in the presentation. At the end of 2024 we are going to implement a special channel for complaints and consultations for this.

Cristian Napolitano: Have you identified which is the Tassaroli process that emits the most greenhouse gases?

Julieta Zanona (Tassaroli): Within Tassaroli industries the main activity that generates GHG does not come from the processes within the plant, but it is the life cycle of the steel that represents 50% of the emissions.

During the second public consultation, the neighbor Franco Settepane commented that he has a voltage meter in his home and that, when he is in possession of one, he is not aware of any GHG emissions from the plant.

9.2 Consideration of comments received

To date, there have been no inquiries or concerns.

10 Sustainable Development Goals (SDGs)

According to the 2030 Agenda, the fundamental basis for ensuring sustainable development lies in the conservation and sustainable use of natural resources, so environmental sustainability is based not only on reducing damage to ecosystems, but also on the efficient management of ecosystem services that favor human development by increasing economic opportunities and social and ecological resilience. In this sense, the management of ecosystem goods and services is represented in the Sustainable Development Goals (SDGs), associated with water, climate, biodiversity and oceans, and from these, a series of interactions are generated that make it possible to meet other major global goals such as the eradication of hunger, poverty reduction and the quality of health services, among others.

In line with what is expressed in the 2030 Agenda, the fulfillment of the 17 SDGs represents the most efficient way to enhance sustainable development at the national level since, as they

are constructed in a universal manner, the participation of various stakeholders is guaranteed to achieve their success. Furthermore, these goals place special emphasis on the inclusion of vulnerable and excluded groups, through the pursuit of the fulfillment of human rights and social equality.

Finally, by having a transdisciplinary scope, they recognize needs in social, economic and environmental terms and promote joint human development with environmentally sustainable practices.

The following is a description of the project's programs and actions that strengthen efforts to promote sustainable development and mitigate the effects of climate change, with a broad and responsible approach. Also described are the implementation schedules, compliance and monitoring indicators.

SDG 4: Quality education

Program 1: Professional training center

4.4 By 2030, significantly increase the number of youth and adults who have the necessary skills, particularly technical and vocational skills, to access employment, decent work and entrepreneurship.

4.4.1 Proportion of youth and adults with information and communications technology (ICT) skills, disaggregated by type of technical skills.

Objective:

“Promote comprehensive skills development through technical training of excellence in trades and industrial specializations, as well as in soft skills for work. To foster inclusion and innovation at various levels and educational modalities, aligned with the demands of the modern world, opening the doors of Tassaroli so that graduates can be inserted into the world of work.”

Program Description:

The Carlos José Tassaroli Technological and Professional Training Center was created with the objective of offering technical training in trades and industrial specializations, as well as in soft skills for the workplace. The program is designed to integrate a diversity of audiences, including students, freelancers, teachers and industry operators seeking to improve their skills. Through an innovative methodology, it will combine theoretical training with practical experience, using the German dual system that allows learning by doing, and promoting an approach to education that maximizes job opportunities.

The program is focused on promoting an educational model that responds to the requirements of the industries of the present and the future, in order to be part of the activities related to the business units of the Tassaroli Group.

The training paths are composed of different modules and assigned hours. To complete all the training paths, an enrollee must complete 1530 hours.

Each training course will be taught by the Carlos José Tassaroli Technological and Vocational Training Center and is certified by the Technical Education and Labor Department (DETyT), which depends on the General School Department of the Province of Mendoza.

Who can register:

Workshop teachers from technical schools; teachers from job training centers; students in the last year of technical schools; people who have graduated from technical schools; people who have graduated from non-technical schools; people who have not completed high school; operators of metal-mechanical companies in the area.

Different actions will be carried out within the program:

Elaboration of the criteria for the selection of the participants of each training path.

Table 19: Timeline:

Year	2022	2023	2024	2025	2026	2027	2028
ACTION 1: Elaboration of criteria for the selection of persons eligible for enrollment.	✓						

ACTION 2: Implementation of the course / opening of enrollment.		✓	✓	✓	✓	✓	✓

Monitoring of actions:

- Elaboration of the criteria for the selection of the participants of each training path: it will be monitored based on the validity of the agreements that gave rise to the training center.
- Implementation of the training path: it will be monitored based on the indicators mentioned below.
  a. Number of people enrolled
  b. Attendance and qualifications.
  c. Number of people who complete the course per number of enrolled students.

SDG 5: Gender Equality

<u>Program 2: Gender Equality</u>

5.1 End all forms of discrimination against all women and girls worldwide.

5.1.1 Determine whether or not legal frameworks exist to promote, enforce and monitor gender equality and non-discrimination.

Objective:

"To promote gender equality in all aspects of the organization, ensuring an inclusive and equitable work environment that promotes diversity and professional development for all people."

Program Description:

Within the present program, a code of ethics will be developed where internal provisions will be contemplated, which will aim to establish the standards of behavior expected for all the

people that will compose this company, complementing with the policies and procedures of this company.

Within the aforementioned code, a section will be included to define the company's gender and religion policies. Mainly, it is stated that: diversity, tolerance, pluralism and especially the way they relate to culture, work, race, nationality, religious beliefs, gender identity and disability, is a key field of ethical education and is an ethical guideline that TASSAROLI wants to share with the community.

One of the most important criteria within the gender policy will be that, within the recruitment, selection and promotion processes, candidates should only be evaluated for their conditions and aptitudes to suit the requirements of the position. For this purpose, salaries will be assigned exclusively for the job position, making a comparison with salaries in the current market, without taking into account the gender of the position's occupant.

In the metal-mechanic industry, there is a notorious shortage of women to fill technical jobs. This sector, traditionally dominated by men, faces a significant lack of female representation, which further complicates the challenge of achieving greater gender equity in the workplace. Cultural barriers, stereotypes and lack of visibility in this field contribute to a low participation of women in technical and operational roles within the industry. This not only limits the diversity of talent available, but also prevents companies from taking full advantage of the diversity of perspectives and skills that women can bring to the table.

In response to this situation, the new Helios Renewable business unit has set a strategic objective to increase female representation in its workforce. Aware of the importance of promoting diversity and gender equity, the unit is committed to reaching and maintaining a 30% female representation in its teams. This goal not only seeks to close the existing gender gap in the metalworking industry, but also to foster an inclusive environment where women can fully develop their potential, bringing their unique skills and perspectives to the table. This approach will not only enrich the organizational culture, but will also boost the company's innovation and competitiveness in the marketplace.

Action 1: Survey positions to determine compliance with internal protocol.

Action 2: Maintain 30% of women in the Helios business unit.

Table 20: Timeline:

Year	2023	2024	2025	2026	2027	2028	2029

ACTION 1: Annual survey of compliance with the code of ethics.	✓	✓	✓	✓	✓	✓	✓
Action 2: Annual survey of the Helios team constitution	✓	✓	✓	✓	✓	✓	✓

Budget:

No budget allocated due to this task is performed by the company's own personnel.

Monitoring of actions:

Action 1: Compliance with the gender guidelines of the code of ethics.

Action 2: Number of positions occupied by women out of the total team.

SDG 7: Affordable and Clean Energy

<u>Program 3: Helios Santa Rosa</u>

7.2 By 2030, significantly increase the share of renewable energy in the energy mix.

7.2.1 Share of renewable energy in total final energy consumption.

Objective:

"To significantly increase the company's renewable energy generation capacity, optimizing the use of sustainable resources and moving towards a cleaner, more efficient and environmentally friendly energy matrix."

Program Description:

The program seeks to increase the installed capacity of renewable energy through the Helios business unit, belonging to Tassaroli. The objective is to increase the installed capacity every seven years, through a periodic analysis and survey of opportunities to develop new renewable energy projects.

To ensure the success of this program, the company will create a permanent position dedicated to the identification and continuous evaluation of potential renewable energy projects.

The actions to be performed and monitored are as follows:

Action 1: Total electricity produced by non-conventional renewable sources.

Table 21: Timeline:

year	2022	2023	2024	2025	2026	2027	2028
Action 1: Total electricity produced by non-conventional renewable energy sources	✓	✓	✓	✓	✓	✓	✓

Monitoring actions:

Action 1: Amount of energy generated by non-conventional renewable sources in MWh in (each cycle starting April 1 and ending March 31 of the following year. This is done to coincide with the start of the current project).

SDG 9: industry, Innovation and Infrastructure

Program 4: Innovation Program

9.5 To increase scientific research and improve the technological capabilities of industrial sectors in all countries, in particular developing countries, inter alia, by fostering innovation and significantly increasing, by 2030, the number of people working in research and development per million inhabitants and public and private sector expenditures on research and development.

9.5.1 Research and development expenditures as a share of GDP.

Objective: boost development in new technologies

Program Description:

Innovation is one of the fundamental success factors considered by Tassaroli in its business vision and the differential key to fulfilling its mission within its stated values. In this context, Tassaroli's Management decided to create and formalize a Research, Development and Innovation Department (RDI) whose mission would be to manage the company's Integrated Innovation System in order to face the challenges of the coming years. Tassaroli aims to cooperate with the 2030 agenda and to continue to grow steadily in oil, mining and renewable energy.

The creation of a solar park for electricity generation will enable the company to position itself among the companies collaborating with the global agenda. With internal support, the Helios business unit performs the pre-feasibility analysis of future photovoltaic projects.

The creation of a specific business RDI area is planned for the year 2022.

Tassaroli manages innovation mainly in 3 ways:

- Capturing Ideas: From the environment and internally through collaborative creation activities and events.
- Prototyping: Development together with customers to streamline processes using the latest technologies.
- Solution Implementation: Solutions are presented from conceptual design to production through agile methodologies.

Action 1: Analysis of the current situation, costs and feasibility of future renewable energy projects. The reports will be available in the supporting documentation folder.

Action 2: Innovation Challenges (internal and external workers).

Table 22: Timeline:

Year	2022	2023	2024	2025	2026	2027	2028
ACTION 1: Pre-feasibility analysis of future renewable energy projects	✓	✓	✓	✓	✓	✓	✓
ACTION 2: Innovation Challenges	✓		✓				

Action Monitoring:

Action 1: Alternative monitoring reports.

Action 2: Supporting documentation on the Innovation Challenge

SDG 13: Climate Action

<u>Program 5: Organizational carbon footprint measurement</u>

Target 13.2 Incorporate climate change measures into national policies, strategies, and plans.

13.2.2 Total greenhouse gas emissions per year.

Description:

Tassaroli S.A. recognizes that its operations generate greenhouse gas (GHG) emissions that contribute to climate change, and has therefore decided to measure these emissions annually. This monitoring will include both the industrial plant in San Rafael, Mendoza, and the Helios Santa Rosa Solar Park in Santa Rosa, Mendoza, and the commercial bases in Brazil, Chile, Comodoro Rivadavia, and Neuquén. The quantification of the Carbon Footprint, ranging from fossil fuel consumption to waste generation, will provide a clear view of direct and indirect emissions, serving as a basis for designing mitigation and compensation strategies.

The Carbon Footprint analysis will be aligned with IRAM-ISO 14.064-1, ensuring a standardized methodology for quantifying and reporting GHG emissions. This process is

essential to establish a systematic approach to emissions management and to ensure consistency in data collection in future reports.

The base year taken will be 2019. The years 2020 and 2021 will not be taken into account due to the Coronavirus pandemic, which makes the data uncertain due to low production.

From the company's renewable energy generation, it will be possible to use such avoided emissions from the national electricity grid to offset the company's own organizational carbon footprint, accompanied by a mitigation plan accordingly.

Table 23: Timeline:

year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
ACTION 1: Anual HDC measurement	✓			✓	✓	✓	✓	✓	✓	✓
ACTION 2: Energy generated by non-conventional renewable energy sources				✓	✓	✓	✓	✓	✓	✓

Action monitoring:

- Carbon footprint measurement report
- Total energy produced by non-conventional renewable energy sources.

Program 6: HDC Mitigation Plan

Target 13.2 Incorporate climate change measures into national policies, strategies and plans.

13.2.2 Total greenhouse gas emissions per year.

Description:

The program consists of developing a greenhouse gas (GHG) emissions mitigation plan that focuses on reducing and controlling the emissions that the organization releases into the atmosphere. It includes direct GHG reduction and offsetting measures to achieve carbon neutrality. Offsetting will be done through the use of carbon certificates generated by the company's energy projects, allowing the company to offset its emissions.

The plan is based on the results of the carbon footprint, identifying the main sources of emissions and proposing alternatives to reduce them. A value chain analysis is included to detect optimization opportunities, and existing actions within the organization, such as waste reduction and logistical improvements, are integrated into a consolidated climate strategy.

In a last instance, the offset project will be evaluated for emissions that cannot be reduced in time. With the actions defined and a baseline established, short-, medium- and long-term mitigation objectives will be set, with concrete targets and KPIs to monitor their implementation.

Table 24: Timeline:

Year	2022	2023	2024	2025	2026	2027	2028
ACTION 1: Design of mitigation strategy			✓				
ACTION 2: Plan compliance monitoring				✓	✓	✓	✓

Monitoring actions:

Action 1: Obtaining the deliverable of the mitigation plan.

Action 2: Follow-up and monitoring of the mitigation plan to evaluate its level of compliance and emissions reduction.

11 REDD+ Safeguards (For REDD+ projects)

Not applicable

12 Special categories, related to co-benefits (optional)

Not applicable

13 Grouped projects (if applicable)

Not applicable

14 Other GHG program

The Climate Change Mitigation Project does not apply to other GHG Programs. However, it is registered in the International IEC Standard[59]. The i-REC program generates one energy credit for every 1Mwh of energy generated from renewable sources. Tassaroli enrolled in this program in the year 2022. Since the date of enrollment in this program, 1,780 MWh of the energy generated by the current project was redeemed (utilization of these energy credits) in order to mitigate Tassaroli's own Scope 2 for the year 2022 and 2,101 MWh to mitigate Scope 2 for the year 2023. To ensure transparency and avoid any double counting, in the verification stage of the present project the MWh used under the I-REC program will be deducted from the amount of energy generated and will not be considered for the generation of carbon credits issued by Biocarbon Registry. The registration and the amount of MWh redeemed in the I-REC platform can be observed in the following on the I-REC page using the following verification code. The registry and the amount of MWh redeemed in the I-REC platform can be observed in the following section on the I-REC[60] using the following verification code 23676790 for the year 2022. Regarding the year 2023 the certificate can be found in the supplementary documents folder.

15 Double counting avoidance

In compliance with the Biocarbon Registry Standard version 3.4, the Avoiding Double Counting (ADC) Tool version 2.0 is applied to ensure that the project does not and will not commit any type of double counting with its carbon credits. Section 7 of the ADC Tool defines double counting as accounting for a greenhouse gas mitigation result in tons of co2 in the following scenarios:

[59] https://www.trackingstandard.org/product-code/electricity/

[60] https://api.evident.app/public/certificates/es/QoXvOG2pIq1U59x1y86ubKWLeY57FZciv8GS0M%2BZrHCe32iHOdMl 0NaAyF19kLeo

a) A ton of CO_2 is counted more than once to demonstrate compliance with the same GHG reduction target.
b) A ton of CO_2 is accounted for more than once to demonstrate compliance with more than one GHG reduction target.
c) A ton of CO_2 is used more than once to obtain some form of remuneration, benefits or incentives.
d) A ton of CO_2 is verified or credited by assigning more than one series to a single mitigation outcome.

As of the date of preparation of this document, this project has not issued any carbon credits and therefore does not meet any of the conditions mentioned in the Tool ADC to be considered as having generated a situation of double counting. However, Tassaroli is committed to not committing any of the parameters defined by the ADC Tool that define double counting.

Section 8.4 of the Tool ADC defines that, if the project owners wish to sell their carbon credits to the CORSIA program, a Host Country Attestation (HCT) must be submitted certifying that the host country is aware of the project and will not consider the project's CO_2 reductions in the preparation of the Nationally Determined Contributions (NDCs) reports under the Paris Agreement.

The only owners of the carbon credits to be issued by this project will be the exclusive property of Tassaroli. There is no intention to sell to the CORSIA program, therefore, it is not necessary to submit an HCT as required by the Tool ADC.

As discussed in section 14, Tassaroli is registered to the International IEC Standard[61]. The i - REC program generates one energy credit for every 1Mwh of energy generated from renewable sources. Tassaroli enrolled in this program in the year 2022. Since the date of enrollment in this program, 1,780 MWh of the energy generated by the current project was redeemed (utilization of these energy credits) in order to mitigate Tassaroli's own scope 2 for the year 2022 and 2,101 MWh for the year 2023.

[61] https://www.trackingstandard.org/product-code/electricity/

16 Monitoring plan

16.1 Description of the monitoring plan

The monitoring plan includes monitoring of the following variables:

Electricity generation will be continuously measured and recorded on an hourly basis with electric meters. There will be one SMEC (Commercial Metering System) as the main electric meter and one backup meter. Cross-checking of this variable can be done since there are 2 meters measuring the same variable. In case the main meter is not working, the data from the backup meter can be used and cross-checked with the information recorded by CAMMESA. The SMEC and the backup meter must comply with the Argentine regulation for measuring energy exchanges of generating agents of the Wholesale Electricity Market (MEM). The Solar PV Plant manager is responsible for recording electricity generation data.

Grid emission factor is calculated according to TOOL07 version 07.0 based on official and publicly available data from CAMMESA. Fossil fuel CO_2 emission factors are published by the National Energy Secretariat and are based on official documents submitted by the Argentine Republic to the UNFCCC. The construction margin (BM) is calculated ex ante and the operating margin (OM) is updated annually, therefore, the grid emission factor or combined margin (CM) is updated annually.

The most important variable to monitor is the electricity supplied to the grid which will displace electricity with higher CO_2/MWh intensity.

Generation data is continuously measured with calibrated electricity meters and recorded daily. Monthly reports are developed based on daily recorded data. Monthly PMCC generation is cross-referenced with data reported by CAMMESA on the amount of electricity delivered to the grid, used in billing.

The information is publicly available on the website of CAMMESA[62], which is in charge of the dispatch center and administrator of transactions in the MEM.

The grid emission factor is calculated by an external consultant based on the CO_2 emission factors used by the Argentine Republic in official and publicly available documents. The

[62] https://cammesaweb.cammesa.com/informe-sintesis- mensual/ .

generation data, quantity and type of fossil fuel used by each generation unit are reported in CAMMESA's monthly reporting database, which is available on CAMMESA's website45.

All meters have/will have generation records and data ready to be downloaded remotely and/or locally by CAMMESA and the project developer.

All meters have/will have records and generation data ready to be downloaded remotely and/or locally by CAMMESA and the project developer.

The monitored data is included in an Excel spreadsheet for emission reduction calculations. All data collected as part of the monitoring process is electronically archived and retained for at least two years after the end of the last crediting period. After that time the information will be stored in backup copies that can be reconstructed if necessary.

The following is the Monitoring and Control Procedure for the Helios Santa Rosa Solar Photovoltaic Power Plant, the reports to be generated, technical information, responsibilities and parameters achieved by this project.

16.2 Data and parameters determined at registration and not monitored during the quantification period, including default values and factors

The data and parameters to be monitored, according to the AMS I.D methodology and TOOL7 are as follows:

Data / Parameter	EFgrid,BM,2022 , EFgrid,BM,2023
Data unit	CO_2/MWh
Description	CO_2 emission factor of the construction margin (BM) in the year y (for this DDA year y =2022)
Source of data used	Ex-ante calculated value to be used throughout the first crediting period.
Value (s)	Period 1= 0.301
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline, BM calculation
Justification of choice of data or description of	The parameter was calculated according to TOOL7 'Tool for calculating the emission factor of a power system (version 07.0)', for the first crediting period.

measurement methods and procedures applied	Person/entity responsible: Leonel Mingo, external consultant.
Additional comments	All relevant data are from CAMMESA, official and publicly available.

Data / Parameter	EGm,2022; EGm,2023
Data unit	MWh
Description	Net amount of electricity generated and delivered to the grid by generation unit m in year y (y = 2022;)
Source of data used	Calculation for the first crediting period based on CAMMESA data.
Value (s)	Please refer to the excel entitled: Emission Reductions. Solar PV plant Santa Rosa I & II. Tab: Construction Margin 2022
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline, BM calculation
Justification of choice of data or description of measurement methods and procedures applied	The parameter was calculated according to TOOL7 'Tool for calculating the emission factor of a power system (version 07.0)', for the first crediting period. Person/entity responsible: Leonel Mingo, external consultant.
Additional comments	All relevant data are from CAMMESA, official and publicly available.

Data / Parameter	m
Data unit	-
Description	Generation units included in the calculation of the construction margin
Source of data used	Calculation for the first crediting period based on CAMMESA data.
Value (s)	Please refer to the excel entitled: Emission Reductions. Solar PV plant Santa Rosa I & II. Tab: Construction Margin 2022
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Emissions Baseline, BM calculation

Justification of choice of data or description of measurement methods and procedures applied	The parameter was calculated according to TOOL7 'Tool for calculating the emission factor of a power system (version 07.0)', for the first crediting period. Person/entity responsible: Leonel Mingo external consultant.
Additional comments	-

Data / Parameter	NCVi,y
Data unit	GJ/unit mass or volume
Description	Net calorific value (energy content) of fuel type i in year y
Source of data used	Third Submission of the Argentine Republic to the UNFCCC. Table A2.2 page 241[63]
Value (s)	Natural Gas(GJ/t) | Fuel Oil (GJ/t) | Gasoil (GJ/t) | Coal (GJ/t) 48.0 | 40.40 | 43.0 | 30.14
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Emissions Baseline, BM calculation
Justification of choice of data or description of measurement methods and procedures applied	The BM is calculated only once ex ante at the beginning of the first crediting period on the basis of the latest available information and must be used for the full crediting period (according to paragraph 72 of Tool 7 Tool to calculate the emission factor for an electricity system version 07.0). The NCV expressed in different units commonly used in Argentina is: Natural Gas: 8.300 kcal/m3; Fuel Oil = 9.800 kcal/kg; Gasoil = 8.619 kcal/l; Imported Coal = 7.200 kcal/kg.
Additional comments	

[63] https://unfccc.int/sites/default/files/resource/Argnc3.pdf

16.3 Data and parameters monitored

<table>
<tr><td>Data / Parameter</td><td>$EG_{PJ,facility,y}$</td></tr>
<tr><td>Data unit</td><td>MWh</td></tr>
<tr><td>Description</td><td>Amount of net electricity generation supplied by the project plant/unit to the grid in the year y</td></tr>
<tr><td>Measured /Calculated /Default:</td><td>Measured</td></tr>
<tr><td>Source of data</td><td>On-site measurements with electricity meters.</td></tr>
<tr><td>Value(s) applied</td><td>
<table>
<tr><th>Period*</th><th>Net Electricity Production</th></tr>
<tr><th></th><th>MWh</th></tr>
<tr><td>1</td><td>13,541</td></tr>
<tr><td>2</td><td>12,946</td></tr>
<tr><td>3</td><td>26,993</td></tr>
<tr><td>4</td><td>26,869</td></tr>
<tr><td>5</td><td>26,745</td></tr>
<tr><td>6</td><td>26,621</td></tr>
<tr><td>7</td><td>26,951</td></tr>
</table>
(*)Each period begins on 04/01 of year y and ends on 03/31 of year y+1. Period 1 is from 04/01/2022 to 03/31/2023. Period 2 is from 1/4/2023 to 31/3/2024. From period 3 onwards, the electricity delivered to the grid is estimated based on actual net generation data from period 1 and 2.

See the Excel file called: Emission Reductions. Solar PV plant Santa Rosa I & II. Tab: Energy to the grid</td></tr>
<tr><td>Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)</td><td>Baseline</td></tr>
<tr><td>Monitoring frequency</td><td>the monitoring frequency will be Continuous measurement, recording and recording of the integrated energy value in 15-minute periods. The report uses hourly energy which is the sum of the energy</td></tr>
</table>

	reported in the 4 periods of 15 minutes corresponding to that hour. Monthly energy is also reported.
Measuring/ Reading/ Recording frequency	Continuous measurement
Measurement/Calculation method (if applicable)	
QA/QC procedures applied	Relevant data can be verified/controlled. Electricity generation data obtained from the SMEC meter can be verified with the backup electricity meter. In case of data loss, electricity delivered to the grid can be obtained from the CAMMESA database included in the official and publicly available monthly reports[64].

Data / Parameter	EFgridOM.y EFgridOM.y
Data unit	t CO_2/MWh
Description	CO_2 emission factor of the operating margin (OM) in year y
Measured /Calculated /Default:	Calculated
Source of data	Official data from CAMMESA
Value(s) applied	year / Operating Margin (OM) (*) [t CO_2/MWh] [t CO_2/MWh 1 / 0.504 2 / 0.504 3 / 0.504 4 / 0.504 5 / 0.504 6 / 0.504 7 / 0.504 (*) The OM is calculated with the Simple OM method for the first period. Data for period two will be available at the end of 2024.

[64] https://cammesaweb.cammesa.com/informe-sintesis-mensual/.

Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emissions
Monitoring frequency	The frequency of monitoring will be continuously and annually reported. Quality control procedures: The data used for the calculation are from CAMMESA, official and publicly available.
Measuring/ Reading/ Recording frequency	Every year
Measurement/Calculation method (if applicable)	The parameter is calculated according to TOOL07 "Tool for calculating the emission factor of an electrical system (version 07.0)" as explained in the previous section. Spreadsheets are available. See the Excel file named: Emission Reductions. Solar PV plant Santa Rosa I & II. Tab: OM period 1, 2 Person/entity responsible: Leonel Mingo. External consultant. The frequency of monitoring will be continuously and annually reported. Quality control procedures: The data used for the calculation are from CAMMESA, official and publicly available.
QA/QC procedures applied	The data used for the calculation are from CAMMESA, official and publicly available.

Data / Parameter	EFgridCM.y	
Data unit	t CO_2/MWh	
Description	CO_2 emission factor of the electricity grid or combined margin (CM) in year y	
Measured /Calculated /Default:	calculated	
Source of data	*Official data from Cammesa*	
Value(s) applied	year	Combined Margin [t CO_2/MWh] [t CO_2/MWh

	1	0.443
	2	0.443
	3	0.443
	4	0.443
	5	0.443
	6	0.443
	7	0.443
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline emissions	
Monitoring frequency	frequency will be continuously monitored and annually reported.	
Measuring/ Reading/ Recording frequency	continuously monitored and annually reported	
Measurement/Calculation method (if applicable)	The parameter is calculated according to TOOL7 "Tool for calculating the emission factor of an electrical system (version 07.0)" as explained in the previous section. Spreadsheets are available for the VVB. See the Excel file called: Emission Reductions. Solar PV plant Santa Rosa I & II. II. Flap: FE network Person/entity responsible: Leonel Mingo. External consultant.	
QA/QC procedures applied	The data used for the calculation are from CAMMESA[65] (years 2019-2023 and from the Secretariat of Energy of the Nation[66]), official and publicly available.	

Data / Parameter	FCi,n,y
Data unit	Mass or volume

[65] https://cammesaweb.cammesa.com/?doing_wp_cron=1725458876.133658885955810546875O
[66] https://www.argentina.gob.ar/economia/energia

Description	Amount of fuel type i consumed by plant/generation unit n in the project's electricity system in year y
Measured /Calculated /Default:	calculated
Source of data	Official data from CAMMESA and/or the National Energy Secretariat.
Value(s) applied	Spreadsheets are available for the VVB. See the Excel file called: Emission Reductions. Solar PV plant Santa Rosa I & II. II. Tab: Fuels.
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Baseline
Monitoring frequency	Single OM: annually during the accreditation period of the corresponding year. Person/entity responsible: Leonel Mingo. External consultant.
Measuring/ Reading/ Recording frequency	Every year
Measurement/Calculation method (if applicable)	
QA/QC procedures applied	The data used for the calculation are from CAMMESA[67] (years 2019-2023 and from the Secretariat of Energy of the Nation[68]), official and publicly available.

Data / Parameter	NCVi,y
Data unit	GJ/unit mass or volume
Description	Net calorific value (energy content) of fuel type i in year y

[67] https://cammesaweb.cammesa.com/?doing_wp_cron=1725458876.1336588859558105468750
[68] https://www.argentina.gob.ar/economia/energia

Measured /Calculated /Default:	calculated
Source of data	Third Submission of the Argentine Republic to the UNFCCC. Table A2.2 page 241[69]
Value(s) applied	<table><tr><td>Natural Gas(GJ/t)</td><td>Fuel Oil (GJ/t)</td><td>Gasoil (GJ/t)</td><td>coal (GJ/t)</td></tr><tr><td>48.0</td><td>40.40</td><td>43.0</td><td>30.14</td></tr></table>
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	baseline
Monitoring frequency	Single OM: annually during the accreditation period of the relevant year.
Measuring/ Reading/ Recording frequency	Every year
Measurement/Calculation method (if applicable)	
QA/QC procedures applied	The data used for the calculation are from CAMMESA[70] (years 2019- 2023 and from the Secretariat of Energy of the Nation[71]), official and publicly available.

Data / Parameter	$EFCO_{2,i,y}$
Data unit	CO_2/ dm^3 / t CO_2/t / t CO_2/t / t CO_2/t
Description	CO_2 emission coefficient of fuel type i in year y
Measured /Calculated /Default:	calculated
Source of data	Data from the Third BUR of the Republic of Argentina submitted to the UNFCCC[72]

[69] https://unfccc.int/sites/default/files/resource/Argnc3.pdf
[70] https://cammesaweb.cammesa.com/?doing_wp_cron=1725458876.1336588859558105468750
[71] https://www.argentina.gob.ar/economia/energia
[72] https://unfccc.int/sites/default/files/resource/Argnc3.pdf

<table>
<tr><td></td><td>/ Reports of the National Energy Secretariat[73]</td></tr>
<tr><td>Value(s) applied</td><td>
<table>
<tr><th>Natural Gas
[t CO2/dm3]</th><th>Fuel Oil
[t CO2/t]</th><th>Gasoil
[t CO2/t]</th><th>coal
[t CO2/t]</th><th>source</th></tr>
<tr><td>1.948</td><td>3.17</td><td>3.19</td><td>2.85</td><td>National Energy Secretariat. CO2 emissions factor of the Argentine electricity grid[74].</td></tr>
</table>
</td></tr>
<tr><td>Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)</td><td>Baseline</td></tr>
<tr><td>Monitoring frequency</td><td>Annual for each verification report</td></tr>
<tr><td>Measuring/ Reading/ Recording frequency</td><td>Every year</td></tr>
<tr><td>Measurement/Calculation method (if applicable)</td><td>The parameter EFCO2,i,y is according to TOOL7 ‘Tool for calculating the emission factor of a power system (version 07.0)’.

Person/entity responsible: Leonel Mingo, external consultant.</td></tr>
<tr><td>QA/QC procedures applied</td><td>The data used for the calculation are from CAMMESA[75] (years 2019- 2023 and from the Secretariat of Energy of the Nation[76]), official and publicly available.</td></tr>
</table>

Data / Parameter	SDG 4 Quality education
Data unit	4. Elaboration of the criteria for the selection of the participants of each training pathway: it will be monitored: according to the validity of the agreements that gave rise to the training center.

[73] https://www.argentina.gob.ar/economia/energia
[74] http://datos.energia.gob.ar/dataset/calculo-del-factor-de-emision-de-co2-de-la-red-argentina-de-energia-electrica
[75] https://cammesaweb.cammesa.com/?doing_wp_cron=1725458876.1336588859558105468750
[76] https://www.argentina.gob.ar/economia/energia

	5. Implementation of the training pathway: to be monitored on the basis of the indicators mentioned below. • Number of people enrolled • Attendance and qualifications. • Number of people completing the course per number of enrolments.
Description	4.4 By 2030, significantly increase the number of young people and adults with the necessary skills, in particular technical and vocational skills, to access employment, decent work and entrepreneurship. 4.4.1 Proportion of youth and adults with information and communication technology (ICT) skills, broken down by type of skill.
Measured /Calculated /Default:	Measured
Source of data	Tassaroli S.A
Value(s) applied	complies/ does not comply
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	-Progress on SDG 4
Monitoring frequency	Every year

Data / Parameter	SDG 5 Gender Equality
Data unit	Adimentional Action 1: Survey of posts to determine compliance with internal protocol. Action 2: Maintain 30% of women in Helios business unit (carbon project).
Description	5.1 End all forms of discrimination against all women and girls everywhere. 5.1.1 Determine whether or not legal frameworks exist to promote, enforce and monitor equality and non-discrimination on the basis of sex.

Measured /Calculated /Default:	Meassured
Source of data	Tassaroli S.A
Value(s) applied	complies/ does not comply
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Progress on SDG 5
Monitoring frequency	Every year

Data / Parameter	*SDG 7 Affordable and clean energy*
Data unit	MWh/year
Description	*Total volume of electricity produced from non-conventional renewable energy sources*
Measured /Calculated /Default:	*Measured*
Source of data	*Manager of the Solar Photovoltaic Plant*
Value(s) applied	MWh/year
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	*Progress on SDG 7*
Monitoring frequency	*Every year*

Data / Parameter	SDG 9 Industry, Innovation and Infrastructure
Data unit	Action 1: Conjunctural analysis, feasibility costs Action 2: Construction of new park by 2030
Description	9.5 Increase scientific research and improve the technological capabilities of industrial sectors in all countries, in particular developing countries, including by fostering innovation and significantly increasing the number of research and development

	personnel per million inhabitants and public and private sector expenditure on research and development by 2030.
Measured /Calculated /Default:	Measured
Source of data	Manager of the Solar Photovoltaic Plant and Human Resources of Tassaroli S.A.
Value(s) applied	complies/ does not comply
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Progress on SDG 9
Monitoring frequency	Every year

Data / Parameter	SDG 13 Climate Deal
Data unit	tCO2e tCO2e/year
Description	Target 13.2 Incorporate climate change measures into national policies, strategies and plans. 13.2.2 Total greenhouse gas emissions per year.
Measured /Calculated /Default:	measured
Source of data	Photovoltaic Solar Plant Manager / external consultant
Value(s) applied	complies/ does not comply
Indicate what the data are used for (Baseline/ Project/ Leakage emission calculations)	Progress on SDG 9
Monitoring frequency	Every year

Appendix 1. Post-registration changes summary.

NOTE: This Project Document (PD) shall be completed following the instructions included. However, it is important to highlight that these instructions are complementary to the BCR STANDARD, and the Methodology applied by the project holder, in which more information on each section can be found.