**Proyecto Solar Fotovoltaico Distribuido de la Provincia de Jujuy**

**Yungas PV Power Plants Bundle Project**

Document prepared by Sustainable and Carbon Finance LLC

|  |  |
| --- | --- |
| **Name of the project** | Yungas PV Power Plants Bundle Project |
| **Project holder** | INDUSTRIAS JUAN F. SECCO S. A |
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| **Project participants** | Industrias Juan F. Secco SA  Sustainable and Carbon Finance LLC |
| **Version** | 1 |
| **Date** | 23/09/2024 |
| **Project type** | Non-Conventional and Renewable Energy Sources (NCRES) |
| **Grouped project** | Yes. |
| **Applied Methodology** | Methodology: AMS-I-D: Grid connected renewable electricity generation (Version 18.0, EB 81) |
| **Project location (City, Region, Country)** | Chalican, Jujuy Province, Argentina  Rodeito, Jujuy Province, Argentina |
| **Starting date** | Chalican Project 01/09/2024  Rodeito Project 01/12/2024 |
| **Quantification period of GHG emissions reduction** | Chalican Project 01/09/2024 to 31/08/2031  Rodeito Project 01/12/2024 to 30/11/2031 |
| **Estimated total and average annual GHG emission reduction amount** | 54,844 t CO2  7,835 t/y CO2 |
| **Sustainable Development Goals** | SDG 5: Gender equality  SDG 7: Affordable and clean energy  SDG 8: Decent Work and Economic Growth  SDG 10: Reduced Inequalities  SDG 13: Climate Action |
| **Special category, related to co-benefits** | N/A. |

|  |
| --- |
| General template instructions: |
| * *This template is for the project document under BCR Standard.* |
| * *Complete the information each tittle according to the Instructions relate back to the rules and requirements set out in the BCR Standard (paragraphs in font: Constantia, 11 pt., Italic, gray or “Template” style) using Constantia,12 pt., black or “Normal” style.* |
| * *Do not modify any features of the template, including styles.* |
| * *Submit the document as a non-editable PDF, deleting this table beforehand.* |

*Note: The instructions, in this template, just serve as a guide and, do not automatically represent a complete list of the information that the project holder shall provide under each section of the template*.

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# Project type and eligibility

## Scope in the BCR Standard

The project is eligible under the scope of the BCR Standard by meeting one or more of the following conditions (Mark with an X).

|  |  |
| --- | --- |
| The scope of the BCR Standard is limited to: | |
| The following greenhouse gases, included in the Kyoto Protocol: Carbon Dioxide (CO2), Methane (CH4) and Nitrous Oxide (N2O). | 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 by the 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 by the implementation of activities in the energy, transportation and waste sectors. | X |

Within the scope of the BCR Standard, the project suits under activities in the energy sector, specifically as Non-Conventional and Renewable Energy Sources (NCRES). The project will reduce the emission of carbon dioxide (gas included in the Kyoto Protocol), will use the methodology approved by BioCarbon Registry applied to the energy sector and finally, the reduction of quantifiable GHG emissions is entirely related to the implementation of the project in the energy sector as mentioned above.

## 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 |  |

## Project scale

According to the definitions of the Clean Development Mechanism, this bundle project falls into the Small-Scale category, with a total installed nominal capacity equal to 10,5 MW.

# General description of the project

Jujuy province presented in 2021 the "Jujuy Verde: Carbon Neutral 2050" program, which is made up of a series of medium and long-term public policies promoted by the Government of Jujuy for the mitigation and adaptation to climate change, as well as empowering the population and public and private institutions, promoting a paradigm of sustainability that guides new ways of living and producing sustainably.

Strategic projects to mitigate and offset greenhouse gas emissions focus on energy, transportation, forests and soil, and waste.

During 2022, the Jujuy Legislature sanctioned the Provincial climate change framework Law No. 6,230, whose purpose is to establish the guidelines for the provincial public policy on climate change "Jujuy Verde: Carbono Neutral 2050".

The last great step that the province has taken was manifested in 2023 with the change of its Constitution, where in the fifth chapter of the new Magna Carta, entitled: New declarations, rights, duties and constitutional guarantees, climate change is crystallized in its 70th article, which reads:

"Climate change: 1- This constitution establishes that adaptation and mitigation of the negative effects of climate change are duties of the State and individuals, in order to promote the enjoyment of a safe climate and foster a low-carbon economy.”

Therefore, the implementation of this project is aligned with the Legal Framework of the province and facilitates and/or makes possible the fulfillment of the objectives set within the Jujuy Verde Program.

Yungas PV Power Plants Bundle Project, (from now on “the project”), is a group of two, (2), Photovoltaic Solar Power Plants located in the Yungas region of Jujuy Province, Argentina. The project comprises the Chalican PV Power Plant with 7,5 MW of nominal capacity and the Rodeito PV Power Plant with a 3 MW installed nominal capacity. Both power plants will contribute to meeting the country's electricity demand by generating power using zero-emissions technology based on a renewable energy source

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Name of Bundle** |  | **Power plant Name** | **Location** | **Installed Capacity**  **kWp** | **Installed Capacity**  **kWe** | **Commissioning Date** |
| Yungas PV Power Plants Bundle Project | 1 | Chalican PV PP | 24°04’56,01”S  64°48’44.10”O | 8,842.5 | 7,500 | 13/8/2024 |
| 2 | Rodeito PV PP | 24°16’13.46”S  64°49’05.06”O | 3,615.6 | 3,000 | 13/11//2024 |
|  | **Total** |  |  |  | 10,500 |  |

The electricity generated from both plants will be sold to integrated Argentine grid through an Agreement with EJESA, (Empresa Jujeña de Energía S. A.), the energy distribution company of Jujuy Province. The Agreement was signed between INDUSTRIAS JUAN F. SECCO S.A., (project holder), and EJESA on 28th December 2022.

The project has the following characteristics:

* Energy will be generated and consumed in contiguous geographical spaces, thus avoiding the use of large transportation and transformation structures that increase the cost of the service. Each project (Rodeito and Chalican) will be connected by a simple three-phase underground line from the Distridution Center of the solar park, to an existing 33kV aerial line owned by EJESA, whose distribution system is connected to the Argentine Power Grid or SADI, (Sitema Argentino de Interconexión)
* The configuration optimizes the use of the existing transportation, transformation, and distribution infrastructure.
* The possibility of having small generation plants that feed the Argentine system allows improving the reliability of supply and promoting the growth of nearby communities.
* The Rodeito Project's average power generation for the next 7 years is estimated at 6.144 GWh per year, resulting in emission reductions of 2,191 tCO2e per year and 15,334 tCO2e of emission reductions over the 7-year crediting period.
* The Chalican Project's average power generation for the next 7 years is estimated at 15.83 GWh per year, resulting in emission reductions of 5,644 tCO2e per year and 39,510 tCO2e of emission reductions over the 7-year crediting period.
* AMS-I.D. Grid connected renewable electricity generation (Version 18.0) methodology is applied since the purpose is the installation of new renewable power plants connected to the grid, (Greenfield power plants), otherwise the electricity would be provided to the grid by more GHG intensive means.

Sustainable Development Goals

a) SDG 5: Gender equality

Opportunities for permanent positions will be equal in terms of gender and financial remuneration

b) SDG 7: Affordable and clean energy

Up to 21.975GWh/year incorporated into the country's energy matrix

c) SDG 8: Decent Work and Economic Growth

Seeking zero fatal accidents.

Ensure that all employees hired by Secco and third parties are under Argentine labour law.

Prioritize the hiring of local workers

d) SDG 10: Reduced Inequalities

Hold an annual exchange meeting with the community and its representatives.

Avoid causes for complaints and, in the event of receiving them, give the treatment established in the procedure.

e) SDG 13: Climate Action

Up to 7,835 tCO2/y will be reduced.

## GHG project name

Proyecto Solar Fotovoltaico Distribuido de la Provincia de Jujuy – Yungas, hereinafter referredto as Yungas Project (Chalican Project or Rodeito Project when necessary to refer to them individually).

## Objectives

To meet the country's growing energy demand by generating 21.975GWh/year of electricity from solar energy.

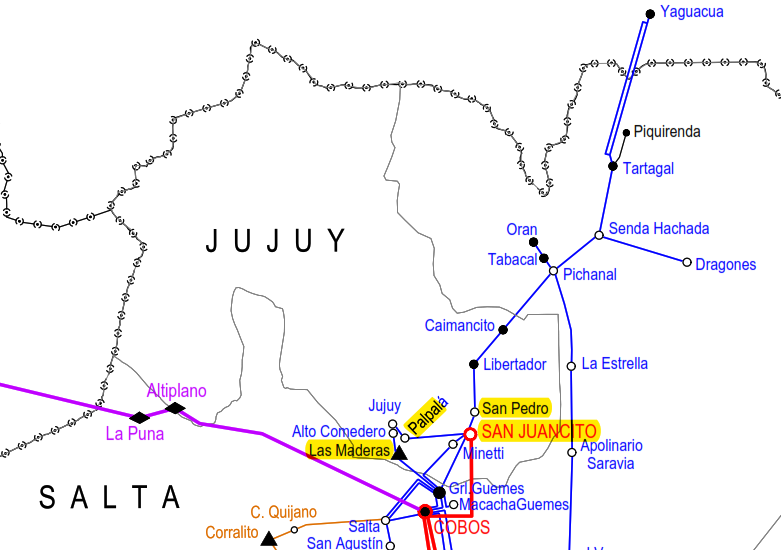
Reduce emissions by around 7,835 tCO2 /y, substituting the use of fossil fuels.

Contribute to the fulfillment of the objectives proposed by "Jujuy Verde: Carbono Neutral 2050" Program.

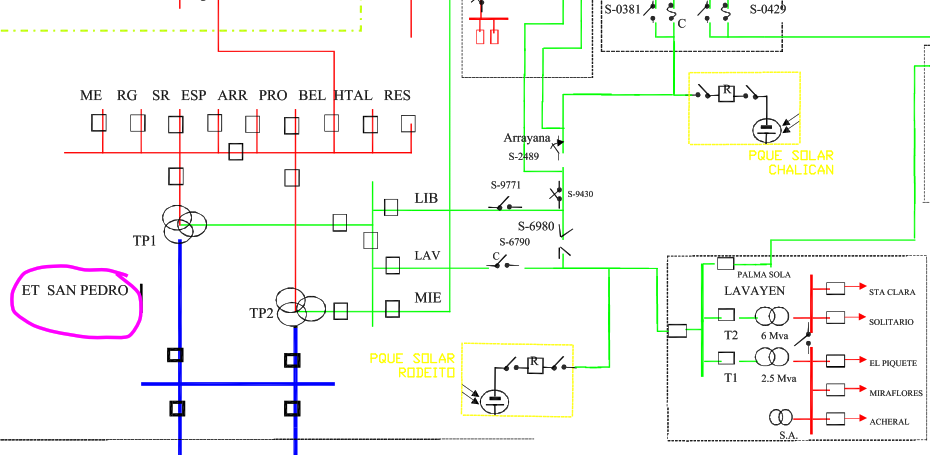
## Project activities

The project is based on solar energy sources through photovoltaic conversion technology. Chalican PV Power Plant electricity production will feed the 33 kV transmission line belong to EJESA which is part of the Argentine Interconnection System (SADI). In the same way, Rodeito PV Power Plant production will be delivery through the Distribution Center of the solar park to the 33 kV Distribution Interconnection Point (DIP) from EJESA.

Figure 1, shows the main SADI power transformer substations connected with photovoltaic projects



*Figure 1 SADI power transformer substations connected with photovoltaic projects*



*Figure 2 Chalican and Rodeito interconnection*

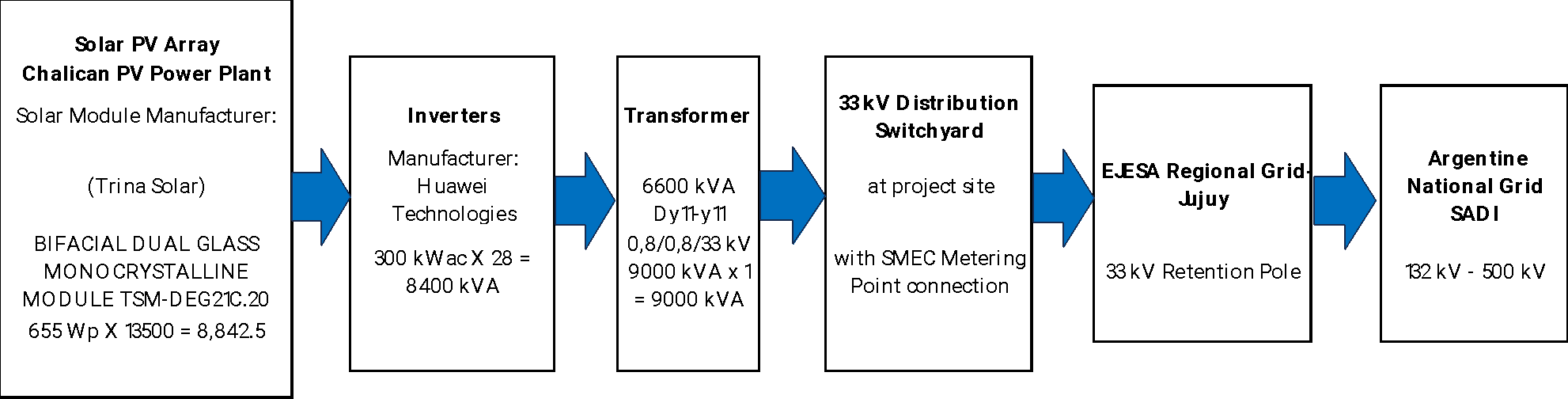
Figure 2, shows part of the SADI and EJESA single lines electric network and the new Chalican and Rodeito power plants interconnection. A detailed description of these single-line diagrams can be found in Annex I information

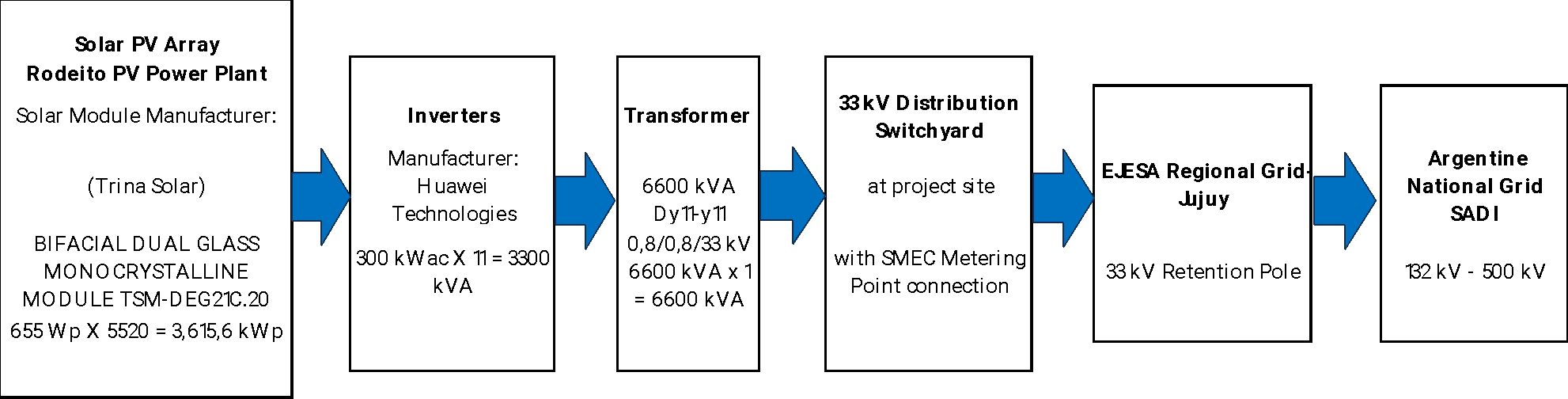
The facilities to secure the power capacity of both PV projects Chalican and Rodeito according to PVsyst - Simulation report Grid-Connected System version 7.4.2 (26th June 2023) will consist of:

*Table 1 System summary*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | Chalican PV PP | | Rodeito PV PP | |
| Solar Modules | Wp | 655 | Vertex TSM-DEG21C20 | 655 | Vertex TSM-DEG21C20 |
| N° of Modules |  | 13500 |  | 5520 |  |
| Nominal power | kWp | 8,842.5 |  | 3615,6 |  |
| N° of Inverters |  | 28 | Huawei Technologies Model SUN2000-330 KTL | 11 | Huawei Technologies Model SUN2000-330 KTL |
| Transformers | 0.8 /0,8/33kV |  |  |  |  |
| Trackers |  | 220 | Vanguard 1P60 Dual row technology | 100 | Dual-row technology, model Agile 1P |

*Figure 3 Power blocks diagram of both PV power plants*





Two-way digital meters (main and backup) are installed at the exit of the Distribution Center at project site to measure the electricity supply directly and continuously to the new interconnection point with EJESA. The accuracy class of the electricity meters is 0.2S, which will be verified after commissioning.

The expected useful life of the project equipment is 25 years, according to conservative solar industry standards in this context.

## Project location

The Yungas Project is in the Ramal region, therefore, Chalican and Rodeito sites share historical, political, geographic, climatic and cultural characteristics.

According to the Environmental Impact Study (EIS) carried out in Chapter 2 Executive Summary, shows that the selected sites are currently in disuse, presenting a herbaceous cover and both sites has low landscape value, due to the previous transformation by agricultural activities.

Rodeito Project occupies an area of 7.47 hectares.

*Figure 4 Rodeito Project Gauss Kruger coordinates*

Tabla

Descripción generada automáticamente

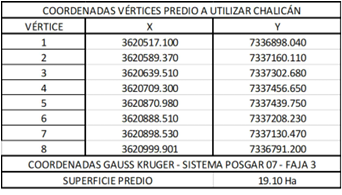
*Figure 5 Rodeito Project location*

Imagen que contiene edificio, tren, vehículo militar, verde

Descripción generada automáticamente

Chalican Project occupies an area of 19.1 hectares.

*Figure 6 Chalican Project Gauss Kruger coordinates*



*Figure 7 Chalican Project location*

Un mapa de un edificio

Descripción generada automáticamente con confianza baja

## Additional information about the GHG Project

The photovoltaic plant will operate automatically and independently with minimal intervention. In the event of problems with the external power grid or the inverters, they will automatically disconnect from the grid. In most cases, the inverters will automatically reconnect once the problems have been resolved.

The installations have been designed under the parameters required by international standards for solar photovoltaic installations and national standards for power generation and transmission.

The solar panels will be connected in series forming strings, each string will be mounted on a support structure called a solar tracker in a row. Each solar tracker will be driven by an independent mechanism. This type of modular installation allows each structure to be placed independently to cause the least possible impact. Solar trackers are structures that allow the solar panel to face the direction in which the sun's rays penetrate the earth's atmosphere. In this way, the energy captured by the panels is greater, and energy production is increased for the same number of panels and surface area occupied.

*Figure 8 Rodeito Project Layout*

*Un dibujo de un tren

Descripción generada automáticamente con confianza baja*

*Figure 9 Chalican project Layout*

*Un mapa de una ciudad

Descripción generada automáticamente con confianza media*

# Quantification of GHG emissions reduction

## Quantification methodology

As stated in the approved methodology AMS-I-D: Grid connected renewable electricity generation (Version 18.0): If the project activity is the installation of a new grid-connected renewable energy plant/unit, the reference scenario is as follows:

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

According to the methodology the combined margin CO2 emission factor for grid connected power generation must be calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (t CO2/MWh)

### Applicability conditions of the methodology

The methodology AMS-I-D: Grid connected renewable electricity generation (Version 18.0) is applicable to project activities that:

1. Install a Greenfield plant;
2. Involve a capacity addition in (an) existing plant(s);
3. Involve a retrofit of (an) existing plant(s);
4. Involve a rehabilitation of (an) existing plant(s)/unit(s); or
5. Involve a replacement of (an) existing plant(s).

And the paragraph (6) specifies that “If the new unit has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.” Yungas is a photovoltaic bundle project consisting of the Chalican and Rodeito Greenfield plants which add up to 10.5 MW of installed capacity, making it a small-scale project.

### Methodology deviations (if applicable)

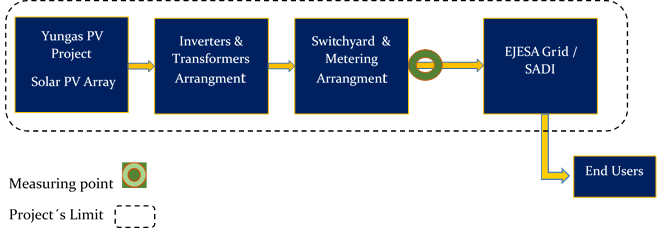
Not applicable

## Project boundaries, sources and GHGs

According to the guidance specified in AMS-I-D: Grid connected renewable electricity generation (Version 18.0), "the spatial extent of the project boundary includes the project power plant/unit and all power plants physically connected to the electricity system that the CDM project power plant is connected to".

### Spatial limits of the project

The project boundary will include the photovoltaic generation and the Transformer Substation where the metering equipment is located, as shown in the following diagram. Both Chalican and Rodeito have the same spatial limits diagram for each location,



### Carbon reservoirs and GHG sources

The Yungas Project´s photovoltaic power generation comprises a single source or reservoir.

|  |  |  |  |
| --- | --- | --- | --- |
| Source or reservoir | GHG | Included  (Yes/No/Optional) | Justification |
| Source or reservoir 1 | CO2 | Yes | Main source of emission |
| CH4 | No | Emission source Minor |
| N2O | No | Emission source Minor |
| Source or reservoir 2 | CO2 | No | Not applicable |
| CH4 | No | Not applicable |
| N2O | No | Not applicable |
| Source or reservoir n | CO2 | No | Not applicable |
| CH4 | No | Not applicable |
| N2O | No | Not applicable |

### Time limits and analysis periods

In accordance with BCR Standard section 11.5, the renewable quantification period shall be at most seven years and may be renewed at least twice, for a maximum total length of 21 years.

#### Project start date

The Yungas Project construction start date is October 27, 2023 and the start-up date or actual action of the Chalican Project is August 13, 2024 and for Rodeito Project November 13, 2024.

In order to anticipate any delay in construction phase or EJESA authorization, the start date is defined on September 01, 2024 and December 01, 2024.

#### Quantification period of GHG emission reductions

The Yungas Project is framed within the activities in the energy, transport and waste sectors, the quantification periods are those established by the BCR Standard as 7 years and may be renewed twice, for a maximum total length of 21 years.

#### Monitoring periods

The monitoring periods will be annual with a closing date of December 31 of the calendar year.

## Identification and description of the baseline or reference scenario

Based on BCR Guidelines Baseline and Additionality, AMS-I-D: Grid connected renewable electricity generation (Version 18.0) and "TOOL07 to calculate the emission factor for an electricity system." version 7.0; the baseline scenario is identified as a greenfield power plant: “If the project activity is the installation of a Greenfield power plant with or without a BESS as described under paragraph 4(a) or paragraph 5(a), the baseline scenario is electricity delivered to the grid by the project activity that would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in TOOL07.”

## Additionality

Based on the BCR Guidelines for Baseline and Additionality Version 1.3|March 1, 2024, point 6 states “BCR Standard does not include activities that are automatically additional”. That mean, in BCR Standard are not considered “positive list” of eligible project types. In addition, point (8) of the mentioned Guidelines states that project holders in sectors such as energy, transport and waste, shall use the “*am-tool-21-v13.1 Demonstration of additionality of small scale* *project activities”.*

As per Guidelines on TOOL21: Demonstration of additionality of small-scale project activities (Version 13.1), it has to be provided an explanation to show that the project activity would not have occurred anyway due to at least one of the following barriers:

(a) **Investment barrier:** a financially more viable alternative to the project activity

would have led to higher emissions;

(b) **Technological barrier:** a less technologically advanced alternative to the

project activity involves lower risks due to the performance uncertainty or low

market share of the new technology adopted for the project activity and so

would have led to higher emissions;

(c) **Barrier due to prevailing practice:** prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with

higher emissions;

(d) **Other barriers:** without the project activity, for another specific reason identified by the project participant, such as institutional barriers or limited information, managerial resources, organizational capacity, financial resources, or capacity to absorb new technologies, emissions would have been higher.

The most significant barrier is identified as the investment barrier according to context of the project activity to demonstrate in a conservative and transparent manner that the proposed project activity is financially attractive or unattractive.

Best practice examples of Investment Analysis is defined in the “*ANNEX 34, EB 35* *methSSC\_guid15\_v01\_Non-binding best practice examples to demonstrate additionality for SSC project activities”* as:

“Best practice examples include but are not limited to, the application of investment comparison analysis using a relevant financial indicator, application of a benchmark analysis or a simple cost analysis (where CDM is the only revenue stream such as end-use energy efficiency). It is recommended to use national or global accounting practices and standards for such an analysis”

The investment analysis is applied by using “*TOOL27-Investment analysis (Version 14.0)*” to evaluate financial status of the project activity to discuss the Investment barrier.

The steps of “*am-tool-01-v7.0.0\_Tool for the demonstration and assessment of additionality*” is utilized in order to determine method of financial analysis.

*Procedure for demonstrating additionality in accordance with TOOL01.Version 07.0.0*

The step-by-step approach proposed by TOOL01: Version 07.0.0 has been followed

to establish the additionality of the project. It is detailed below:

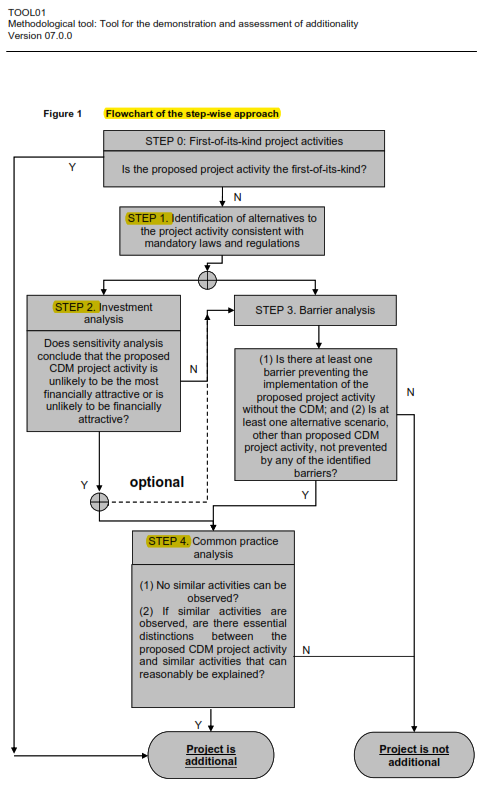
**Step 0:** Demonstration of whether the proposed project activity is the first of its kind.

The proposed project activity is a solar photovoltaic project, therefore, it is not the

first of its kind in Argentina.

**Step 1:** Identification of alternatives to the project activity consistent with mandatory laws and regulations.

According to the applied methodology “*EB81\_repan24\_AMS-I.D\_ver.18*”; “If the project activity is the installation of a Greenfield power plant, the baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid”. Given that the baseline scenario consists of the installation of a new photovoltaic power plant, (Greenfield power plant), that displaces electricity supplied by the grid and is expressly indicated by the methodology applied, no other analyses have been carried out to search for alternatives.



**Step 2**: Investment Analysis

According to paragraph 29 of TOOL01: v.07.0.0 "Tool for the demonstration and assessment of additionality" it is determined that the proposed project activity is not an economically or financially viable option. To carry out the investment analysis, the methodological tool "TOOL 27.v.12.0\_ Investment Analysis" has been taken as a reference, which came into force on 02Nov.22, and whose period includes the date of decision to carry out the project, 28th December 2022.

**Sub-step 2a:** Determine the appropriate analysis method

According to paragraph 32 of TOOL01: v.07.0.0 "Tool for the demonstration and

assessment of additionality", the following three options are available for project

analysis:

Option I: Simple Cost Analysis

Option II: Investment Comparison Analysis

Option III: Benchmark analysis

The project will generate revenue from the sale of electricity, so Option I is not

applicable.

Option II is also not applicable since there is no comparable investment alternative

available to the project participant because the only option is generation of electricity energy by the Argentine grid.

Therefore, the most appropriate financial analysis method is Option III: benchmark analysis, where the returns on investment in the project activity are compared to a benchmark value available to any investor in the country.

**Sub-step 2b:** Option III. Apply Benchmark Analysis

The project proponents have considered the after-tax IRR for the investment analysis at the time of decision making. As project proponents, they are interested in the returns that the project generates on the investment costs that they finance in the form of 100 percent equity.

For the selection and validation of the appropriate benchmark for the calculated IRR, paragraph 15 of TOOL 27.v12.0 "Investment Analysis", states that "*Local commercial lending rates or WACC are appropriate benchmarks for a project IRR.*

*Required/expected returns on equity are appropriate benchmarks for an equity IRR. Benchmarks supplied by relevant national authorities are also appropriate”*.

Of these options, the proponents consider that the required/expected returns on equity are appropriate benchmarks for an equity IRR.

Comparative Base Value

According to paragraph 18 of TOOL 27.v.12.0, "*If there is only one possible project*

*developer, either internal company benchmarks/expected returns may be applied, or the benchmark based on standard conditions in the market may be used*."

Considering that the project activity has a single proponent that finances 100 percent of the project, (100 percent equity), for transparency and simplicity, the proponents consider the benchmark based on standard market conditions to be a reasonable indicator to evaluate the IRR of equity.

According to point 19 of TOOL 27.v.12.0, "*If the benchmark is based on parameters*

*that are standard in the market, the cost of equity should be determined either by: (a) selecting the values provided in the Appendix; or by (b) calculating the cost of equity using CAPM*". For the sake of transparency and simplicity, the project developers consider it reasonable to use as a benchmark for the IRR of capital the value of the Appendix of Tool 27 v.12.0 "*Default values for the cost of equity* *(expected return on equity)"* corresponding to Argentina Group 1, which is 23,48%in real terms. It is noted that at the date of preparation of this PDD, Tool 27 v.14.0\_Investment Analysis\_EB 122\_31May2024-onwards is in force, which shows the value of 24.01% in real terms for Argentina Group 1 projects. Following a conservative approach, the minimum default value of 23.48% in real terms has been taken.

Finally, it should be noted that the cash flow presented in this process was prepared in real terms since it does not include inflation adjustment in any of its variables. For this reason, we consider that it is not necessary to adjust the benchmark rate for inflation, as proposed in point 16 of Tool 27 v.12.0 "*In situations where an investment analysis is carried out in nominal terms and the available IRR benchmarks are in real terms, project participants shall convert the real term values of benchmarks to nominal values by adding the inflation rate*"

**Sub-step 2c:** Calculation and comparison of financial indicators (only applicable to Options II and III). (See Chalican and Rodeito cash flows in Annex I)

Input values used in investment analysis of Chalican and Rodeito PV PP

|  |  |  |  |
| --- | --- | --- | --- |
| **Project details** | **Jujuy Province** | | **Source** |
| Project location | Chalican | Rodeito |  |
| Total AC capacity (MW) | 7,5 | 3 | 20230628 - SECCO - JEMSE - ANDENDA I A CONTRATO ASOCIATIVO- Pagina 6 |
| Commissioning date | 13/08/2024 | 13/11/24 | GPD |
| Plant life (years) | 30 | 30 | PV panels manufacturer's specifications Pagina 119. Trina Solar’s Vertex Bifacial Dual Glass Performance Warranty |
| **Generation and sale of energy** |  |  |  |
| Production @ P50(%) MWh | See Cash Flow "Produccion" spreadsheet | See Cash Flow "Produccion" spreadsheet | Adenda I. Página 53 a 60 y 107 a 114 |
| Generation rate contract value (USD/MWh) | 79,00 | 79,00 | Ctto. PPA EJESA- JEMSE - Pagina 11- Artículo 6.1 |
| Canon JEMSE | 7,00 % | 7,00 % | Oferta de Cesion de Posición Contractual- Página 4- Artículo 2 |
| **Operating, maintenance and overhead expenses** |  |  |  |
| O & M Expenses | See Cash Flow "O&M" spreadsheet | See Cash Flow "O&M" spreadsheet | Planilla 10\_COp\_JEMSE\_Solar\_48mW\_2024.07 |
| Overhead | 11,32% | 11,32 % | Financial statements 31/12/2022 Pág.17 |
| **Financial parameters** |  |  |  |
| Total investment USD | 6.100.166,00 | 3.257.642,00 | S/project budget |
| Demobilization expenses | 0,00 | 0,00 | N/A |
| Terminal value | 0,00 | 0,00 | N/A |
| Equity Financing | 100,0% | 100,0 % | Industrias Juan F. SECCO |
| **Working capital** |  |  |  |
| Days of accounts receivable | 35 | 30 | According to contract payment conditions |
| **Accounting and tax depreciation** |  |  |  |
| Depreciable value | See Cash Flow "Inversión" spreadsheet | See Cash Flow "Inversión" spreadsheet |  |
| Accounting / tax useful life |
| **Taxes** |  |  |  |
| Gross income (%) | 1,80% | 1,80% | Province of Jujuy Tax Ley 6372. Resolución general (DPR) 1658/2024 |
| Tax law 25,413 on credits | 0,40% | 0,40% | National Tax Resolución General (DPR) 1658/2024 |
| Tax law 25,413 on debits | 0,40% | 0,40% | National Tax Resolución General (DPR) 1658/2024 |
| Income Tax | 35,00% | 0,40% | National Tax LEY 20628 y modif., Art. 73°, texto s/LEY 27630, Decreto 824/2019 y RG (AFIP) 5168 |

|  |  |  |  |
| --- | --- | --- | --- |
| Project Developer  Industrias Juan F. Secco | IRR without VCC | | ROE Benchmark |
| Project location | Calichan | Rodeito | 23,48% |
| 9,47% | 5,97% |

The project activity cannot be considered financially attractive given that the project's IRRs of both projects are lower than the benchmark ROE of each of them

**Sub-step 2d:** Sensitivity analysis

In addressing Guide 27 and 28 of Tool 27 v.12.0 Investment Analysis, the following factors have been subject to sensitivity analysis:

1. Plant Load Factor

2. Operation and Maintenance Cost

3. Project Cost

4. Rate

The rationale for sensitivity is: "*The ultimate objective of sensitivity analysis is to determine the probability of occurrence of a scenario different from the scenario presented, in order to provide a cross-check of the reasonableness of the assumptions used in the development of the investment analysis."*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Equity IRR W/O VCC | | Benchmark (ROE) | |
| **Chalican base case** | **9,47%** | | **23,48%** | |
| Sensitivity Analysis | Equity IRR | | | |
| Variation % | -10% | Normal | 10% | Variation with respect to benchmark |
| Energy Production | 8,12% | 9,47% | **10,78%** | 117,8% |
| O&M | **9,56%** | 9,47% | 9,39% | 145,6% |
| Project Costs | **10,83%** | 9,47% | 8,32% | 116,8% |
| Energy Price | 8,12% | 9,47% | **10,78%** | 117,8% |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Equity IRR W/O VCC | | Benchmark (ROE) | |
| **Rodeito base case** | **5,97%** | | **23,481%** | |
| Sensitivity Analysis | Equity IRR | | | |
| Variation % | -10% | Normal | 10% | Variation with respect to benchmark |
| Energy Production | 4,85% | 5,97% | **7,05%** | 233,0% |
| O&M | **6,05%** | 5,97% | 5,90% | 288% |
| Project Costs | **7,09%** | 5,97% | 5,02% | 231,1% |
| Energy Price | 4,85% | 5,97% | **7,05%** | 233,0% |

The results of the sensitivity analysis show that even with a variation of ± 10% in project cost, operation and maintenance cost, energy production and energy price, the IRR of the equity is significantly lower than the reference rate. It is also evident from the results given above that the project remains additional even under the most favourable conditions.

|  |  |
| --- | --- |
| **Reference index** | **Probability of default** |
| Power Production  (Plant Load Factor) | The PLF has been considered for financial analysis according to the "Guidelines for Reporting and Validation of Plant Load Factors" set forth in EB48 Annex 11.  It is highly unlikely that a variation in the PLF of more than 10% will occur since the energy production and its reduction over the years was provided in the report of the equipment supplier, (third party not involved in the project), |
| O&M | The sensitivity analysis reveals that O&M costs are irrelevant to the outcome of the IRR value. Furthermore, it is known that these costs are subject to upward escalation due to breakage and inflationary pressure. In short, their reduction over time is highly unlikely. |
| Project cost | The estimated project cost for the financial analysis is considered from the GPD available at the time of decision making. However, even if we consider actual project costs that differ very little from the estimates, the benchmark is not exceeded. In any case, the Sensitivity is analysed for a variation of +/-10%. |
| Value of the fee | For the investment analysis, the tariff considered is 79,00 USD /kWh and is determined by the energy supply contract to JEMSE S.A., which is fixed for the entire 20-year contract period. |

## Uncertainty management

The data used for the quantification of the baseline are based on the methodologies mentioned in point 3.7.3 and on the information provided by official agencies (Secretaría de Energía de la Nación) that have traceable and confidential data provided by each generator in Argentina.

## Leakage and non-permanence

According to AMS-I-D: Grid connected renewable electricity generation (Version 18.0) have to be considered the procedure described in the most recent version of ACM0002 Methodology (version 22.0): “No other leakage emissions are considered. The emissions potentially arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport etc.) are neglected.”

In compliance with BCR Tool “Permanence and Risk Management” project holder assurance the permanence of the project activities through of the contract signed between Industrias Juan F. Secco and EJESA.

## Mitigation results

The mitigation results achieved as a result of the implementation of the Yungas project are verifiable under ISO 14064-3:2019 and in accordance with the requirements of the BCR standard.

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

Not applicable

### Stratification (Projects in the AFOLU sector)

Not applicable

### GHG emissions reduction/removal in the baseline scenario

Based on AMS-I-D: Grid connected renewable electricity generation (Version 18.0) the baseline emissions include only CO2emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid-connected power plants. The baseline emissions are to be calculated as follows:

B𝐸𝑦 =𝐸𝐺𝑃𝐽, ×𝐸𝐹𝑔𝑟𝑖𝑑,,𝑦

Where:

B𝐸𝑦 = Baseline emissions in year y (t CO2/yr)

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/yr)

E𝐹𝑔𝑟𝑖𝑑,𝑦 = Combined margin CO2 emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (t CO2/MWh). Combined margin is calculated according to TOOL07-v7.0

Step 1: Identify the relevant electricity systems.

To determine the electricity emission factors, the project's electricity system is defined by the spatial extent of power plants that are physically connected (including imports) through transmission lines that can be sent without significant transmission constraints. In this case, to the SADI.

Step 2: Choose whether to include off-grid power plants in the project electricity system (optional) Project participants may choose between the following two options to calculate the operating margin and build margin emission factor:

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

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

Option I is defined.

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

According to the data provided by CAMMESA[[1]](#footnote-1) and the "TOOL07: Tool to calculate the emission factor for an electricity system" the participation of Low-cost/must-run (LCMR) resources is less than 50%, therefore following the Flow chart below, Simple OM should be considered.

In this opportunity the ex-ante option is selected for Yungas Project, therefore:

For the simple OM, the simple adjusted OM and the average OM, the emissions factor can be calculated using either of the two following data vintages:

1. Ex ante option: if the ex-ante option is chosen, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emissions factor during the crediting period is required. For grid power plants, use a 3-year generation-weighted average, based on the most recent data available at the time of submission of the CDM-PDD to the DOE for validation.

For off-grid 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.

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

The simple OM may be calculated by one of the following two options:

(a) Option A: Based on the net electricity generation and a CO2 emission factor of each power unit; or

(b) Option B: Based on the total net electricity generation of all power plants serving the system and the fuel types and total fuel consumption of the project electricity system. Option B can only be used if:

(i) The necessary data for Option A is not available; and

(ii) Only nuclear and renewable power generation are considered as low-cost/must-run power sources and the quantity of electricity supplied to the grid by these sources is known; and

(iii) Off-grid power plants are not included in the calculation (i.e. if Option I has been chosen in Step 2).

As the Argentina´s Secretaría de Energía publish and calculate the Emission Factor following TOOL07 v7.0 the option A will be used. Under this option, the simple OM emission factor is calculated based on the net electricity generation and an emission factor for each power unit, as follows:

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The following table shows the Emission Factor Estimates made in the country; data provided by the Secretariat of Energy - Strategic Planning of the Nation[[2]](#footnote-2)

*Table 2 Operating Margin*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Operating Margin** | |  |  |  |
|  |  | 2021 | 2022 | 2023 |
| **EFGrid Simple OM** | tCO2/MWh | **0.4589** | **0.4499** | **0.4294** |
| **EG m,y sin LCMR** | GWh | 90,893 | 88,061 | 79,261 |
| **Emisiones** | tCO2 | 41,712,283 | 39,616,554 | 34,038,046 |
| **Suma control** | tCO2/MWh | 0.458914643 | 0.449876874 | 0.429444416 |
|  |  |  |  |  |
| **Weighted average EF** | **tCO2/MWh** | **0.4468** |  |  |

Step 5: Calculate the build margin (BM) emission factor

In terms of vintage data, project participants can choose between one of the following two options:

(a) Option 1 - for the first crediting period, calculate the build margin emission factor ex ante based on the most recent information available on units already built for sample group m at the time of CDM-PDD submission to the DOE for validation. For the second crediting period, the build margin emission factor should be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period;

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

Option 1 is selected for the Yungas Project

*Table 3 Build Margin*

|  |  |  |
| --- | --- | --- |
| **Build Margin** |  |  |
|  |  | 2023 |
| **BM** | tCO2/MWh | **0.0860** |
| **EG m,y** | MWh | 24,574,691 |
| **Emisiones** | tCO2 | 2,113,513 |
| **Suma control** | tCO2/MWh | 0.08600366 |
|  |  |  |
| **BM** | **tCO2/MWh** | 0.0860 |

Step 6: Calculate the combined margin (CM) emissions factor

The calculation of the combined margin (CM) emission factor (EFgrid,CM,y) is based on one of the following methods:

(a) Weighted average CM; or

(b) Simplified CM

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Therefore, option (a) Weighted average CM applies to the Yungas Project, where

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According to the tool,

The following default values should be used for WOM and WBM :

Wind and solar power generation project activities: WOM = 0.75 and WBM = 0.25 (owing to their intermittent and non-dispatchable nature) for the first crediting period and for subsequent crediting periods

Therefore, EF grid,CM,y = 0,3566 tCO2/MWh

### GHG emissions reduction/removal in the project scenario

According to the methodology ACM0002 (Version 22.0), the emission reduction is calculated as: ERy = BEy - PEy

Where:

ERy = Emission reductions in year y (tCO2e/year)

BEy = Baseline emissions in year y (tCO2/year)

PEy = Emission of the project in year y (tCO2e/year)

Project emissions

Project emissions will be accounted for using the following equation:

PEy = PEFF,y + PEGP,y + PEHP,y

Where:

PEy = Project emissions in year y (tCO2e/year)

PEFF,y = Project emissions from fossil fuel consumption in year y (tCO2/year)

PEGP,y = Project emissions from the operation of binary, instantaneous steam or dry geothermal power plants in year y (t CO2e/yr)

PEHP,y = Emission from hydroelectric power plant water reservoirs project in year y (tCO2e/year)

Project emissions due to fossil fuel consumption (PEFF,y).

No emissions are expected from the project as the project activity only involves the generation of renewable electricity from the solar power plant without fossil fuel consumption, and according to paragraph 36 of ACM0002 "for all renewable energy power generation activities, emissions due to the use of fossil fuels for the backup generator can be neglected, hence PEFF,y = 0."

Project emissions from the operation of dry geothermal, flash steam or binary geothermal power plants (PE)GP,y

The project is a solar power plant, therefore, this term does not apply and PEGP,y = 0.

Emissions from hydroelectric power plant water reservoirs (PEHP,y)

The project is a solar power plant, therefore, this term does not apply and PEHP,y = 0.

*Table 4 Estimated net GHG reduction*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **GHG emission reductions in the baseline scenario (tCO2e)** | **GHG emission reductions in the project scenario (tCO2e)** | **GHG emissions attributable to leakages (tCO2e)** | **Estimated Net GHG Reduction (tCO2e)** |
| 2024 (since 01/09/2024) | 2,110 | 0 | 0 | 2,110 |
| 2025 | 7,949 | 0 | 0 | 7,949 |
| 2026 | 7,914 | 0 | 0 | 7,914 |
| 2027 | 7,876 | 0 | 0 | 7,876 |
| 2028 | 7,833 | 0 | 0 | 7,833 |
| 2029 | 7,785 | 0 | 0 | 7,785 |
| 2030 | 7,729 | 0 | 0 | 7,729 |
| 2031 (hasta 30/11/2031) | 5,648 | 0 | 0 | 5,648 |
| Total | 54,844 |  |  | 54,844 |

Total estimated annual average 7,835 tCO2e/y

The expected project generation is summarized in the following table:

|  |  |
| --- | --- |
| **YEAR** | **EGPJ**,y  **(MWh)** |
| 2024 (from 01/09/2024) | 5,918 |
| 2025 | 22,295 |
| 2026 | 22,198 |
| 2027 | 22,090 |
| 2028 | 21,969 |
| 2029 | 21,834 |
| 2030 | 21,678 |
| 2031 (until 30/11/2031) | 15,842 |
| TOTAL | 153,824 |
| Average 7 yars | 21,975 |

# Compliance with Laws, Statutes and Other Regulatory Frameworks

SECCO has traceability of all the information mentioned in this document and has a legal and administrative area that guarantees access to and knowledge of the relevant legislation and regulations and updates of these when they occur.

SECCO is a private legal entity committed to due compliance with the laws and regulations applicable to its business, as well as to the care and satisfaction of its customers.

Considering that each sector and project has its own specificity, characteristics and technicality, SECCO carries out a decentralized regulatory control, i.e., each area involved identifies, monitors, analyses and communicates internally the regulations relevant to its function. The details of how each area carries out the above and its traceability are detailed in the internal procedure "REGULATIVE MANAGEMENT SYSTEM[[3]](#footnote-3)".

In addition to the above, Secco identify on their web site (<https://etica.resguarda.com/secco/ar_es.html>) different reporting channels (whatsapp, e-chat, e-mail and a telephone number) and an email address ([compliance@secco.com.ar](mailto:compliance@secco.com.ar)) in all generation plants and offices to make complaints, which are received by a compliance officer who guarantees their confidentiality and treatment.

# Carbon ownership and rights

## Project holder

|  |  |
| --- | --- |
| *Individual or organization* | *INDUSTRIAS JUAN F SECCO S. A.* |
| *Contact person* | *Hernan Juri* |
| *Job position* | *Administration & Finance Manager* |
| *Address* | *Rosario, Argentina.*  *Juan Pablo II 5665 (Circunvalación Ave. and Uriburu Ave. collector)* |
| *Phone number* | *+54 (0341) 409-4000* |
| *Email* | [*hjuri@secco.com.ar*](mailto:hjuri@secco.com.ar) |

## Other project participants

|  |  |
| --- | --- |
| *Individual or organization* | *Sustainable Carbon Finance LLC* |
| *Contact person* | *Alejandra Camara* |
| *Job position* | *Proposer* |
| *Address* | *CABA, Argentina*  *La Pampa 1940* |
| *Phone number* | *Landline: +541147865007*  *Cellular phone: +5491135202929* |
| *Email* | [*alejacamara@gmail.com*](mailto:alejacamara@gmail.com) |

Sustainable Carbon Finance LLC has no agreements on the credits generated during the implementation of the Yungas Project.

## Agreements related to carbon rights

Regarding carbon rights, Industrias Juan F. Secco and JEMSE / EJESA signed an agreement on the production and supply of renewable energy that specifically addresses this issue. The following is the key information required and excerpts from the agreement that verify what is stated in this document

1. *parties signing the agreement(s);*

Jujuy Energía y Minería Sociedad Del Estado (JEMSE)

Empresa Jujeña de Energía S.A. (EJESA)

INDUSTRIAS JUAN F SECCO S. A.

1. *purpose of the agreement;*

JEMSE and EJESA develop a Power Purchase Agreement (PPA) in which EJESA agrees to purchase and pay for all registered energy generated within the framework of the Proyecto Solar Fotovoltaico Distribuido de la Provincia de Jujuy. Following this, JEMSE and SECCO develop an Associative Agreement in which JEMSE agrees to assign and transfer to SECCO its contractual position in the PPA Agreement. SECCO assumes ownership of the PPA Agreement and will pay JEMSE a fee described in the third clause of the Associative Agreement under Participation Percentage concept.

1. *date of the agreement;*

28th December 2022

1. *name of the GHG project;*

Proyecto Solar Fotovoltaico Distribuido de la Provincia de Jujuy Yungas I PV Power Plant.

1. *period of quantification of GHG emission removals/reductions;*

01/09/2024 to 31/08/2031

1. *responsibilities, obligations, and rights of each of the signatory parties.*

SECCO is the exclusive beneficiary in all matters related to Green Certificates, Renewable Energy Certificates, Carbon Certificates and/or similar. See PPA Agreement-Art. 6.2 and Art. 12 in the Associative Agreement.

## Land tenure (Projects in the AFOLU sector)

Not applicable

# Climate change adaptation

SECCO is a leading company in the country and the region, with more than 80 years of experience. In its beginnings, SECCO consolidated its position in the metal-mechanic activity by repairing the drive engines of the generator sets owned by its customers and its own, being the owner of an industrial plant in constant growth and updating with the latest technology located in the city of Rosario, Province of Santa Fe. Gradually and from the change in the business conception that took place in the country, SECCO was strengthened in the field of the provision of services developing great experience, particularly in the generation of electric power and gas compression.

The great growth of the company took place at the beginning of 2001 when, due to the economic situation of the country, SECCO began to grow exponentially with the generation of electric energy through engines generated with fossil fuels.

As early as 2005, the company's executive board made clear in a board minute the importance of combating climate change. In 2008 it submitted a project to CDM that dealt with the capture of waste gases at the wellhead to generate electricity. This project was not registered for various reasons, but it was a pioneer in the development of the methodology used:

[(https://cdm.unfccc.int/Projects/Validation/DB/HIU1MR6WZ19GKZ73Y9UHXLBSQI0J2O/view.html](https://cdm.unfccc.int/Projects/Validation/DB/HIU1MR6WZ19GKZ73Y9UHXLBSQI0J2O/view.html))

Being a provider of integral solutions in power generation for the most demanding clients in the public and private sector, thanks to its technological advances and experience in the industry and hand in hand with internationally renowned brands, SECCO assembles, installs, commissions, enables, operates and maintains solar, hybrid, mono-fuel and multi-fuel power generation plants and units of high complexity capable of generating energy according to the specific requirements of each client. SECCO reaches every corner of the country, responding to diverse demands and ensuring the achievement of the expected results.

SECCO has more than 10 years of experience in Process Management for the design, construction, qualification, and operation of Power Generation Plants from renewable sources, performing from the design and engineering of the plants to the administrative management, environmental studies, commissioning and start-up of these, and in all cases developing a customized solution for each client and environmental needs.

The company has the know-how, personnel and capacity for the design, development of engineering and suppliers, construction, commissioning, operation and maintenance of photovoltaic and hybrid generation plants that meet the needs of each client.

As a background in photovoltaic, SECCO carried out the conversion project of the Piedra Negra Thermal Power Plant, which is located at 3,600 meters above sea level, incorporating a solar plant with more than 5 thousand panels and banks with lithium ion batteries for energy accumulation, in order to guarantee the reliability of the System, transforming it into the first Hybrid Power Plant (photovoltaic/storage/thermal) at altitude for an isolated system in Latin America, ensuring one of the highest percentages of availability in the market.

SECCO has more than 1,500 MW installed in more than 130 Generation Plants that generate in isolated systems or connected to the National Interconnected System (SADI) providing solutions tailored to the needs of each client with state-of-the-art and highly complex equipment. Has installed more than 50 MW in MSW Biogas Projects, more than 30 MW in substrate Biogas Projects and a hybrid plant composed of solar and thermal energy with energy accumulation to guarantee the reliability of the system. Last year, Industrias SECCO registered before the BCR Standard the "CASA La Calera, San Luis Solar Project" ID BCR-AR-131-1-001, a 20 MW photovoltaic project installed in the province of San Luis. To date SECCO is working on the completion and installation of solar energy projects for 48 MW distributed in 7 solar plants in the province of Jujuy); totalling 178MW installed in renewable energy.

| CT NAME | OBJECT | SOURCE | CLIENT | MW INSTALLED | YEAR PEM |
| --- | --- | --- | --- | --- | --- |
| CT LA CALERA | OWN CT WITH O&M | SOLAR | CEMENTOS AVELLANEDA S.A. | 20 | 2023 |
| CT JEMSE | OWN CT WITH O&M | SOLAR | EJESA | 48 | 2023 |
| CT SAN MARTIN NORTH III DI | OWN CT WITH O&M | BIOGAS MSW | CAMMESA | 4,2 | 2023 |
| CT SAN MARTIN NORTH III AGC | OWN CT WITH O&M | BIOGAS MSW | CAMMESA | 7,5 | 2023 |
| CT VARIOUS | RENTAL WITH O&M | BIOGAS SUST. with Heat Recovery | VARIOUS | 23 | 2021/2022 |
| CT BLACK STONE | OWN CT WITH O&M | HYBRID (SOLAR + STORAGE + THERMAL) | EJESA | 12,4 | 2021 |
| CT SAN MARTIN NORTE III D | OWN CT WITH O&M | BIOGAS MSW | CAMMESA | 7,5 | 2021 |
| CT SAN MIGUIEL | RENTAL WITH O&M | BIOGAS MSW | TECSAN | 5,2 | 2021 |
| CT ENSENADA | OWN CT WITH O&M | BIOGAS MSW | CAMMESA | 7,5 | 2019 |
| CT BIOGAS AVELLANEDA | OWN CT WITH O&M | BIOGAS SUST. with Heat Recovery | CAMMESA | 7,5 | 2019 |
| CT KDM | O&M | BIOGAS MSW | KDM S.A. | 24 | 2012 |
| CT EDAM | O&M | BIOGAS SUBSTRATES | EDAM S.A. | 12,7 | 2012 |

In line with the above, in 2019 the Code of Ethics and Conduct was implemented, which expressly regulates SECCO's commitment to the implementation of best environmental practices in the different sectors in which it operates, as well as the continuous improvement of environmental protection, safety and hygiene systems to obtain results of lower environmental impact as an integral part of the company's operations strategy. The Code of Ethics is part of the Company's Integrity Program, which is in force and enforceable for all employees and internal officers, suppliers, distributors, service providers, consultants, among others. It is publicly available and can be accessed from the web page[[4]](#footnote-4) .

The above actions of the company contribute to achieving the objectives set out in the Second Adaptation Communication of the Argentine Republic[[5]](#footnote-5) and are in line with the same, where "35 priority adaptation measures are identified in seven sectors of the country to address the different territorial, socioeconomic and environmental.

# Risk management

The Environmental Impact Assessment (EIA) was carried out by independent experts and made it possible to analyse the type, magnitude, and complexity of the project and its relationship with 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.

The EIA was presented at the beginning of 2019 and involved the Identification and Characterization of Environmental Impacts, Risk Analysis and Environmental Sensitivity for the preparation, construction, and operation stages.

In April of the same year, the Secretariat of Environmental Quality approved the Feasibility of the project under Resolution No. 141/2019-SCA. Finally, in March 2023, the current scope of the project was approved by Resolution N°096/2023-SCA, in which one the name change from Lavayén to Rodeito is approved, the name by which the communities know the area.

Chapter 6 of the EIA studies the Identification and Characterization of Environmental Impacts in all stages of the project.

The technique called Delphi Method was applied, which allows obtaining a table of Importance of the different environmental components considered for the description of the existing environmental situation, according to the importance or merit that they present to be "protected or conserved" from the impacts of the project or activity.

In conclusion, for the Yungas Project, the action determined as a negative impact was site preparation for construction phase. In all cases, land use and employment were the environmental components with the greatest positive evaluation.

The Yungas Project is considered environmentally and socially viable.

Chapter 7 establishes the Measures Mitigation Plan that arise in response to the negative impacts that were detected.

Internally SECCO has implemented an Integrity Program, which can be viewed on the website <https://www.secco.com.ar/> composed of:

* Code of Ethics and Conduct
* Management Support
* Prevention of illegal activities with the public sector
* Training policy
* Whistleblower protection
* Whistleblower channels and ethics hotline
* Due diligence to business partners
* Customer due diligence
* Compliance Officer
* Complimentary gift policy

## Reversal Risk

Risk and permanence tool version 1.1 was used for identifying potential financial risks, since environmental and social risks were considered in the EIA.

To consider the risk of increased investment and/or maintenance budget, sensitivity analyses were made to the economic model.

Regarding minimizing reversal risks, it should be considered the term of the current contract is 20 years from the Commercial Qualification of the Photovoltaic Plant (PPA-Art 3.3). And the contract also provides for early exit clauses that consider the payment of compensation and the mechanism for calculating the Asset Price in the event of reversion or upon termination of the contract (PPA-Cláusula Décimo Primera)

# Sustainable development safeguards (SDSs)

The project is in accordance with Sustainable Development Safeguards SDSs Tool version 1.1.

It is important to highlight the land is property of the province of Jujuy, in Chalican and Rodeito sites, the main use of the land is agricultural (mainly sugar cane) but currently both are in disuse, presenting an herbaceous cover.

Both sites has immediate access through RN°34 and due to its proximity and being in the same geographical region (Yungas), the impact analysis was carried out jointly.

As evidence is attached the EIA, it contains details of what was analyzed in Chapter 5. Environmental Risk and Sensitivity Analysis and in Chapter 6. Identification and Characterization of Environmental Impacts.

The Delphi Method and Conesa Fernández Vítora methodology was applied.

*Table 5 Yungas Project Environmental characterize impacts*

Tabla

Descripción generada automáticamente

The following image shows the impacts classification according to the EIA for Chalican and Rodeito sites.

*Figure 10 Rodeito project environment impacts*

Gráfico, Gráfico de cajas y bigotes

Descripción generada automáticamente

The negative impacts correspond to the preparation of the site related to the change in land use and removal of vegetation and execution phase. From the positive point of view, Energy Generation action receive the highest rating. This is related to the employment component and the use of a natural resource for energy generation.

*Figure 11 Chalicán project environment impacts*

Gráfico

Descripción generada automáticamente

An Environmental Management Plan (EMP) was prepared whose objective is to ensure the correct environmental management of the different actions during the construction, operation and closure or dismantling phases. In this way, the impact in the environmental quality of the receiving environment of the undertaking, in its natural and socioeconomic aspects, will be avoided.

The components: air, biotic, perceptual, soil, water resources, impacts on the Socio-Economic Environment and Territorial Development, road and service infrastructure have a detail EMP (Chapter 8 EIA).

The EIA involved both in-house and survey tasks in the area. Regarding socio-economic aspects, the impact of the project was analysed on: biodiversity and ecosystems, cultural heritage, involuntary resettlement, native communities and erosion risk. The area of Direct Influence was even taken into account (covering the area where each solar plant will be installed and the immediately adjacent areas) and the Area of Indirect Influence (covering the Santa Clara, San Pedro, Chalicán and Fraile Pintado area)

For the analysis, the methodology proposed by Hernández (2013) was adopted and as can be seen, the Yungas Project resulted in a low rating, without the need to implement mitigation measures or management plans.

*Table 6 Socio-economic aspects*

Tabla

Descripción generada automáticamente

# Stakeholder engagement and consultation

The stakeholders meeting was conducting on November 3 2023 where the "Distributed Solar Photovoltaic Project of the Province of Jujuy" and specific details of the Yungas project were described.

The consultation process is described below:

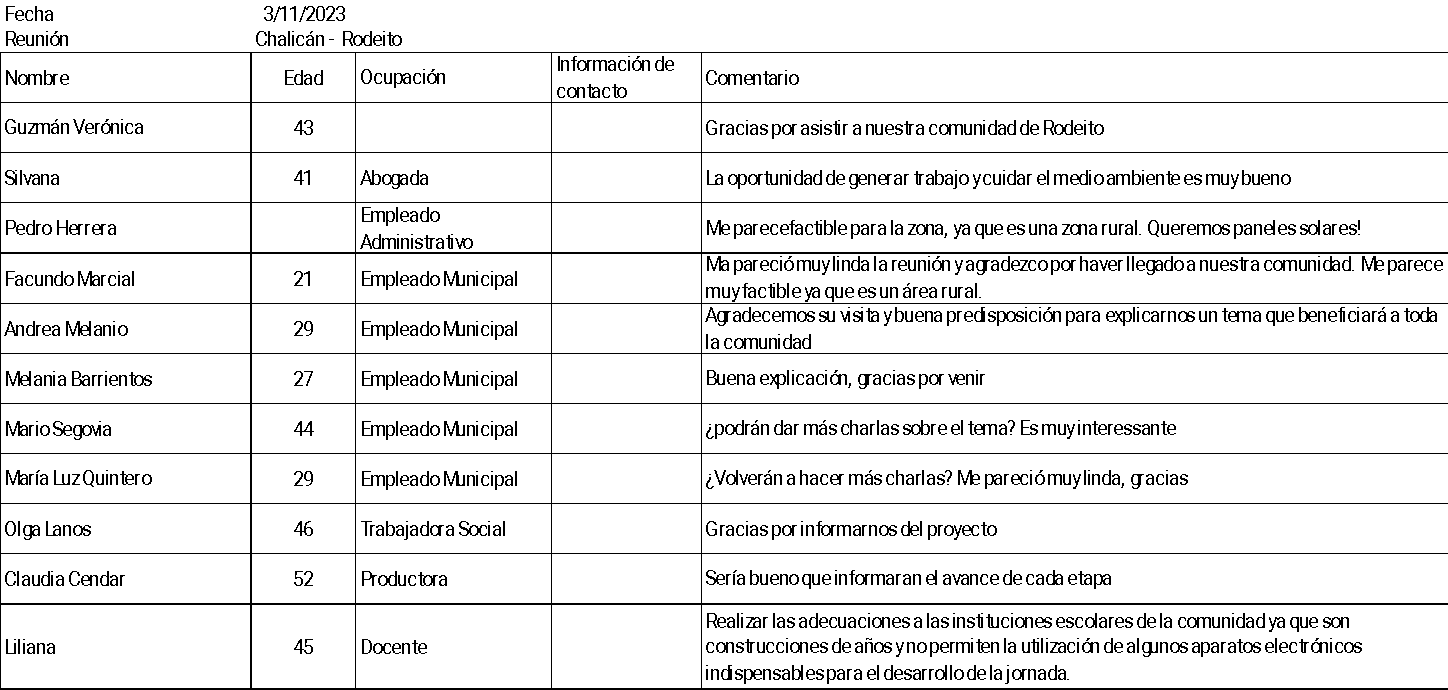
1. the scope of stakeholder consultations: local authorities, media, schools educational authorities in the area and the community.
2. the number of stakeholders consulted: 30 people attended the meeting
3. the means used to invite interested parties to participate in the consultations; The invitation was sent to the Mayor (Intendente) of the municipality of Rodeito and Fraile Pintado (Chalican) and was published in the local newspaper "El Tribuno" and "El Pregón" on 10/27/23, 10/28/23 and 10/30/23.
4. It was also published on social networks such as Facebook, JEMSE's website and Linkedin, Facebook of the Government of Jujuy and the graphic invitation was also placed in the House of Culture, Arturo Zabala Hospital and the Revenue Department.
5. The information that was made available to stakeholders during the consultation process: The project presentation (characteristics, execution deadlines, generation), its coherence with the provincial objectives, the EIA and its results. It was also communicated that the project would apply to obtain carbon credits, and a general explanation about this.
6. the meetings, workshops and other processes developed in the framework of the stakeholder consultation: The contact email contacto@secco.com.ar was made available during the stakeholders meeting difussion where they could send questions or doubts about the project.

For evidence regarding to invitations, meeting, assistance and opinion survey see the folder STAKEHOLDERS MEETING.

## Summary of comments received

The comments received in the opinion survey are transcribed below.

*Table 7 Summary of comments received*



## Consideration of comments received

Unfortunately, no participant left their contact information or sent the same comment to the postal address, so it was impossible to respond formally to the suggestions or questions. In any case, after the presentation, the concerns were discussed between the interested party and the representatives of EJESA and SECCO.

# Sustainable Development Goals (SDGs)

The Tool for Determining the Contributions of GHG Projects to Achieving the Sustainable Development Goals (SDGs) proposed by BioCarbon was used as a support and basis for the identification of the SDGs on which the project has an impact and its rationale. In turn, SDG 7 Affordable and Clean Energy and SDG 13 Climate Action were completed.

All the Sustainable Development Goals that are linked to the Yungas Project, their description and objectives are specified below. It should be clarified that these were not incorporated in the Tool proposed by BioCarbon due to their specificity and their specific framework for action in the surrounding community.

* 1. SDG 5: Gender equality.

Searches for permanent personnel will not have any clarification on gender preference and the estimated salary for such functions is defined independently of who occupies the position.

As part of the Secco policy described above, during the construction and assembly phase an attempt was made to employ women. The search for personnel was open to both genders; no CVs were received from women who met the technical requirements. If a new search is to be carried out, it will be under the same modality.

Secco believes that the Argentina northern region preserves the idiosyncrasy and customs of the indigenous peoples more deeply than in the rest of the country and this is the reason why it was difficult to incorporate women into this kind of jobs.

Objective: to increase the participation of women involved in the Yungas Project.

* 1. SDG 7: Affordable and clean energy

The project generates up to 21.975GWh/year that are incorporated into the country's energy matrix.

Objective: to maintain photovoltaic generation following good operation and maintenance practices.

* 1. SDG 8: Decent Work and Economic Growth

The project generated more than 80 temporary jobs during construction and assembly, and during operation at least 2 people from Jujuy are employed on a stable basis for operation and maintenance.

Due to the socio-economic characteristics of the Argentina northern region, it is important that Secco monitors and ensures that all employees hired by Secco and third parties are under Argentine labour law. For the same reasons, it is essential to apply Secco's procedures on workplace safety, seeking a rate of zero fatal accidents. Thus, fulfilling goal 8.8.

Objectives:

Seeking zero fatal accidents.

Ensure that all employees hired by Secco and third parties are under Argentine labour law.

Prioritize the hiring of local workers.

* 1. SDG 10 Reduced inequalities

In order to guarantee equal opportunities, there will be at least one meeting per year with the community and its representatives to record the needs raised, which will be considered internally and incorporated into SECCO's budget to be executed in the following year.

Ensure compliance with the REGULATIVE MANAGEMENT SYSTEM and that the reporting channels opere properly (fulfilling goal 10.3).

Objectives:

Hold an annual exchange meeting with the community and its representatives.

Avoid causes for complaints and, in the event of receiving them, give the treatment established in the procedure.

* 1. SDG 13: Climate Action

Up to 7,835 tCO2/a will be reduced.

Objective: to maintain photovoltaic generation following good operation and maintenance practices.

# REDD+ Safeguards (For REDD+ projects)

Not applicable

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

Not applicable

# Grouped projects (if applicable)

According to BCR STANDARD and methodologies Yungas project is a clustered project for the aera known as Yungas in Jujuy Provincie.

# Other GHG program

Not applicable

# Double counting avoidance

# In compliance with the Biocarbon Registry Standard version 1.3, 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.

# According to section 7 of the ADC Tool, double counting is defined as counting a greenhouse gas mitigation result in tonnes of CO2 in the following scenarios:

# (a) a ton of CO2e is counted more than once to demonstrate compliance with the same GHG mitigation goal;

# (b) one ton of CO2e is counted to demonstrate compliance with more than one GHG mitigation goal;

# (c) a ton of CO2e is used more than once to obtain remuneration, benefits, or incentives;

# (d) one ton of CO2e is verified, certified, or accredited assigning more than one serial to a single mitigation result.

# As of the date of preparation of this document, this project has not issued any carbon credits, therefore it does not meet any of the conditions mentioned in the ADC Tool for a double counting situation to be considered to have been generated. However, SECCO undertakes not to commit any of the parameters defined above as double counting

# In turn, section 8.4 of the ADC Tool defines that if the project owners wish to sell their carbon credits to the CORSIA program, a Host Country Attestaion (HCT) must be presented certifying that the host country is aware of what has happened with this project and that it will not consider the CO2 reductions of the project in the preparation of the Nationally Determined Contributions (NDCs) reports within the framework of the Paris Agreement. The sole owners of the Carbon credits to be issued by this project will be the exclusive property of SECCO.

# Monitoring plan

Project´s monitoring plan is in accordance with the BCR Tool. Monitoring, Reporting and Verification (MRV) version 1.0 and with PROCEDIMIENTO DE MONITOREO Y CONTROL DE LOS PS FV JUJUY development for Secco for any photovoltaic project in Jujuy province (attach as evidence).

The Monitoring Plan developed was based on:

* IEC 61724 PV Plant Performance Standard.
* Best Practice Guidelines / Version 5.0 – Solar Power Europe O&M Report.
* PVsyst – Simulation report.

Secco has all its generation plants linked to the SCADA system and operated from the Operations Center (COG) located in Rosario that operates 24 hours a day, seven days a week.

The Plan contains the following key scope:

Roles and responsibilities of the COG operators

Control and monitoring of all PV PS parameters.

Reporting of alarms, events and faults.

Presentation of reports on generation, performance and events that occur.

Due to the project participant's choice of an ex-ante emission factor, the most important variable to monitor is the project's electricity generation. It will be measured according to the national rules and regulations for wholesale market participants. SMECs will be installed at the distribution center in medium voltage in each site; protection relays in medium voltage cells (at SECCO's distribution center) and multi-meters (at the solar farm's transformation centers) in the medium voltage cells.

All meters will have records and generation data ready to be downloaded remotely, the information will be acquired at programmable intervals ranging from a minimum to a maximum of one hour.

The information is supported by the operational team (COG). Data is included in an Excel spreadsheet for emission reduction calculations on a monthly basis. All data collected as part of the monitoring process is archived electronically and retained for at least two years after the end of the last crediting period. After that period the information will be stored in backup copies that can be reconstructed if necessary.

|  |  |
| --- | --- |
| Parameter | SDG 5 Gender equality |
| Unit | % of women involved in the Yungas Project |
| Description | Searches for stable personnel without any clarification of gender preference and the estimated salary for such functions is defined independently of who occupies the position. |
| Source | Human Resources of Juan F. Secco Industries |
| Purpose of monitoring | Achieving SDG 5 |
| Monitoring frequency | Annual |

|  |  |
| --- | --- |
| Parameter | SDG 7: Affordable and clean energy |
| Unit | MWh/year |
| Description | Amount of net electricity generation supplied by the project plant/unit to the grid in the year. |
| Source | SMEC Class 0.2 meters |
| Purpose of monitoring | Calculation of reference emissions.  Billing per MWh generated. |
| Monitoring frequency | Continuous measurement |

|  |  |
| --- | --- |
| Parameter | SDG 8: Decent Work and Economic Growth |
| Unit | Occupational injuries/year  Local People hired/year |
| Description | Seeking zero fatal accidents.  Ensure that all employees hired by Secco and third parties are under Argentine labour law.  Prioritize the hiring of local workers. |
| Source | Human Resources of Juan F. Secco Industries |
| Purpose of monitoring | Fulfillment of SDG 8. |
| Monitoring frequency | Annual |

|  |  |
| --- | --- |
| Parameter | SDG 10 Reduced inequalities |
| Unit | Meeting/year  Complaints/year |
| Description | Hold an annual exchange meeting with the community and its representatives.  Avoid causes for complaints and, in the event of receiving them, give the treatment established in the procedure. |
| Source | Human Resources of Industrias Juan F. Secco |
| Purpose of monitoring | Fulfillment of SDG 10. |
| Monitoring frequency | Annual |

|  |  |
| --- | --- |
| Parameter | SDG 13: Climate Action |
| Unit | tCO2/year |
| Description | Maintain photovoltaic generation following good operation and maintenance practices. |
| Source | Chief Operating Officer, Juan F. Secco Industries |
| Purpose of monitoring | Fulfillment of SDG 13. |
| Monitoring frequency | Annual |

|  |  |
| --- | --- |
| Parameter | EGfacility,y |
| Unit | MWh/year |
| Description | Amount of net electricity generation supplied by the project plant/unit to the grid in the year. |
| Source | SMEC Class 0.2 meters |
| Purpose of monitoring | Calculation of reference emissions.  Billing per MWh generated. |
| Monitoring frequency | Continuous measurement  In cases where the electricity meters are regulated (as in the case of the Yungas Project), the electricity meter will be subject to regular maintenance and testing as stipulated by the meter supplier and/or according to the requirements established by the grid regulator or national requirements. The calibration of the meters, including the frequency of calibration, shall be in accordance with national standards or requirements set by the meter supplier or requirements set by the grid operators. The accuracy class of the meters must be in accordance with the meter supplier's stipulation and/or according to the requirements established by the network operators or national requirements. |

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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.

1. https://cammesaweb.cammesa.com/informe-anual/ [↑](#footnote-ref-1)
2. https://datos.gob.ar/dataset/energia-calculo-factor-emision-co2-red-argentina-energia-electrica/archivo/energia\_b77a21bf-a363-46e6-be5d-d7e8021940a5 [↑](#footnote-ref-2)
3. Spanish version: https://secco.com.ar/files/codigo.pdf

   English version: https://secco.com.ar/files/codigo-english.pdf [↑](#footnote-ref-3)
4. [https://www.secco.com.ar/?gclid=CjwKCAiA5sieBhBnEiwAR9oh2gBW2GokgnZJGAxE14BhMTayzV8mfaJW8A9JxDNNHu\_hkh01vvckaRoCs0gQAvD\_BwE#!/company#values](https://www.secco.com.ar/?gclid=CjwKCAiA5sieBhBnEiwAR9oh2gBW2GokgnZJGAxE14BhMTayzV8mfaJW8A9JxDNNHu_hkh01vvckaRoCs0gQAvD_BwE#!/empresa) [↑](#footnote-ref-4)
5. https://www.argentina.gob.ar/ambiente/cambio-climatico/contribucion-nacional [↑](#footnote-ref-5)