CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM (CDM-PDD)
Version 03 - in effect as of: 28 July 2006

CONTENTS

SECTION A. General description of project activity

A.1. Title of the project activity:

30MW Solar PV - Monte Plata
Version 4
26/10/2012

A.2. Description of the project activity:

The project activity consists in the installation of a 30MW photovoltaic Solar Energy Farm, which is considered as a sustainable source of electricity generation. There are no emissions of Green House Gases (GHS) associated with this kind of energy generation.

The project activity is developed by Electronic J.R.C., S.L.R., a company from the Dominican Republic. The proposed project activity will be the largest solar power plant in Latin America, and will generate, according to the UNEP Green Jobs Report the range of jobs that will be created throughout the lifetime of the project activity oscillates between 208 and 330. Therefore the Project Participant has estimated that during the construction stage, the project will generate around 170 jobs and during the operational stage at least another 36 permanent positions [1]. With the proposed project activity the Dominican Republic emphasizes its commitment of reducing its GHG emissions and at the same time also decreases its dependence on fossil fuels and related imports.

By the development of the proposed project activity there will be a real and measurable contribution to the sustainable development of the Dominican Republic ("**DomRep**") in the following aspects:

- The project activity is in compliance with all the national environmental initiatives:
  - The "Ley No. 57 – 07 de Incentivo a lasEnergías Renovables y Regímenes Especiales" promotes the creation of new renewable energy projects in the country, in order to incentive the regional, rural and agro industrial economic development. The Dominican Republic has no meaningful fossil fuel sources, which increases the dependence of foreign sources of energy, having a direct impact on the countries balance of foreign trade.
  - The project activity is in compliance with all the quality conditions established in the "Ley General de Electricidad (125-01)".
- The proposed project activity will produce renewable energy at a production price that is independent from the worldwide market fluctuations and risks for fossil fuels:
  - Having an operative, affordable, reliable and financially stable national energy production matrix is essential for any economic development of any country. Based on a reliable national energy generation matrix, stable supply and affordable energy prices, companies get more confidence and security with regards to their investments, especially in the productive or energy intensive

[1] According to the information published by the United Nations Environmental Programe: Green Jobs: Towards decent work in a sustainable, low carbon world, table II 1.7 Estimated employment per megawatt, page 102.

sectors. This leads to the creation of more business opportunities and to increased GDP.

- During the past three years, Dominican Republic GDP has presented a continuous growth rate of 5.33[2] meanwhile the electricity sector presented a continuous growth rate of 5.85%[3]. This means that the electricity demand is growing even faster than the economic activity of the country and new energy sources are needed. If the present trend continues, the most of the new installed capacity additions will be with fossil fuel powered power plants, i.e. diesel aggregates, and fuel oil. This situation will increase the instability of the industrial platform of the country.
- Having an operative, affordable, reliable and financially stable national energy production matrix in addition is essential for any social development of any country. Inhabitants want to rely on stable and affordable energy supply services in order to consume electricity for their basic needs. Electricity in the Dominican Republic is rather expensive, as the generation sector is relying on many expensive or outdate power plants with high operational costs. The willingness of inhabitants to pay for expensive electricity in the Dominican Republic generally is low and hence any price stabilization based on renewable energy enables to bring down the electricity tariffs also for private customers in a medium term. By that the willingness of consumers to pay the electricity bills would increase, which again would permit the sector to provide even cheaper, more reliable and stable power supply, as more means can be re-invested into the entire generation and transmission or distribution system. This positive feedback on long-term supports the development of a cheaper, cleaner and more efficient electricity sector where electricity is affordable to private consumers.

- Employment creation:
  - As mentioned before, during the construction stage of the project activity, around 170 new employment sources will be created; during the operation of the power plant, around 36 employments are expected. Also, there is no previous experience of this kind of technology to be installed in the country, hence transfer technology and knowledge to the local technicians and experts will take place on subjects as implementation as well as operation.
- Technology and Knowledge transfer:
  - All the components used for the development of the solar PV plant will be "state of the art" technology.
  - Not only the solar panels will be most modern, also the control systems and the (remote) monitoring of the entire facility are most modern and developed especially for the purpose of solar power projects[4].
  - Most remarkable is the modern tracking system, which ensures that the solar panels face optimal sun radiation. The tracking system ensures that the panels can

[2] Source: CIA - World Fact Book: Dominican Republic, available at: https://www.cia.gov/library/publications/the-world-factbook/geos/dr.html, accessed on 8/06/11

[3] Figure elaborated with data supplied by the National Energy Comission (CNE, commission Nacional de Energía)

[4].The equipment to be installed will produce the energy with the quality established by the National Interconnected System, according to the "Ley General de Electricidad" and the "Reglamento de la Ley 125-01" and Reglamento de la Ley 57-07".

be turned around an axis optimizing the radiation received from the sun throughout the day.
    - Transfer of knowledge and capacity building will need to take place as part of the project activity. Extra efforts and expenses need to be undertaken to train new staff and technicians and to hire international experts for the capacity building as well as the O&M activities during operation of the solar PV plant. Also the supply chain of any spare parts is more complex and time consuming, as neither specialized solar energy industry nor manufacturers are domiciled in the Dominican Republic.
- Environmental Impact:
    - All electricity that is being generated by the Solar PV Farm is delivered to the national interconnection grid and will displace electricity that has some GHG emissions associated, proven by the emission factor calculations later on. The project activity basically consists in the electro-chemical transformation of the solar radiation (photons) into electric energy. No other by-products are produced during operation of the project activity.
    - The environmental impact, compared to fossil fuels plants that produce the same amount of electric energy, is negligible. There are no negative impacts to the underlying water deposits and the impacts to local bird species is minimal[5].
    - The site where the project activity will be established was used mainly for agricultural activities; hence no relocation of local communities or individual households will take place and no forestation takes place. A detailed explanation of all the Environmental Impact Assessment and the corrective actions can be found in section D.

Based on the Solar Irradiation Study performed by "M&A Ingeniería, C. por A."[6], an annual irradiation hiding the solar panels of 2,088 kWh/m^2 has been determined.

Considering these conditions, the project is expected to deliver an annual average of nearly 44,727 MWh of electricity to the National Electric Interconnected System ("**SENI**" by its name in Spanish: "Sistema Eléctrico Nacional Interconectado"). Therefore a total of about 3,000 individual structures (units) will be installed, each one of them equipped with approx. 46 solar panels (modules) of approximately 220 W_p, each, which together will composite a total maximum capacity of 10 kW per structure. The total area dedicated to the project activity is about 974,391 m^2, which is privately owned by the project participants[7]. The final module manufacturer has not been chosen yet and hence the exact amount of structures, panels and Watt_peak (power) per module remains subject of small potential variations.

A.3. Project participants:

The project is developed by the Electronic J.R.C., S.R.L. as principle project owner.

[5] The details of the environmental affectations are stated in the "Environmental Impact Assessment", available to the DOE during the validation process.

[6] Solar Irradiation Study is available to the DOE during the validation process.

[7] As stated in the Land Purchase Agreement, dated September 3rd, 2010.

Name of Party involved (*) ((host) indicates a host Party))	Private and/or public entity(ies) project participants (*)(as applicable)	Kindly indicate if the Party involved wishes to be considered as project participant (Yes/No)
Dominican Republic (Host)	Electronic J.R.C., S.R.L (private)	No
Switzerland	Foundation myclimate – The Climate Protection Partnership (private)	No
United Kingdom of Great Britain and Northern Ireland	Think Carbon GmbH (private)	No
(*) In accordance with the CDM modalities and procedures, at the time of making the CDM-PDD public at the stage of validation, a Party involved may or may not have provided its approval. At the time of requesting registration, the approval by the Party(ies) involved is required.		

A.4. Technical description of the project activity:

A.4.1. Location of the project activity:

A.4.1.1. Host Party(ies):

Dominican Republic

A.4.1.2. Region/State/Province etc.:

Monte Plata

A.4.1.3. City/Town/Community etc.:

Cruce de Boronga

A.4.1.4. Details of physical location, including information allowing the unique identification of this project activity (maximum one page):

The Project Activity will be installed in the parcels No. 41, 41 - Sub – 24, 41 – Sub - 44, all of the part of the Distrito Catastral. No. 64 in the Cruce de Boronga sector, municipality and province of Monte Plata.

The general project location can be demarcated by the following rectangle[8] (coordinates: UTM WGS84, Zone 19Q):

416610E; 2080571N
416615E; 2080597N
416694E; 2080564N

[8] The detailed polygon coordinates are available to DOE for validation purposes.

416497E; 2080790N [9]

The province of Monte Plata is located in the south-eastern region and was created in 1982 by dividing the province of San Cristóbal. Its name already hints at the province's capital. Monte Plata is characterized by a fertile soil, luscious vegetation, mountains and a number of rivers, streams and water springs. With a total surface area of 2,632.4 km², the province borders on Santo Domingo to the west and, in the north, on the provinces of Sánchez Ramírez, Duarte and Samaná; San Pedro de Macorís lies to the south and the provinces of San Cristóbal an Monseñor Nouel are to the east.

In the next satellite image we can clearly see the physical delimitation of the project activity enclosed in the yellow polygon; all the structures will be installed within these limits.

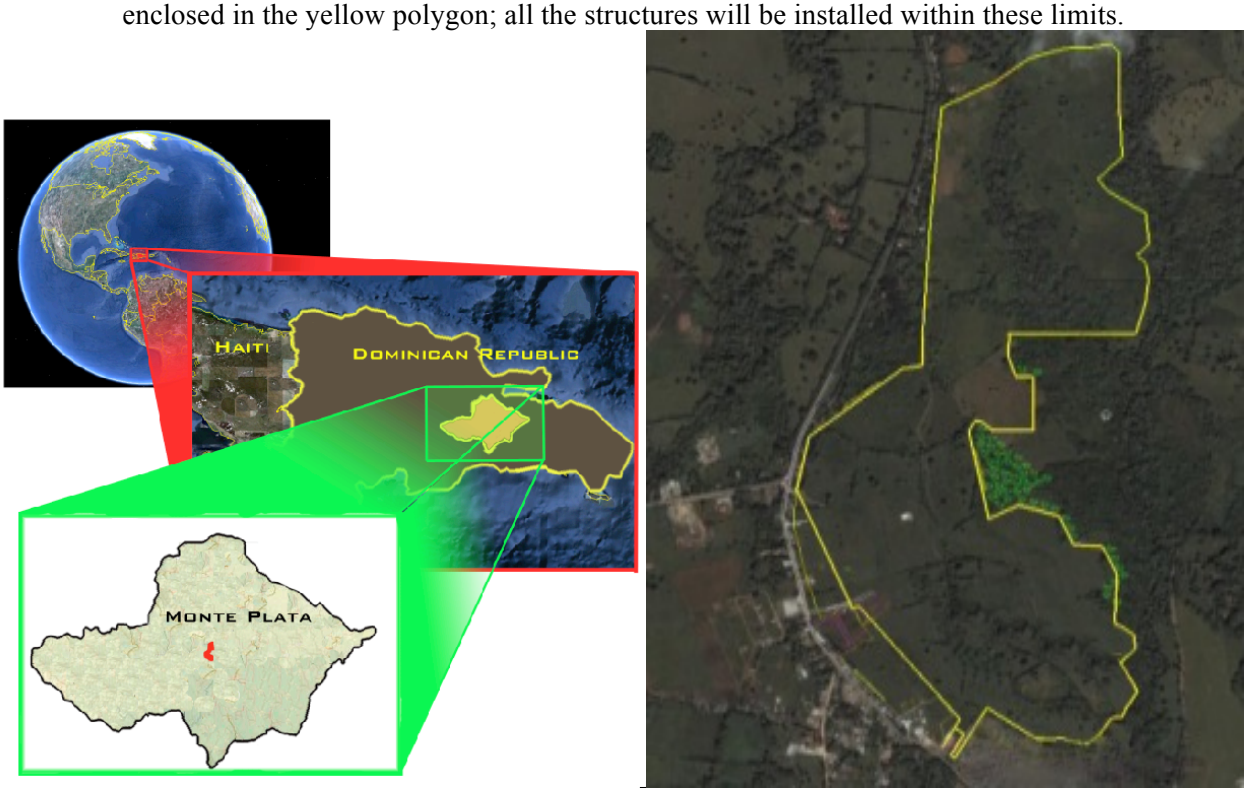


Figure 1: Macro and Micro location of the Project Activity

A.4.2. Category(ies) of project activity:

The Project Activity falls into:

- Scope: 1
- Sectoral scope: Energy Industries – Renewable Sources
- Project Activity: Grid connected electricity generation by renewable sources

A.4.3. Technology to be employed by the project activity:

[9] As mentioned in the *Provisional Concession* (from the Spanish "Concesion Provisional",) available to DOE during validation

As mentioned in the section A.2, the proposed project activity consists in the electro-chemical conversion of solar radiation (photons) into electric energy. With this kind of electricity generation, no other by-products are generated during the process. The only natural and sustainable input for the electricity generation is the solar radiation. All the technology for the solar panels and inverters will be imported from Annex 1 countries. The labour for construction and operation of the facilities will be mostly locally hired. It is important to mention that all the installed equipment will be new and no transfer of equipment from previous facilities will occur.

Scenario prior the implementation of the project activity.

Prior the implementation of the proposed project activity, the continuation of the business as usual will persist. A detailed explanation about most recent addition of power plants to the National Grid is shown in Table 3 of the section B.4. The business as usual will most likely consist in the installation of a fossil fuel power plant. The proposed project activity is a "First of its Kind" and will not continue with the business as usual practices in Dominican Republic.

Scope of activities / measures implemented with the project activity.

The installation of the proposed project activity considers installation of three thousand individual units, each one equipped with about 46 photovoltaic modules. The units are installed over one axis solar tracking systems, inverters and transformers. Basically the photovoltaic modules collect the solar irradiation and transform it into direct current (DC). Subsequently the inverters "alternate" the current (AC); finally the transformers increase the tension to transmission values at the point of common coupling (PCC) in order to deliver the energy into the SENI.
The photovoltaic solar generation with a one axis tracking system is more efficient than the steady systems without tracking system [10].

For the project activity, the following equipment is expected to be installed:

- 3,000 modular units, each equipped with.46 modules (panels) and with a dual axis solar irradiation tracker
- PV Panels: Ningbo, approximately 220 Watt_peak
- Inverter: SMA Tripower 12000 TL
- Substation: Siemens.

The final technical details and nominal specifications will be available once the financial closure takes place.

The load factor and efficiency of the power plant has been calculated through a simulation of the climatic and sun radiation conditions of the project site. The overall performance ratio of the power plant is 69.2%, with an annual amount of 44,727 MWh delivered to the grid[11].

[10] Data and the technical references about the equipment to be installed will be available to the DOE at the validation and will be confirmed once the financial closure takes place.

[11] The simulation parameters and the simulation output are available to the DOE for validation purposes.

The monitoring procedures and the electricity quality delivered to the grid, will be according the national standards, as described in the "Reglamento de la Ley 125-01" and Reglamento de la Ley 57-07".

For the proposed project activity the operational lifetime is expected to be over the 25 years, as mentioned in the "Study of costs of renewable energy" of the Fraunhofer Institute for Solar Energy Systems ISE.

Baseline scenario

As identified and detailed in the section B.4, the baseline scenario for the project activity is defined as the total amount of energy generated by the solar power plant, that otherwise, in the absence of the project activity would be supplied by other fossil fuel based power plants.

For the proposed project activity the baseline scenario and the scenario prior the implementation of the project activity is the same, therefore, according to the "Guidelines for completing the CDM-PDD"[12], there is no need to describe any other scenarios.

As reflected in the build margin calculations, during the past ten years, the electric grid in Dominican Republic grew almost 30%, however, only 3% of the total growth was accounted with renewable electric power plants (hydroelectric). The other 27% corresponded to the installation of fossil fuel power plants (thermoelectric and combined cycle). Therefore, following the expansion trend of the past decade in the Dominican Republic electric sector, in the absence of the proposed project activity the most likely scenario will be the installation of a hydropower plant of less than 1 MW and the installation of a fossil fuel power plant of 29 MW.

A.4.4. Estimated amount of emission reductions over the chosen crediting period:

The expected annual emission reductions are as follows:

Years	Annual estimation of emission reductions in tons of CO_2e
2013 (June – Dec)	17,065
2014	29,254
2015	29,254
2016	29,254
2017	29,254
2018	29,254
2019	29,254

[12] EB 41 Report, Annex 12.

2020	29,254
2021	29,254
2022	29,254
2023(Jan - May)	12,189
Total estimated emission reductions (tons of CO_2e)	292,540
Total number of crediting years	**10**
Annual average over the crediting period of estimated reductions (tons of CO_2e)	**29,254**

Note: According to the methodology ACM0002 V.13.0.0, no fugitive emissions are considered for the calculation.

A.4.5. Public funding of the project activity:

No public funding is considered for the project activity.

SECTION B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the project activity:

The approved baseline and monitoring methodology applied to the project activity is the:

- ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", Version 13.0.0, valid from May 11th 2012 onwards.

Also for the documentation of the Project Activity, the following tools were followed:

- Tool to calculate the emission factor for an electricity system – Version 02.2.1[13]
- Tool for the demonstration and assessment of additionality - Version 06.1.0[14]

Because the project activity relies on the generation of electricity through the electro-chemical conversion of solar radiation, no associated emissions are generated during the operation, so there will be no leakage emissions considered.

B.2. Justification of the choice of the methodology and why it is applicable to the project activity:

The methodology ACM0002 V.13.0.0 is applicable to grid-connected renewable power generation project activities that:

a) Install a new power plant at site, where no renewable power plant was operated prior to the implementation of the Project Activity.

[13] Valid from September 29th 2011 onwards, EB 63 Annex 19

[14] EB 65, Annex 21, 25th of November 2011.

b) Involve capacity addition.
c) Involve a retrofit of an existing plant.
d) Involve replacement of an existing plant.

Also the Project Activity should meet the following condition:

- The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydropower plant/unit, wind power/plant unit, geothermal power/plant unit, wave power/plant unit or tidal power/plant unit.

The proposed project activity consists out of the installation of a photovoltaic solar power plant at a site where hasn't been any previous non-renewable nor renewable power generation plant. The solar PV farm moreover is adding capacity to the National Dominican Republic Grid and hence fulfils the applicability criteria of the ACM0002 V.13.0.0.

Also the proposed Project Activity doesn't involve switching from fossil fuels to renewable energy sources at the site of the Project Activity, so the base line can be identified as described in section B.4.

All necessary historical data for making the calculations, as established in the ACM0002 V.13.0.0 and in the different tools mentioned within the methodology, is publicly available at different government institutes and entities. The geographic and system boundary can be clearly identified.

Regarding the "Tool to calculate the emission factor for an electricity system" V 2.2.1, this tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity, i.e. where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).

Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants.
In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.

For the proposed project activity, the tool is applicable because:

a) It is needed to calculate the OM, BM and CM emission factor of the national electric grid in order to determine the total emission reductions generated by the project activity.
b) The proposed CDM project is developed only in the Dominican Republic.

B.3. Description of the sources and gases included in the project boundary:

The project boundary is defined as the spatial extent of the project activity, in which all the mechanical and electrical devices are located, along with the necessary infrastructure to deliver the generated electricity to the SENI.

As the photovoltaic solar electricity is defined as a "zero emission electricity source", no emissions will be considered for the project activity. On the other hand, the emission sources included in the project boundaries are only those calculated for the baseline.

Source		GHG	Included?	Justification/explanation
Baseline	CO_2e emissions from electricity generation in fossil fuel power plants that are displaced due to the project activity.	CO_2	Yes	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
Project Activity	For geothermal power plants, fugitive emissions CH_4 and CO_2 from non-condensable gases contained in geothermal steam.	CO_2	No	N/A
		CH_4	No	N/A
		N_2O	No	N/A
	CO_2 emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants.	CO_2	No	N/A
		CH_4	No	N/A
		N_2O	No	N/A
	For hydro power plants, emissions of CH_4 from reservoir.	CO_2	No	N/A
		CH_4	No	N/A
		N_2O	No	N/A

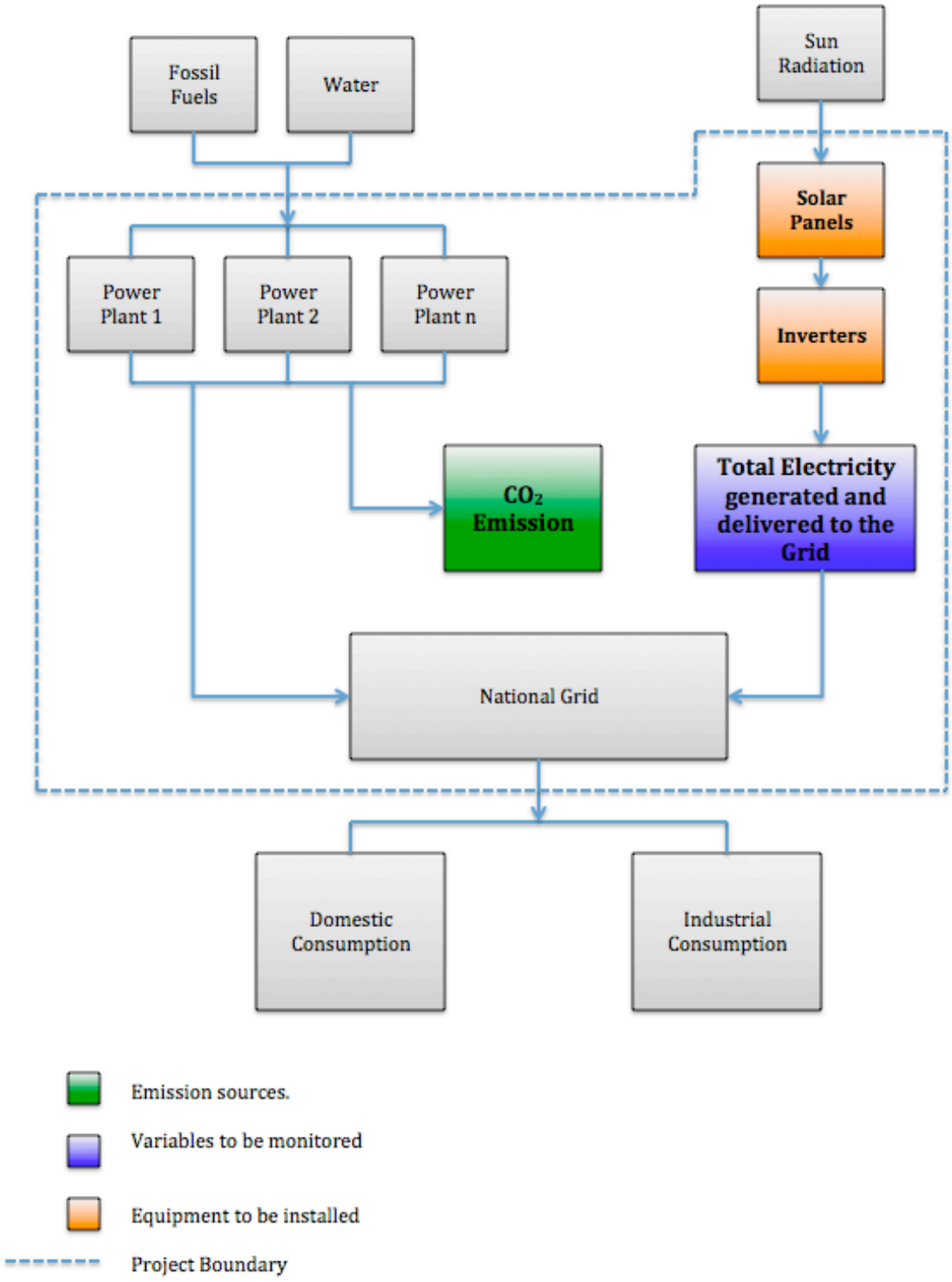


Figure 2: Project boundary

B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario:

The ACM0002 V.13.0.0 states that if the project activity is the installation of a new grid-connected renewable power plant unit, the baseline scenario is the following:

> *"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, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".*

Therefore, the baseline scenario for the project activity is defined as the total amount of energy generated by the solar power plant, that otherwise, in the absence of the project activity would be supplied by other fossil fuel based power plants.

The total power plants and their contribution to the electric platform during the baseline year is as follows:

Electricity Power Plants		**2010 GWh**	**Fuel type**	**Commissioning year**
Combined Cycle	CESPM 1	31.44	Fuel Oil #2	2001
	CESPM 2	50.51	Fuel Oil #2	2002
	CESPM 3	83.04	Fuel Oil #2	1994
	SAN FELIPE	771.68	Fuel Oil #2	2003
	AES ANDRES	2,082.69	Gas Natural	1992
Hydroelectric	AGUACATE 1	-	Water	1992
	AGUACATE 2	-	Water	2003
	ANIANA VARGAS 1	0.27	Water	2003
	ANIANA VARGAS 2	0.55	Water	1995
	BAIGUAQUE 1	0.85	Water	1995
	BAIGUAQUE 2	1.42	Water	1998
	CONTRA EMBALSE MONCION 1	9.94	Water	1998
	CONTRA EMBALSE MONCION 2	9.11	Water	2005
	DOMINGO RODRIGUEZ 1	6.72	Water	2005
	DOMINGO RODRIGUEZ 2	6.00	Water	1995
	EL SALTO	2.58	Water	1984
	HATILLO	63.83	Water	1992
	JIGUEY 1	-	Water	1992
	JIGUEY 2	193.44	Water	1954
	JIMENOA	47.24	Water	2009
	LAS BARIAS	3.77	Water	1967
	LAS DAMAS	36.39	Water	1987
	LOPEZ ANGOSTURA	87.28	Water	1998
	LOS ANONES	0.07	Water	2001
	LOS TOROS 1	16.63	Water	2001
	LOS TOROS 2	18.61	Water	2008
	MAGUEYAL 1	4.07	Water	2008
	MAGUEYAL 2	5.79	Water	2002
	MONCION 1	96.91	Water	2002
	MONCION 2	120.38	Water	1995
	NIZAO NAJAYO	0.21	Water	2009
	PINALITO 1	51.75	Water	2009
	PINALITO 2	69.01	Water	1978
	RINCON	23.67	Water	1996
	RIO BLANCO 1	69.11	Water	1996
	RIO BLANCO 2	62.38	Water	2006
	ROSA JULIA DE LA CRUZ	1.75	Water	1980
	SABANA YEGUA	60.30	Water	1981
	SABANETA	30.05	Water	1973

	TAVERA 1	143.91	Water	1973
	TAVERA 2	105.13	Water	1975
	VALDESIA 1	35.86	Water	1975
	VALDESIA 2	40.96	Water	2001
Thermoelectric	BARAHONA CARBON	315.97	Carbon	1984
	ITABO 1	707.63	Fuel Oil #6	1988
	ITABO 2	663.63	Fuel Oil #6	1978
	FALCONDO 1	231.56	Fuel Oil #6	1978
	FALCONDO 2	165.86	Fuel Oil #6	1978
	FALCONDO 3	69.55	Fuel Oil #6	1968
	HAINA 1	35.19	Fuel Oil #6	1970
	HAINA 2	-	Fuel Oil #6	1976
	HAINA 4	61.23	Fuel Oil #6	1966
	PUERTO PLATA 1	-	Fuel Oil #6	1982
	PUERTO PLATA 2	18.86	Fuel Oil #6	1990
	SAN PEDRO VAPOR	27.90	Fuel Oil #6	1991
	CEPP 1	84.08	Fuel Oil #6	1994
	CEPP 2	274.19	Fuel Oil #6	2000
	ESTRELLA DEL MAR	527.67	Fuel Oil #6	1990
	ESTRELLA DEL NORTE	213.73	Fuel Oil #6	2000
	LA VEGA	414.25	Fuel Oil #6	1994
	METALDOM	195.14	Fuel Oil #6	2003
	MONTE RIO	525.98	Fuel Oil #6	2000
	PALAMARA	609.80	Fuel Oil #6	2009
	PIMENTEL	541.21	Fuel Oil #6	2001
	SULTANA DEL ESTE	688.20	Fuel Oil #6	2008
	RIO SAN JUAN	8.66	Fuel Oil #2	1998
	HAINA TG	79.78	Fuel Oil #2	1996
Gas Turbine (Natural Gas)	LOS MINA 5	573.53	Gas Natural	1996
	LOS MINA 6	622.82	Gas Natural	2001

Table 1: Net Electricity Generation 2010

The percentage of participation of the different technologies were:

Type of Technology	2010 (GWh)	%
Combined Cycle	3019.3650	24.95%
Hydroelectric	1425.9344	11.78%
Thermoelectric	6460.0536	53.38%
Gas Turbine (Natural Gas)	1196.3484	9.89%
Total Production	**12101.7014**	**100.00%**

Table 2: Energy generation in 2010

As per guidance of the "Tool to calculate the emission factor for an electric system", the emission factor of the electric grid is defined as the combination of the Operating Margin and the Build Margin. The Operating Margin is the number that reflects the emission factor of the actual installed capacity of the electric grid. The Build Margin is the number that reflects the emission factor of the projection of the additions in the installed capacity of the electric grid. For the proposed project activity, the power plants to be included in the calculation of the Build Margin are as follows:

Electricity Power Plants	Year of addition	Type of Power Plant	Net generation 2010 (MWh)	%	Cumulative %

LAS BARIAS	2009	Hydroelectric	3768.7814	0.0311%	0.0311%
PIMENTEL	2009	Thermoelectric	541213.7961	4.4722%	4.5034%
PINALITO 1	2009	Hydroelectric	51750.8455	0.4276%	4.9310%
PINALITO 2	2009	Hydroelectric	69009.0210	0.5702%	5.5012%
MAGUEYAL 1	2008	Hydroelectric	4071.5002	0.0336%	5.5349%
MAGUEYAL 2	2008	Hydroelectric	5786.8404	0.0478%	5.5827%
RIO SAN JUAN	2008	Thermoelectric	8655.4070	0.0715%	5.6542%
ROSA JULIA DE LA CRUZ	2006	Hydroelectric	1749.2498	0.0145%	5.6687%
DOMINGO RODRIGUEZ 1	2005	Hydroelectric	6720.4290	0.0555%	5.7242%
DOMINGO RODRIGUEZ 2	2005	Hydroelectric	6003.6310	0.0496%	5.7738%
ANIANA VARGAS 1	2003	Hydroelectric	274.5105	0.0023%	5.7761%
ANIANA VARGAS 2	2003	Hydroelectric	545.8272	0.0045%	5.7806%
MONTE RIO	2003	Thermoelectric	525978.8374	4.3463%	10.1269%
AES ANDRES	2003	Combined Cycle	2082690.7830	17.2099%	27.3368%

Table 3: Build Margin Power Plants

B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality):

The objective of the project activity is to generate sustainable power through modern solar PV energy converters and by this replacing fossil fuel in the national Dominican Republic interconnected grid. By replacing fossil fuel generated electricity in the SENI, the Project Activity contributes to decrease the GHG emissions, compared to the applicable business as usual scenario.

The CDM revenues that this proposed project activity could create, are not sufficient enough to be the only decisive factor in the financial balance of the project, but they are a sufficient reserve to act as an additional payment source for the investors and the finance actors; this means that the CDM revenue would bring to the project a higher stability in its financial performance, making it more attractive to the potential investors. This even more is valid if developed as a Gold Standard project, improving the quality of any certificate generated and hence yielding in higher or more stable certificate prices needed for accessing the investment and financing.
Without the CDM financial stability, the project activity would not have been implemented due to its prohibitive high investment costs, if compared to other, simpler investment alternatives in the electricity sector of the Dom Rep.

The construction start of the proposed project activity is planned in the last part of 2012. Before, the serious consideration of the CDM application was proven and decided in the Board Meetings. Previously to the project starting date Project Participants were aware:

a. Of the rough and approximate course of the CDM project registration process;

b. Of the institutional challenges attached to the implementation of a solar power plant, which is not the business as usual in Dominican Republic;

c. That CDM revenues are available for such renewable energy projects, which fulfil additionality criteria and comply with further eligibility criteria;

d. That the CDM income revenues will contribute to the necessary financial stability to obtain the equity investors and the debt financing from the banks involved and by this the CDM revenues reduces the financial and investment barriers (access to finance barrier) and will help to increase the acceptance among the lenders and investors of taking additional technical risks of such new technology applied in the Dominican Republic.

Related documents such as the Minutes from the Board Meetings and correspondences with the financial institutions are available as evidences for the validation process.

Date	Host	Participant(s)	Description	Documents /Evidence[15]
8th September, 2010	National Energy Commission	Shareholders of Electronic	Provisional concession request	Official letters and receipts.
15th November, 2010	National Energy Commission	Shareholders of Electronic	Provisional concession allowed	Official letters and receipts.
23rd November, 2010	ONMDL	ONMDL	Non Objection Letter – pre approval	Official letter
3rd September 2010 / 20th January, 2011	Electronic	Electronic and Comercializadora Agrícola Enriquillo	Real Estate purchase	Official contract.
8th February, 2011	National Energy Commission	Shareholders of Electronic	Permanent concession request	Official letters and receipts.
28th February, 2011	M&A Ingeniería	Electronic	Solar irradiation study.	Official report.
29th March, 2011	Environment Ministry	Electronics and Environment Ministry	Environmental license approval.	Official report.
17th May, 2011	Electronic	Electronic – Think Carbon GmbH	Signature of the contract for CDM services for the Project Activity.	Contract with Think Carbon

[15] All evidential documents are available to the DOE during the site visit and the validation process

22nd and 25th July, 2011	National Energy Commission	Shareholders of Electronic	Permanent concession allowed	Official letters and receipts.
14th June, 2011	Think Carbon	Electronic - Think Carbon – ONMDL (host DNA)	Prior CDM consideration letter sent to ONMDL (host DNA)	Electronic document
15th June, 2011	Think Carbon	Electronic - Think Carbon – UNFCCC	Prior CDM consideration letter sent to UNFCCC Secretariat	Electronic document
20th June, 2011	Think Carbon	Electronic - Think Carbon – ONMDL (host DNA)	Prior CDM consideration letter confirmation received.	Electronic document
8th July, 2011	Think Carbon	Electronic - Think Carbon – UNFCCC	Prior CDM consideration letter confirmation received	Electronic document
28th July, 2011	Electronic	Electronic	Simulation parameters for the one axis layout.	Electronic document
24th October, 2011	CDEEE	CDEEE – Electronics	PPA contract signature.	Official contract.
26th October, 2011	myclimate	myclimate – Electronics	ERPA contract signature.	Official contract.

Table 4: Chronology of the most relevant documents for the CDM process.

Additionality Demonstration

As per guidance of the ACM0002 V.13.0.0, the "Tool for the demonstration and assessment of additionality" is used for justifying the additionality of the proposed project activity. For this mater, the following steps are followed:

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

For an accurate description of different alternatives to the project activity, the following sub-steps are followed:

Sub-step 1a: Define alternatives to project activity.

As mentioned before, the electricity sector in Dominican Republic presents a high variability. Around 70% of the total electricity generated in the country is powered by fossil fuels that are imported, therefore any other alternative activity, is very likely to include the usage of fossil fuels.

Therefore, an alternative scenario will be the development of a new fossil fuel powered electrig generation plant, that will be delivering the same amount of electricity to the grid.

Furthermore, the baseline is defined by the applied methodology for newly installed grid-connected renewable power plant as "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, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".

Sub-step 1b: Consistency with mandatory laws and regulations.

Dominican Republic's strategic priorities in the energy sector are incorporated into the new 57-07 law. This Energy Law provides a legal framework for the renewable energy market in Dominican Republic and the legal basis for the different distribution companies. The aim of the law is to open a new period of energy generation in the country, and open the Dominican Republic energy sector to new investments.

Also the "Ley General de Electricidad (125-01)" provides the necessary legal framework for all the electric generation and distribution activities in the country; the proposed project activity is in compliance with all the dispositions of this law. Also the alternative scenario is in compliance with all laws and regulations of the country.

As per guidance of the "Tool for the demonstration and assessment of additionality", either the *Step 2: Investment analysis* or *Step 3: Barrier analysis* can be selected for demonstrating the additionality of the proposed project activity. The Step 3 will be chosen as the project activity faces barriers that will prevent the development of the proposed project activity; the main barrier to address will be the "first of its kind", which will be discussed in detail in the following section:

Step 2: Investment Analysis

Not applicable

Step 3: Barrier analysis

The outcome of this section is to demonstrate that the project will be facing different barriers that will:

- prevent the implementation of this type of proposed project activity
- not prevent the implementation of at least one the alternatives

Sub-step 3a: Identify barriers that would prevent the implementation of the proposed CDM project activity.

Following the guidance of the "Tool for the demonstration and assessment of additionality", there must be established the realistic and credible barriers that would prevent the implementation of the CDM activity. For the proposed project activity the following barriers has been identified:

"First of its kind" barrier:

Following the "Guidelines on additionality of First-of-its-kind project activities" version 2.0., the project is additional, as:

1. Applicable geographical area

The geographical area covers the entire host country as a default, stated in the mentioned guideline.

2. Measure

The project falls under the measure b) Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies;

3. Output

The output is electricity, in this case to be supplied to the grid.

4. Different technology

The proposed project differ from other electricity generation units in the host country due to different a) Energy source (solar energy).

Due to the steps mentioned above, the project can be considered as a "first of its kind" power plant project.

The proposed project activity will be developed as "*First of its Kind*". This means that there are no other similar project activities in the country. The proposed Solar PV power plant will be the first grid connected Solar PV power plant developed in the country. This can be easily demonstrated with a brief analysis of the power plants that are connected to the national grid, as shown in Table 1, none of the power plants that served the National Grid during the baseline year used the Solar PV technology. It is important to mention that before the operation starting date of the proposed project activity, there are no plans for other Solar PV power plants that come into operation[16]. Also, according to the "Guidelines on additionality of First of its Kind Project Activities", V.2, EB 69, Annex 7, the crediting period for the proposed project activity will be of 10 years only with no option for renewal.

Developing a project that has the nature being "First of its Kind" implies to overcome a series of different barriers that could prevent the implementation of the proposed project activity. One of the main aspects that the project developer will have to tackle will be the lack of qualified and experienced staff for building, construction and operating the plant. In Dominican Republic there are no experts with he necessary skills for developing the entire project, therefore the project participant will have to make significant investments for training with the necessary skills the future plant operators.

[16] The evidence about the power plants serving the national grid during 2011, before the publication of the PDD for the Global Stakeholder Consultation is available to the DOE for validation purposes. It is important to mention that at the moment o the publication of the PDD for the Global Stakeholder Consultation, the full 2011 information was not available yet and therefore the baseline year remained as 2010.

Also the lack of infrastructure for solar PV installations in the country will be an obstacle for the development and implementation of the proposed project activity.

It must be mentioned that the project activity has been the first Solar PV PDD published for global stakeholder consultation in the host country. Therefore, the project complies with all requirements.

Sub-step 3b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except proposed activity):

Not applicable, as the baseline is defined by the methodology, therefore no alternatives are presented.

Step 4: Common practice analysis

The aim of this step is to prove that the proposed project activity will not occur because of the natural trend of the electric generation market expansion.

The project activity has demonstrated to be First of its Kind, according to the Sub-Step 3a and it also is within the measure b) of the paragraph 6 of the Additionality tool V.6.1.0, therefore, according to the paragraph 43, of the Additionality tool V.6.1.0, it is not necessary to complement with the analysis of the extent to which the proposed project type has already diffused in the region.

Complementing the common practice analysis, two sub-steps were followed in order to justify the additionality of the project activity. They are described as follows:

Sub-Step 4a: Analyse other activities similar to the proposed project activity

According to what the "Tool for the demonstration and assessment of additionality" states, a comparison of the project activity with other similar activities must be done. With the information presented in previous sections, it becomes clear that the proposed project activity will not occur as a natural consequence of the actual trend in the expansion of the installed capacity attached to the national grid.

In the Dominican Republic there are no other activities that, according to the tool, are similar to the proposed project activity. In the Dominican Republic there are only two CDM activities that have been registered and none proposed CDM activities that were published for the GSP. These projects consisted in the construction of a wind farm and a landfill biomass project, which in both cases, are completely different in size and technology.
By the nature of being "first of its kind", there are no comparable grid-connected solar PV modules with tracking system installed or developed in the Dominican Republic yet.

Sub-Step 4b: Discuss any similar Options that are occurring

As explained in the previous sub-step, there are no similar project activities within the country, so can be concluded that the proposed project activity is not the common practice in the host

country. This statement is also proven in Chapter B.4. ”Description of how the baseline scenario is identified”.

Conclusion:
In summary and according to the “Tool for the demonstration and assessment of additionality”, it becomes clear that the project activity is a First of its Kind and is listed under paragraph 6 of the Additionality Tool. This will be the main barrier that is preventing the implementation of the project proposed activity. This barrier is not preventing the implementation of any other alternative scenarios; there are no similar activities to the proposed project activity, so therefore, according to the “Tool for the demonstration and assessment of additionality”, the project is additional.

B.6. Emission reductions:

B.6.1. Explanation of methodological choices:

The chosen methodology, ACM0002 V.13.0.0, establishes the parameters for calculating the baseline emissions. It is important to notice that the first parameter that needs to be calculated is the emission factor of the electric grid.

This parameter is expressed in tons CO_2/MWh, and it indicates the amount of CO_2-equivalent GHG emissions that are emitted per each MWh of electricity fed into the SENI. As mentioned before, the emission factor used for the baseline emission calculations is made with the combination of two emission factors. The first one is called *Operating Margin*(**OM**), and it expresses the average emission factor of the actual energy production capacity. The second component is the *Build Margin*(**BM**), which reflects the future trend of the electric grid expansion, in terms of emissions per generated MWh.

Both emission factors, the OM and the BM are combined in different proportions to have a final Combined Margin (**CM**) that will reflect the real emission factor of the Dominican Republic electric grid.

For the calculation of all these parameters, the ACM0002 indicates that the “Tool to calculate the emission factor for an electric grid” must be used. This tool proposes six steps to be followed in order to complete the calculations. The steps are explained as follows:

Step 1: Identify the relevant electricity system
For this Project Activity, the relevant electricity system is the SENI, as there are no other relevant interconnected systems and because the project activity is delivering all its electricity to the SENI.

For the baseline year, the SENI was compound by a total of 69 different power plants, dived in the following categories:

Technology	Number of Plants
Thermoelectric	24
Hydroelectric	38
Combined Cycle	5

Gas Turbine	2

Table 5: Total number of power plants in Dominican Republic Grid

Step 2: Choose whether to include off-grid power plants in the project electricity system (optional)

The project participants can choose between the following two options to calculate the operating margin and the 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.

For the proposed Project Activity, only grid power plants are included in the calculation; there are no other relevant off-grid power plants in the country.

Step 3: Select a method to determine the Operating Margin (OM)

For calculating the OM, the following methods are proposed by the methodology:

a) Simple OM
b) Simple adjusted OM
c) Dispatch data analysis
d) Average OM

For the Project Activity the OM will be calculated using the simple OM method.

This selection is made because in Dominican Republic, the low-cost/must-run power plants do not exceed the 50% of the total electricity generation during the five years previous the baseline year. According the information received from the government of Dominican Republic, the following table shows the total energy generated for the years 2006 – 2010 and the percentage of energy delivered for "low-cost/must-run" plants.

Source	2006	2007	2008	2009	2010
Total energy generated (GWh)	10,708.14	12,086.48	12,117.85	11,248.89	12,101.70
Total except (low-cost/must-run) (GWh)	8,958.40	10,390.95	10,733.63	9,790.27	10,675.77
% of low-cost/must-run plants	16.34%	14.03%	11.42%	12.97%	11.78%

With the above information is clearly and transparently demonstrated that for the previous years before the implementation of the project activity, the low-cost/must-run represents less than the 50% of the total generation. Also, there is no hourly information of the operation of the different plants, so the Dispatch data analysis cannot be used. By last, the Average OM cannot be used because not all the power plants can be considered as low-cost/must-run. The principal fossil fuel source for electricity production in Dominican Republic is diesel and bunker (heavy fuel oil). As

mentioned before, for the Simple adjusted OM there is no hourly information available about the operation of the power plants so the Simple OM will be chosen.

The simple OM will be calculated utilising an *Ex ante* data vintage. With this option, the emission factor will be determined at the validation stage, and no monitoring and recalculation of the emission factor during the crediting period will be required. Information of the past three years of operation (2008 – 2010) of all the power plants connected to the grid is publicly available,; these years were the most recent complete years in which information of the electric generation was available. It is important to mention that all the information used for the calculations of the simple OM and Built Margin (BM) was provided by the "Organismo Coordinador del Sistema Electrico Interconectado" All the data and data sources were available to the DOE for validation purposes.

Step 4: Calculate the operating margin emission factor, according to the selected method.
As per guidance of the tool, the simple OM is calculated as the generation-weighted average CO_2 emissions per unit net electricity generation (tCO_2/MWh) of all generating power plants serving the system, not including low-cost/must-run power plants.

For this calculation, Option A will be used, because the information about the net electricity generation and the CO_2 emission factor of each power unit is available.

Option A states that the simple OM emission factor is calculated based on the net electricity generation of each power unit and an emission factor of each power unit, as follows:

Equation 1:
$$EF_{grid,OMsimple,y} = \frac{\sum_m EG_{m,y} * EF_{EL,m,y}}{\sum_m EG_{m,y}}$$

Where:

$EF_{grid\ ,OMsimpe,y}$	Simple Operating margin in year "y" (tCO_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" (tCO_2/MWh)
m	All power units serving the grid in year "y", except low-cost/must-run power units
y	The relevant year as per the data vintage chosen in Step 3

This formula express that the emission factor of the grid in the year "y", is the quotient of the sum of all the net electricity generated by each one of the power plants, multiplied by the emission factor of the fuel used to run that power plant, divided bye the sum of all the net electricity generated by each one of the power plants.

The net quantity of electricity generated and delivered to the grid is publicly available. The emission factor of each power unit has been calculated according the tool[17].

Step 5: Calculate the build margin emission factor

As per guidance of the tool, the sample group of power units "m" used to calculate the build margin consist of either:

[17] The full calculations and databases used are available to the DOE during the validation process.

a) The set of five power units that have been built most recently or;
b) The set of power capacity additions in the electricity system that comprise the 20% of the system generation (in MWh) and that have been built most recently.

It also states that the project participants should use the set of power units that comprises the larger annual generation. For the proposed project activity, the BM will be calculated with the option b) of the tool. For the baseline year 2010, at the moment of submission to validation the PDD, the power plants that were included in the Build Margin calculations were:

Electricity Power Plants	Year of addition	Type of Power Plant	Net generation 2010 (MWh)	%	Cumulative %
LAS BARIAS	2009	Hydroelectric	3768.7814	0.0311%	0.0311%
PIMENTEL	2009	Thermoelectric	541213.7961	4.4722%	4.5034%
PINALITO 1	2009	Hydroelectric	51750.8455	0.4276%	4.9310%
PINALITO 2	2009	Hydroelectric	69009.0210	0.5702%	5.5012%
MAGUEYAL 1	2008	Hydroelectric	4071.5002	0.0336%	5.5349%
MAGUEYAL 2	2008	Hydroelectric	5786.8404	0.0478%	5.5827%
RIO SAN JUAN	2008	Thermoelectric	8655.4070	0.0715%	5.6542%
ROSA JULIA DE LA CRUZ	2006	Hydroelectric	1749.2498	0.0145%	5.6687%
DOMINGO RODRIGUEZ 1	2005	Hydroelectric	6720.4290	0.0555%	5.7242%
DOMINGO RODRIGUEZ 2	2005	Hydroelectric	6003.6310	0.0496%	5.7738%
ANIANA VARGAS 1	2003	Hydroelectric	274.5105	0.0023%	5.7761%
ANIANA VARGAS 2	2003	Hydroelectric	545.8272	0.0045%	5.7806%
MONTE RIO	2003	Thermoelectric	525978.8374	4.3463%	10.1269%
AES ANDRES	2003	Combined Cycle	2082690.7830	17.2099%	27.3368%

Table 6: Build Margin power plants

As commented before, the build margin is defined as the generation-weighted average emission factor of all power units "*m*" during the most recent year "*y*" for which power generation data is available. It is calculated as follows:

Equation 2:

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

Where:

$EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year "*y*" (tCO_2/MWh)
$EG_{m,y}$ = Net quantity of electricity generated and delivered to the grid by power plant "*m*" in year "*y*" (MWh)
$EF_{EL,m,y}$ = CO_2 emission factor of power plant "*m*" in year "*y*" (tCO_2/MWh)
m = Power units included in the build margin
y = Most recent historical year for which power generation data is available.

The emission factor of each power plant is calculated in the same way for the OM and the BM. The formula used for doing such calculation is the following:

Equation 3:

$$EF_{EL,m,y} = \frac{EF_{CO2,m,i,y} * 3.6}{\eta_{m,y}}$$

Where:

$EF_{EL,m,y}$ = CO_2 emission factor of power plant "*m*" in year "*y*" (tCO_2/MWh)

$EF_{CO2,m,i,y}$ = Average CO_2 emission factor of fuel type "i" used in power unit "m" in year "y" *(tCO_2/GJ)*

$n_{m,y}$ = Average net energy conversion efficiency of power unit "m" in year "y" (ratio)

m = All power units serving the grid in year "y" except low-cost/must-run power units (different from the sample group of plants used for the BM calculations)

y = The relevant year as per data vintage chosen in Step 3

As there is no information of the total volume of fuel consumed by each plant, the $EF_{EL,m,y}$ is calculated using the efficiency of each power plant. The efficiency is calculated as the total energy output (electricity), divided by the total amount of energy input (fuel).

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

As commented above, the combined margin emission factor is the combination of both emission factors, the OM and the BM. The formula to calculate it is as follows:

Equation 4:
$$EF_{grid,CM,y} = EF_{grid,OM,y} * w_{OM} + EF_{grid,BM,y} * w_{BM}$$

Where:

$EF_{grid,OM,y}$ = Operating margin emission factor in year "*y*" (tCO_2/MWh)

$EF_{grid,BM,y}$ = Build margin emission factor in year "*y*" (tCO_2/MWh)

w_{OM} = Weighting of operating margin emissions factor (%)

w_{BM} = Weighting of build margin emissions factor (%)

For solar and wind power generation activities, the values for w_{OM} and w_{BM} should be of 0.75 and 0.25 respectively.

Once one has calculated the emission factor of the Dominican Republic electric grid, it is necessary to calculate the project and the baseline emissions, in order to calculate the total emission reductions of the project activity.

For the project, there are no leakage emissions or any other emissions source that could be accounted, so the total project emissions in the year "*y*" is zero, i.e. $PE_y = 0$.

According to the ACM0002 V.13.0.0, the baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The baseline emissions are calculated as follows:

Equation 5:
$$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$$

Where:

BEy = Baseline emissions in year "*y*" (tCO_2/year)

$EGP_{J,y}$ = 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/year)

$EF_{grid,CM,y}$ = 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" (tCO_2/MWh)

The methodology states that the total emission reductions will be the difference between the baseline emissions and the project emissions. As mentioned before, a Solar PV power plant project has no emissions that could be accounted, so the total emission reductions will be the baseline emissions.

B.6.2. Data and parameters that are available at validation:

Data / Parameter:	$EG_{m,y}$
Data unit:	kWh
Description:	Net energy delivered to the grid by power unit "*m*" during year "*y*"
Source of data used:	Statistical Data from the National Energy Commission
Value applied:	Data for 2008, 2009 and 2010. References are in Annex 3
Justification of the choice of data or description of measurement methods and procedures actually applied :	The information is official and publicly available upon request to the National Energy Commission. The information was received electronically by email[18].
Any comment:	-

Data / Parameter:	$EF_{CO2,I,y}$
Data unit:	$kgCO_2/TJ$
Description:	Emission factor of the fossil fuel type "*i*"
Source of data used:	2006 IPCC Guidelines for National Greenhouse Gas Inventories", Volume 2: Energy, Chapter 2: Stationary Combustion – Table 2.2. Lower limit.
Value applied:	**Fossil Fuel used:** / **Emission Factor** Coal 89.5000 Fuel Oil #6 / Residual Fuel Oil 75.5000 Fuel Oil #2 / Diesel 72.6000 Gas Natural 54.3000
Justification of the choice of data or description of measurement methods and procedures actually applied :	The information is official and publicly available.
Any comment:	It is important to mention that the information provided by the National Energy Commission is not especifying the type of Coal that is being used, therefore, in order to keep a conservative approach, the values used are the "Other Bituminous Coal"

[18] The evidences are available to the DOE for validation purposes.

Data / Parameter:	**NCV**
Data unit:	TJ/Gg
Description:	The NCV refers to the energy content of these fossil fuels
Source of data used:	2006 IPCC Guidelines for National Greenhouse Gas Inventories", Volume 2: Energy, Chapter 1: Introduction – Table 1.2. Lower limit.
Value applied:	**Fossil Fuel used:** **NCV** Coal 25.8000 Fuel Oil #6 / Residual Fuel Oil 40.4000 Fuel Oil #2 / Diesel 43.0000
Justification of the choice of data or description of measurement methods and procedures actually applied :	No other trustable source is publicly available for the data.
Any comment:	The values were used in a conservative manner.

Data / Parameter:	$FC_{i,m,y}$
Data unit:	Volume units
Description:	Amount of fossil fuel type "*i*" used in power unit "*m*" during year "*y*"
Source of data used:	National Energy Commission - CNE
Value applied:	Data for 2008, 2009 and 2010 References are in annex 3.
Justification of the choice of data or description of measurement methods and procedures actually applied :	The information is official and publicly available by request.
Any comment:	-

Data / Parameter:	**Density of fuels**
Data unit:	kg/m^3
Description:	The density express the concentration of mass in a determined volume
Source of data used:	Table A.4 of the "Emission Greenhose Gases in the United States" - Energy Information Administration (EIA, US Department of Energy), available at:http://www.eia.gov/oiaf/1605/archive/87-92rpt/appa.html
Value applied:	Fuel Oil / Residual Fuel –11 API = 0.993 kg/m^3 Diesel / Distillate fuel – 35.5 API = 0.8473 kg/m^3
Justification of the choice of data or description of measurement methods and procedures actually applied :	The density of the fossil fuels is a parameter that is not commonly available. The IPCCC guidelines are not providing any reference. The density of the fuels depends on the quality of the fuel and in consequence, each fuel supplier could provide the same fuel with different density values. Therefore, a general density value must be used. The EIA provides a conservative international reference for the density values of both fuels.

Any comment:	-The conversion formula used for calculating the density of the fuels is: $D_{kg/m^3} = \frac{141.5}{D_{API} + 131.5}$ According to the Schlumberger Oilfield Glossary, available at: http://www.glossary.oilfield.slb.com/Display.cfm?Term=API%20gravity

Data / Parameter:	**EF_{CM}**
Data unit:	tCO_2/MWh
Description:	Combined Margin Emission Factor of the Dominican Republic National Grid
Source of data used:	Statistics of the National Energy Commission
Value applied:	0.6541
Justification of the choice of data or description of measurement methods and procedures actually applied :	The National Energy Commission is the national entity that regulates the energy supply, distribution and delivery of the electric energy in the country. It is the official government institution for managing the national statistics of the electric sector. The data is publicly available upon request.
Any comment:	- The information was received electronically by email

Data / Parameter:	**EF_{OM}**
Data unit:	tCO_2/MWh
Description:	Operating Margin Emission Factor of the Dominican Republic National Grid
Source of data used:	Statistics of the National Energy Commission
Value applied:	0.7238
Justification of the choice of data or description of measurement methods and procedures actually applied :	The National Energy Commission is the national entity that regulates the energy supply, distribution and delivery of the electric energy in the country. It is the official government institution for managing the national statistics of the electric sector. The data is publicly available upon request.
Any comment:	- The information was received electronically by email

Data / Parameter:	**EF_{BM}**
Data unit:	tCO_2/MWh
Description:	Build Margin Emission Factor of the Dominican Republic National Grid
Source of data used:	Statistics of the National Energy Commission
Value applied:	0.4447
Justification of the choice of data or description of measurement methods and procedures actually applied :	The National Energy Commission is the national entity that regulates the energy supply, distribution and delivery of the electric energy in the country. It is the official government institution for managing the national statistics of the electric sector. The data is publicly available upon request..
Any comment:	- The information was received electronically by email

B.6.3. Ex-ante calculation of emission reductions:

According to the current methodology for the calculation of the ex-ante emission reductions, is necessary to calculate the emission factor of the electric grid; then as commented in the previous section and using the Equation 5, we calculate the Baseline emissions:

Equation5:
$$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$$

Where:

BE_y is the baseline emissions of the year "y"

$EG_{PJ,y}$ is the quantity of net electricity generation that is produced and fed into the grid as a result of the CDM project activity in the year "y"

$EF_{grid,CM,y}$ is the Combined Margin CO_2 emission factor for grid connected power generation in year "y".

The Combined Margin is calculated as per guidance of the "Tool to calculate the emission factor for an electric system", which states that this emission factor is the result of the combination of the Build Margin and the Operation Margin in a proportion as described below:

Equation 4:
$$EF_{grid,CM,y} = EF_{grid,OM,y} * w_{OM} + EF_{grid,BM,y} * w_{BM}$$

Where:

$EF_{grid,BM,y}$ is the Build Margin CO_2 emission factor in year "y" (tCO_2/MWh)

$EF_{grid,OM,y}$ is the Operating Margin CO_2 emission factor un year "y" (tCO_2/MWh)

W_{om} is the Weighting of operating margin emissions factor (%)

W_{bm} is the Weighting of build margin emissions factor (%)

For our specific project activity, the values of W_{om} and W_{bm} are 75% and 25% respectively.

Once all the calculations have been made, the calculated value for the baseline emission reductions of the proposed project activity is:

BE_y = 29,254 tonsCO_2e/year

It is important to mention that the total power delivered to the grid by the power plant is calculated according to the simulation made by M&A Ingeniería, for the Solar radiation study, which is available to the DOE for validation purposes.

Leakage:

It is important to mention that during the operational stage of the project activity, no fossil fuels will be used and therefore the leakage emissions are considered zero, as per guidance of the ACM0002. The project will have a "motion less" operation and requires no transportation or any other logistic infrastructure.

B.6.4 Summary of the ex-ante estimation of emission reductions:

Year	Estimation of project activity emissions (tons of CO_2e)	Estimation of baseline emissions (tons of CO_2e)	Estimation of leakage (tCO_2e)	Estimation of overall emission reductions (tons of CO_2e)
2013 (June – Dec)	0	21,941	0	17,065
2014	0	29,254	0	29,254
2015	0	29,254	0	29,254
2016	0	29,254	0	29,254
2017	0	29,254	0	29,254
2018	0	29,254	0	29,254
2019	0	29,254	0	29,254
2020	0	29,254	0	29,254
2021	0	29,254	0	29,254
2022	**0**	29,254	0	29,254
2023(Jan - May)		7,314		12,189
Total	**0**	**292,541**	**0**	**292,540**

B.7. Application of the monitoring methodology and description of the monitoring plan:

B.7.1 Data and parameters monitored:

Data / Parameter:	$EG_{facility,y}$
Data unit:	MWh/y
Description:	Quantity of net electricity generation supplied by the project plant to the grid in year y.
Source of data to be used:	Readings of the on-site metering connected to the grid.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	44,727 MWh
Description of measurement methods	Data will be measured continuously and recorded at least monthly. Data will be measured in the Point of Common Coupling; that means

and procedures to be applied:	in the project boundary. All energy loses within the boundaries of the project, will not be accounted as emission reductions. Data of the "onsite" measurements will be crosschecked with the data approved and provided by the buyer.
QA/QC procedures to be applied:	Meter should be periodically calibrated in order to ensure a maximum error of +- 0.2% following national requirements or manufacturer specifications. Sales receipts will be kept in order to verify the consistency of the data monitored[19].
Any comment:	All data collected will be achieved electronically and be kept at least for 2 years after the end of the last crediting period.

B.7.2. Description of the monitoring plan:

As established in the methodology, the only variable that needs to be verified and monitored during the crediting period is the total amount of electricity delivered to the electric grid, since the calculations of the emission factor are performed in a *ex ante* basis, so is not necessary to update any other variable during the crediting period.

So far the definition of the precise equipment to be installed for measuring the total amount of energy delivered to the grid is not yet available. The technical aspects of the equipment to be installed will be available once the final agreement between the project participant and the National Electric Grid is finished. However, the suggested main characteristics that the equipment will have for measuring the total amount of electricity delivered to the electric grid at the Point of Common Coupling (PCC), are the following:

- Electronic multifunction for being assembled in electric board.
- Back connection
- Anti dust sealed
- With an application of a multi tariff billing system
- Real time measuring access
- Bi-directional measurement capability
- Remote data transmission capability
- Massive memory storage
- Precision 0.2%

Also, the meter installed onsite will have the indication of maximum supply, expressed in kWh for the daily double tariff measuring system, with integration periods of 15 minutes. All meters installed will be a "plug in" type and with the dimensions 200mm x 200mm.

All the meters will be designed to work in a four wire three phases system.

The nominal tension and the type of service will be self-programmable within the range of 57 – 277 V and will have an operation rage of +- 15% of the nominal tension, base type, with quartz controlled internal digital clock, independent from the frequency of the grid.

[19] Calibration procedures will be performed by the LAMEDIG, which is a laboratory of electric measurements that is part of the DIGENOR (Dirección General de Normas y Sistemas de Calidad). http://www.digenor.gob.do/tabid/104/Default.aspx, as mentioned in the "Ley General de Electricidad"

The multifunction system will be able to register currents and tensions, power factor, active, reactive and apparent power. It will be able to transmit all the data remotely.

It will have two communication buses RS 485, one of them commutable to a RS 232, with an internal modem of 33.6 kbps.

Emission Reductions:
Also, the emission reductions of the project will be accounted as the total electricity delivered to the grid, multiplied by the emission factor of the SENI. In order to monitor the total emission reductions a simplified calculation model will be used (See Annex 4 for details).

Total Energy Generated:
To monitor the output of the electricity of the solar plant two meters will be installed, one for internal control and the other for delivering the electricity to the grid. The installed meters will be sending all the information to the control cabin. All the information will be recorded and stored. The final crosscheck of the data will be with the sales receipts. Also, each one of the structures will have a direct monitoring for detecting any kind of failure in the electric system. All data monitored and required for verification and issuance of CER's will be kept for two years after the end of the last crediting period or the last issuance of CERs, whichever occurs latest.

The following monitoring procedure has been developed in order to generate the necessary information for verification purposes:

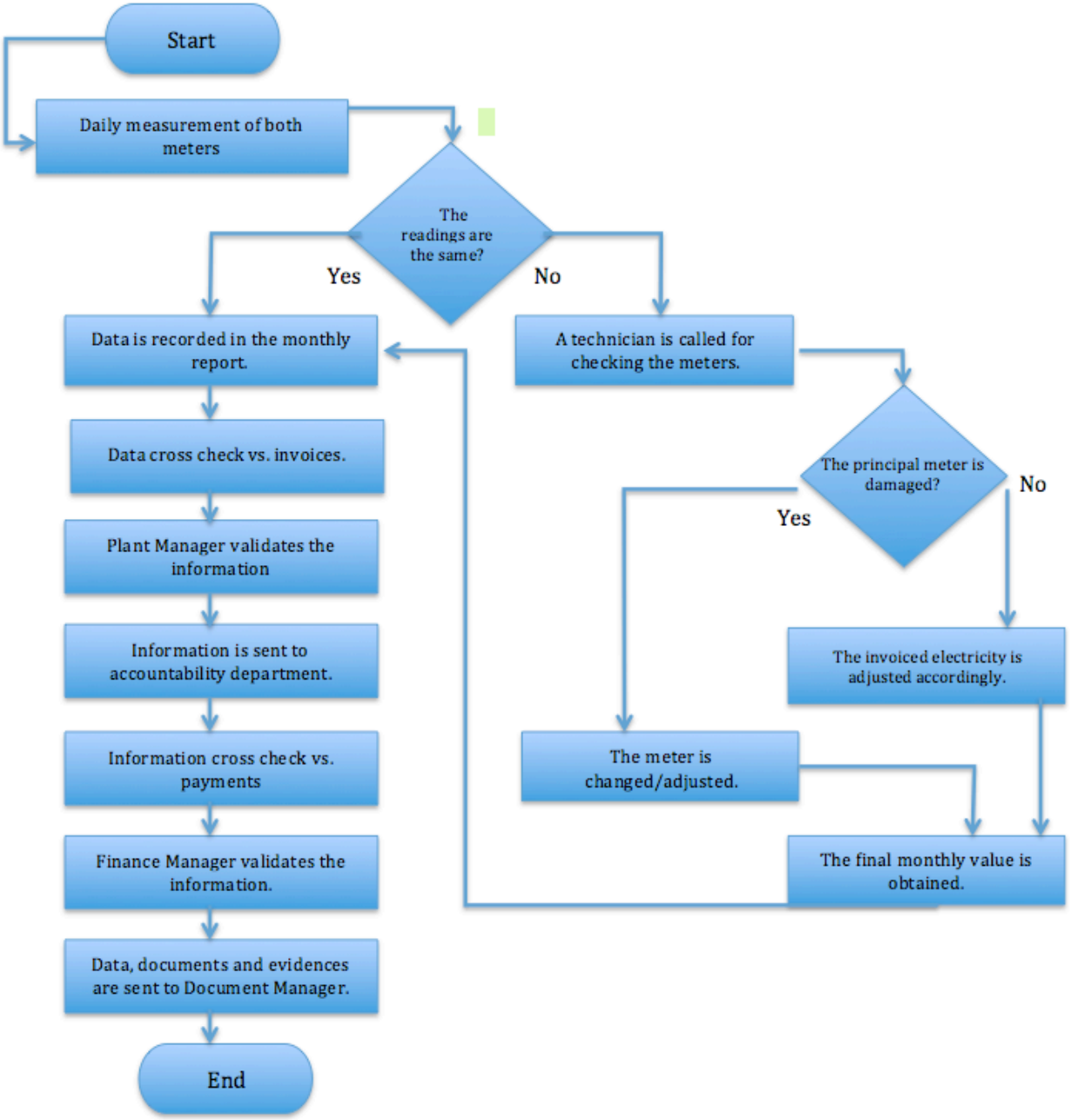


Figure 3: Monitoring procedure

B.8. Date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies):

The baseline calculation and monitoring methodology application was performed by Rodrigo Perez Matabuena on 15/10/2011, employed at Think Carbon GmbH. The company is a project participant listed in Annex 1.

- Address: Südring 13
  D-26125 Oldenburg
  Germany
- Phone: +49-4421-209089-0
- Fax +49-4421-209089-9
- Website: www.german-profec.com
- Email: info@german-profec.com

SECTION C. Duration of the project activity / crediting period

C.1. Duration of the project activity:

C.1.1. Starting date of the project activity:

The project starting date is defined by the date of signature of the purchase agreement for the key-equipment (i.e. the solar panels and tracking system): expected by 01/02/2013.

C.1.2. Expected operational lifetime of the project activity:

The project is expected to have an operational lifetime of 25 years[20].

C.2. Choice of the crediting period and related information:

C.2.1. Renewable crediting period:

C.2.1.1. Starting date of the first crediting period:

N/A

C.2.1.2. Length of the first crediting period:

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

01/06/2013 or the date of registration, whatever occurs later.

C.2.2.2. Length:

10 years

[20] According to the "Study of costs of renewable energy" of the Fraunhofer Institute for Solar Energy Systems ISE, page 9.

SECTION D. Environmental impacts

D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts:

In December of 2010 the Investment Orientation, Promotion and Support Cernter (COAPI, by its name in Spanish: *Centro de Orientación, Apoyo y Promoción al la Inversión*) performed the Environmental Impact Assessment (EIA) for the proposed project activity, with the objective of determine the positive and negative impacts of the project, considering the natural and social environment. For this purpose, an independent analyse was performed for the construction and operation stages. The total budget assigned for the EIA was slightly more than $980,000 USD.
It is important to mention that the EIA was presented to the Environmental Ministry, who granted the Environmental License on March 29th ,2011[21].

The main impacts found are described as follows:

Construction Stage:

The main negative impacts of the construction stage are the removal of the vegetation soil coverage of the project site and the ground drilling for installing the structures and other construction works, however a list of all the impacts found during the construction stage can be the following:

- The loss of the vegetation coverage is the most relevant impact during the construction stage:
  This action affects the flora, fauna, soil, landscape and water quality. This impact is considered as a "one time impact", with presence in the short term, permanent, mitigable and with a short term reversibility.
  It is considered as a "low importance" impact for the water and soil, but it has a "mid importance" in terms of the flora and fauna. The landscape impact is considered as a "high importance".

- Ground drilling:
  This impact will be affecting the air quality because of the amount of suspended particles that will be released into the atmosphere; also could be obstructing the natural water flows and affect the health of the workers. However, its considered as a "low importance" impact.

- Solid waste and waste water:
  Because of the construction activities, mobile sanitary facilities will be installed on site, for preventing any uncontrolled biological discharge of waste water. This impact is considered as a "low importance".

[21] The environmental license for the proposed project activity is: DEA No. 0187-11, March 29th, 2011. The document is available to DOE for validation purposes.

Also all the industrial solid waste will be specially treated. This condition has an immediate effect with a short term impact. It is mitigable and is considered sporadic and of low intensity. For these reasons, this impact is considered as a "low importance".

Analysing by sector, the impacts that were found are:

- Air:
  Two negative impacts that affect the quality of the air: emission of suspended dust particles and emission of exhaust gases from heavy machinery. These impacts are considered "low importance" because of their sporadic occurrence and their small magnitude.

- Water:
  Three impacts are found that affects water: sediments due the erosion of the soil, possible oil spills from heavy machinery, possible discharge of untreated waste water. These impacts are considered "low importance", non recurrent, with a short term affectation, mitigables and of sporadic occurrence.

- Flora:
  Four impacts are found: vegetation coverage, protected flora species, landscape, ecosystem alterations. All these impacts are considered of a high intensity, permanent, with a short term occurrence, with a mid term reversibility, mitigables and its level of importance oscillates between "mid" and "high importance".

- Socio economic:
  For this aspect, two negative impacts and three positive impacts are found. The negatives are: noise emission and traffic congestion in the surrounding areas; both considered of a high relevance. The positive impacts are: employment generation, family income improvement, local income improvement; these impacts are considered of a high intensity, with a short term occurrence, cumulative and "high importance"
  During the construction stage, 65% of the negative impacts are of a "low importance", 25% of a "mid importance" and only 10% of a "high importance". Also the positive impacts are 100% of "high importance".

Operation Stage:

During this stage a total of seventeen impacts are found where eleven are negative and six are positive. The positive impact directly in the socioeconomic aspect regarding the permanent employment generation, local cash flow increase, local economy increase, currency exchange savings, green energy production and CO2 emission reduction. All these impacts are of a "high importance" permanents, cumulative, continuous and of a short term occurrence.

The negative impacts are divided in the following categories:

- Soil:
  The negative impacts are: erosion, oil and grease spills, non organic solid waste. These impacts are considered of low intensity, sporadic, presents a long term affectation and "low importance".

- Water:

The main impacts are: sedimentation because of the soil erosion, oil and grease spills, discharge of untreated waste water. All these impacts are of low intensity, mitigables, and of a "mid importance".

- Flora and Fauna:
  Basically the impacts in these sectors refers to all the landscape affectations, because of the modification of the flowers landscape. These impacts are considered of a high intensity, occurrence in the short term, permanents, mitigables, and of a "mid importance".

In general the negative impacts of the operation stage of the project activity are considered of a "mid importance" and affects soil, water and air and also the flora and fauna of the site. The positive impacts affect directly the socio economic aspect and are considered of a "high importance".

D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party:

In order to mitigate all the negative impacts described in the section D.1, the following procedures and measures will be adopted:

- Soil and Air Management:
  The main objective will be to minimize the total area affected by the presence of the construction activities. The following measures will take place:
  - Removal of the vegetation layer strictly only in the excavation zones.
  - Working activities will take place only during the day.
  - Daily watering with treated water to decrease the emission of dust particle to the atmosphere.
  - Collection and disposal of rubble and solid waste.

- Landscape management:
  The objective will be to minimize changes in the ecosystem of the area and preserve the floral species in the area. For these purposes, the activities that will take place are the following:
  - Relocation within the project boundaries of the protected floral species.
  - Establishment of a "live fence" in the perimeter of the project site.
  - Implementation of small scale farming activities within the boundaries of the project activity.
  - Maintenance of the relocated species.

- Water:
  The objective will be to protect the natural superficial and underground water sources. The activities that will take place are:
  - Companies specialized and certified in water management systems will be hired for the maintenance services of all the infrastructure of the project.

- Mobile sanitary services will be hired for the operation of the project site during the construction and operation stage, so no untreated wastewater will be discharged in the area.

Whit these activities all the negative impacts will be minimized in order to develop the proposed project activity with the minimum harm to the local and global environment, and maximizing the opportunities of creating new employment. The project activity will not present a serious hazard to the local environment and instead will bring many benefits to the local adjacent communities and to the country itself.

The full Environmental Impact Assessment is available to the DOE for the validation purposes.

SECTION E. Stakeholders' comments

E.1. Brief description how comments by local stakeholders have been invited and compiled:

On October 7th of 2011, the Stakeholder consultation of the proposed project activity took place. Details about how the consultation was conducted are given below.

The consultation was oriented for groups I, II and II, following the guidelines of the stakeholders consultation process[22], and the guidelines from the Dominican Republic DNA. The Project Participant identified and invited the following groups:

GROUP I: NATIONAL LEVEL

- AND – Autoridad Nacional Designada (Oficina ONMDL) – *Designed National Athority – CDM Office*
- CNE - Comisión Nacional de Energía – *National Energy Commission.*
- Ministerio de Medio Ambiente y Recursos Naturales – *Ministry of Environment and Natural Resources*

The entities identified in the Group I were invited via invitation letter[23], mailing and/or telephonic invitation to the programmed Project Activity presentation to explain the project activity characteristics and to receive their comments.

GROUP II: REGIONAL OR CORPORATION LEVEL

- Mundo Ecológico – Local NGO
- Employees of Electronics and CDEEE

[22] Executive Board meeting 26 (EB26) of the UNFCCC

[23] A list of invited persons, mailing and invitation letters of the three different groups, are available for the validation process.

- Centro de Orientación, Apoyo y Promoción a la Inversión – *Investment Promotion, Orientation and Support Centre.*
- Monte Plata Tax Attorney
- Monte Plata Environment Office
- Monte Plata Governor
- Etc.

GROUP III: LOCAL LEVEL

- Local Neighbors and Residents

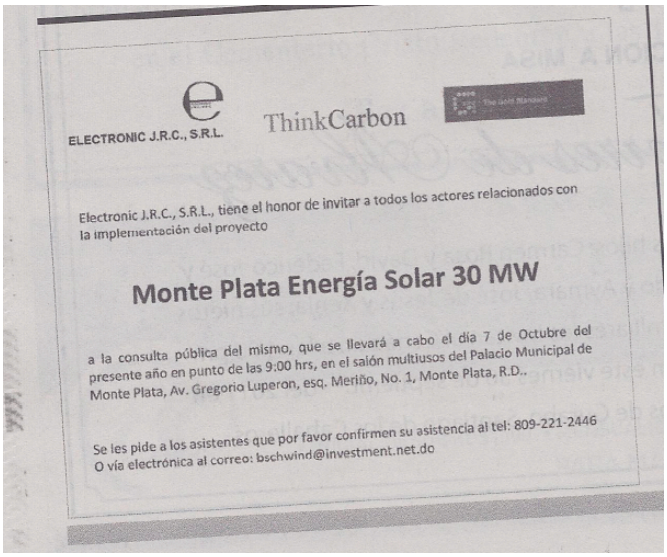
The entities identified in the Group III were invited via invitation letter, mailing, email and telephonic invitation to the programmed Project Activity presentation. Also the project participant published an open invitation to the public trough an announcement in the local newspaper and also posters were printed and placed in strategic points so the community could be aware of the presentation.

After the presentation to the tree identified groups, an opinion poll took place. All the comments received were taken into account and available for the DOE in the validation process.

Also, at the end of the consultation, the participants were asked to answer a brief survey and about the project and the presentation.

For the stakeholders consultation were prepared the following support material

- Power point presentation of the project activity
- Informative leaflets
- Announcements in the Local Newspaper "Listin Diario" calling for the stakeholders' consultation


ELECTRONIC J.R.C., S.R.L.

ThinkCarbon

Electronic J.R.C., S.R.L., tiene el honor de invitar a todos los actores relacionados con la implementación del proyecto

Monte Plata Energía Solar 30 MW

a la consulta pública del mismo, que se llevará a cabo el dia 7 de Octubre del presente año en punto de las 9:00 hrs, en el salón multiusos del Palacio Municipal de Monte Plata, Av. Gregorio Luperon, esq. Meriño, No. 1, Monte Plata, R.D..

Se les pide a los asistentes que por favor confirmen su asistencia al tel: 809-221-2446
O vía electrónica al correo: bschwind@investment.net.do

Figure 4: Local Newspaper invitation

Figure 5: Stakeholder presentation

Figure 6: Leaflet with information given to the audience

Figure 7: Working groups for the GS Sustainability Matrix

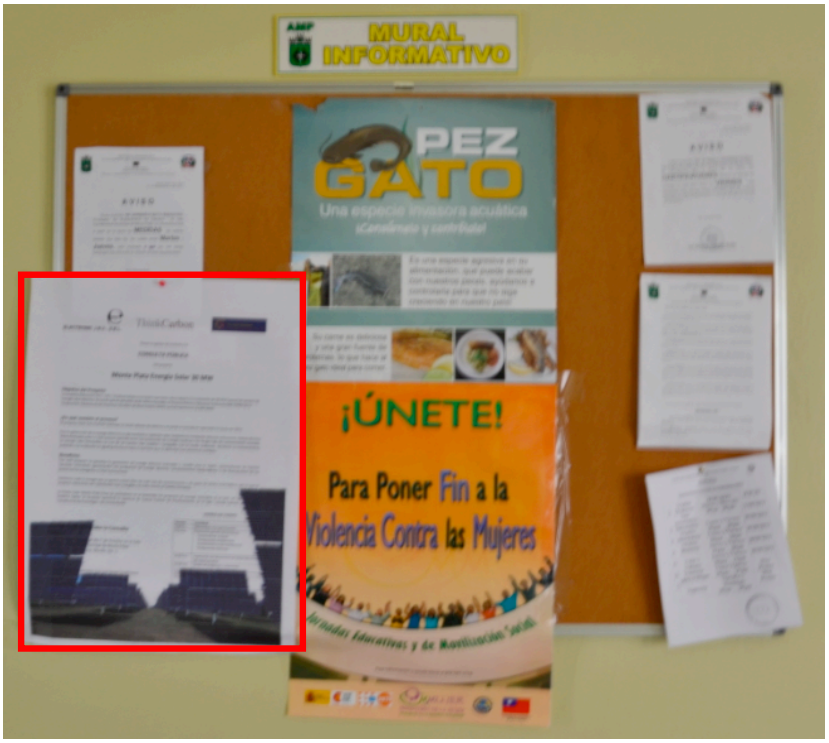


Figure 8: Posters with the public invitation to the LSC

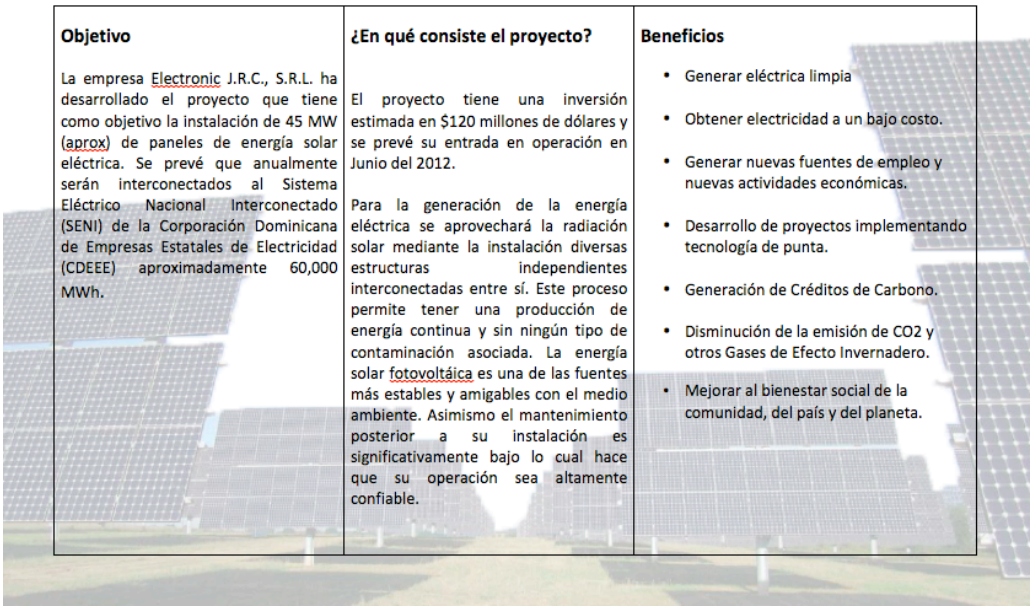


Figure 9: Informative leaflet

The Stakeholder Consultation started at 10:00 am on October 7th. Mr. Ramón Santos started the presentation introducing to the audience the purpose of the meeting and introducing all the different assistants. After that, Mr. Rodrigo Pérez Matabuena from Think Carbon began his exposition talking about the CDM Project Activity, talking about Climate Change and the importance of the CER's for the project. After that, Miss Paloma Sarria from myclimate made her presentation about the sustainability aspects that the Gold Standard Certification is requesting, the

sustainable development matrix and the blind exercise that moment later, all the audience would have to perform.

The technical explanation about the project operation was made by Mr. Sixto de los Santos; he made a brief explanation of the overall mechanism for producing the electric energy and the technical aspects of how it is going to be delivered to the National Grid. Finally the last presenter was Mr. Cirilo Marte, who explained the audience the different environmental, social and economic impacts of the project activity.

After the presentation of the different aspects of the project, a sustainable development matrix exercise was performed. It consisted in dividing the audience into several groups and each one of the groups would have to evaluate the different aspects of the sustainable development that are considered according the Gold Standard procedures. These parameters were:

- Air quality
- Water quality and quantity
- Soil condition
- Other pollutants
- Biodiversity
- Employment quality
- Livelihood for the poor
- Access to clean and affordable energetic services.
- Human and Institutional capacity.
- Quantitative generation of employment and income.
- Payment and investment balance.
- Transfer and self-sufficiency of technology.

Each one of the indicators were explained in order to provide the audience the necessary information for they to decide if the project will have a "positive", "negative" or "neutral" impact on each one of those indicators.
After finishing the evaluation, a general discussion took place in order to compare the different answers and perceptions of the groups. After reaching a consensus of all the different opinions, the following Consolidated Development Matrix was created.

○ **Indicator**	○ **Mitigation measure**	○ **Relevance to achieving MDG**	**Chosen parameter and explanation**	○ **Preliminary score**
○ Gold Standard indicators of sustainable development	○ If relevant, copy mitigation measure from 'Do No Harm' assessment, and include mitigation measure used to neutralise	○ Check www.undp.org/mdg and www.mdgmonitor.org ○ Describe how your indicator is related to local MDG goals	○ Defined by project developer	○ Negative impact: score '-' in case negative impact is not fully mitigated, score '0' in case impact is planned to be fully mitigated ○ No change

	a score of '-'			in impact: score '0' o Positive impact: score '+'
o Air quality	o Neutral impact, no need to mitigate it.		o There are no significant impacts of the project activity on the indoor air pollution or quality.	o 0
o Water quality and quantity	o Neutral impact, no need to mitigate it.		o There is no significant impact of the project activity on the water quality or quantity because the plant is not using any kind of water during its operation.	o 0
o Soil condition	o Neutral impact, no need to mitigate it.		o There are no significant impacts on the soil condition because once the project activity is installed, there are no by-products or consumables that are dumped or disposed. Also the project activity is isolated in a way that there are no external inputs or incoming goods into the project site and the only output is the electricity generated, which is delivered to the national grid.	o 0
o Other pollutants	o Neutral impact, no need to mitigate it.		o As mentioned before, the project activity produces no other product but electricity. The noise level is kept to a minimum as there	o 0

			are no heavy mechanics involved and there are no other pollutants emitted.	
○ Biodiversity	○ Neutral impact, no need to mitigate it.		○ During the construction of the project activity there will be a relocation of some of the wild vegetation that will be removed, therefore the long term impact of the project activity is neutral. Compensation measures take place to re-establish the biodiversity removed at the project site.	○ 0
○ Quality of employment		○ Contributes to the goal # 1, 3, 7, 8 because the project will create new and permanent employment that would be available to anyone able to do the job, without considering age, gender, race or culture. Also the Project proposes the continuous training of the staff and the collaboration with other relevant national and international actors.	○ The chosen parameter will be the employment opportunities with a proper social insurance and with proper working. protection clothes. ○ Also the employees get regular capacity building whenever needed.	○ +
○ Livelihood of the poor		○ Contribution to the goal # 1 because the project activity will increase the total employment availability in the area and therefore there will be larger economic stability in the region.	○ Due to the direct and indirect jobs created there will be an increase of fair wages received by the employees. ○ The parameter chosen will be the average income of the employees of the	○ +

			project activity and the comparison whether any of them have improved their income in comparison to the situation before.	
o Access to affordable and clean energy services		o Contribution to the Goal # 7 because the Project increases the total clean electricity in the Dominican Republic energetic portfolio and therefore it contributes to decrease the consumption of fossil fuels. Moreover on long-term it is expected that the generation costs are cheaper if compared to diesel generators.	o The monitoring parameter will be the total energy amount that will be generated and delivered to the grid..	+
o Human and institutional capacity		o Contribution to the Goal # 3 because the project activity will open new employment opportunities that could be occupied by either man or women, as long as they are capable to deliver the expected responsibilities.	o The positions will be open equally to men and women. Staff to be employed for some tasks need in addition a special training and education as to successfully perform the operational jobs of this new technology introduced. The parameters chosen will be the events of capacity building provided to the future staff as well as the amount of women that have been employed.	o +
o Quantitative employment and income		o Contributes to the Goal # 1 because it will generate new employment in the region, generating a	o Parameter is the total employment generation i.e. total number of vacancies occupied and having	o +

generation		greater incomes. These employments will be fair remunerated strictly following all the guidance of the local labor laws.	social insurances. o With the new employment there will be more income in the region and also the project will open new direct and indirect business opportunities.	
o Balance of payments and investment		o Contribution to the Goal # 8 because the Project is one of the first renewable energy initiatives that is promoted in the country and therefore helps to increase the confidence of many investors in these kind of activities. Moreover the national dependency on fossil fuel imports is reduced.	o Parameter is the total energy supplied to the grid and the reduced fossil fuel imports. o There will be savings in the import of fossil fuels, so there will be a benefit for the country, however, because of the scale of the project activity, there is not a significant impact on the national level, therefore the project is considered to have a neutral impact. o Project improves balance of payments due to less financial resources used to import fossil fuels and generates significant foreign investment in the country.	o +
o Technology transfer and technological self-		o Contribution to the goal # 8 because establishes a link between the national and international industry for generating technology	o Parameter is the amount of total training sessions for employees and the amount of foreign experts involved to perform the transfer	o +

reliance		and knowledge transfer.	of capacities. Within the project activity staff will be trained to operate this new imported technology, providing them better job opportunities also in future.	

Table 7: Consolidated Sustainable Development Matrix

E.2. Summary of the comments received:

After the CDM Project Activity presentation, all the attendants were asked to answer a brief feedback form about the content of the presentation and the objectives of the Project Activity. The questions of the form were the following:

1. What was your impression about the consultation?
2. What is what you liked the most about the project activity?
3. What is what you don't like about the project activity?
4. In your opinion, what are the social benefits of the project?
5. In your opinion, what are the environmental benefits of the project?
6. In your opinion, what are the economic benefits of the project?
7. In your opinion, what are the social disadvantages of the project?
8. In your opinion, what are the environmental disadvantages of the project?
9. In your opinion, what are the economic disadvantages of the project?
10. General comments

Compilation of the results expressed in the feedback forms:

The feedback forms were filled out at the end of the consultation, before the closure. After reviewing the completed forms, we obtained the following results:
All of the participants indicated that the LSC was very interesting and positive, and some indicated that they were happy to see that the meeting included a very complete representation of stakeholders. Also, they liked how democratic the process was given that it proactively involved their participation in the discussion of impacts of the project on sustainable development.

In terms of what they liked most about the project, some said that they liked everything about the project, others referred to the technology, and others said they liked that it involves the participation of the community of Monte Plata and it will bring jobs and higher incomes. Regarding the question on what stakeholders did not like about the project, some said that they did not like that the project was not yet 'up and running' and that certain authorities were taking such a long time in approving such an important project; 2 people said that they did not like the lack of compromise of the project with the Municipality of Monte Plata; and 2 people mentioned that they did not like that the project would modify the flora of the project site.

When given the opportunity to describe the advantages of the project, the vast majority responded that the main socioeconomic benefit of the project is the fact that it will generate a number of temporary and permanent jobs, which lead to new sources of income and higher living standards in the community. Others mentioned that the project would lead to big savings in foreign exchange and high investment in the country. One person made the interesting comment that this project could lead to a more dynamic economy in Monte Plata and the potential of ecotourism in the region. Another person commented that this project would lead to the generation of clean energy and cheaper energy. This point should be clarified in the Stakeholder Feedback Round as this project will not necessarily result in lower energy tariffs. In terms of environmental advantages, most stakeholders mentioned CO2 reduction as the main advantage.

When asked about the disadvantages of the project, many stakeholders said that they did not find anything negative about the project. Those who did find disadvantages primarily referred to the fact that the project will relocate trees to other areas. In addition, two people commented that a social disadvantage of the project is that the land of the project site could have been used for housing for people of the community instead of the project. With respect to this last comment, it should be clarified in the feedback round that the project site is privately-owned and that no other potential use (housing or other) has been displaced by the project.

E.3. Report on how due account was taken of any comments received:

During the question and answers session, some comments were made. In the following table is a summary of those comments and the response form the Project Participant.

Stakeholder comment	Was comment taken into account (Yes/ No)?	Explanation (Why? How?)
Lisandro Gomdrez, Firefighter of Monte Plata Now that you have located the zone in which the project will take place, I understand that there is an area that will be deforested. Once the plant has been installed, will you reforest somewhere else?	Yes	The plants that are found in the project site are mainly wild vegetation with just a few trees. Either way, we will relocate the plants and trees to a different area during the construction phase. Also the site will be used to plant crops, such as pineapple, which can grow under the solar panels. There is a particular area next to a river in the project site that will be conserved. The Environmental Impact Study contains an Environmental Management Plan which provides details on plants relocation, conservation in the project site, etc.

Dione Fermin, Civil Society After the construction stage, how many employments will be generated?	Yes	After the construction there will be an approximate of 150 permanent employments during the operational lifetime of the project activity.
Juan Fernando, Inhabitant, Neighborhood of Barrio Lindo, Monte Plata Are there any houses in the project site? In case there are, what are you planning to do with them?	Yes	No, there are no houses or any person living on the project site.
Domingo Tavares, Cooperative Casa Verde What is missing in order to complete the execution of the project?	Yes	We need the support of Monte Plata Municipality in order to get the final component of finance.
Daniel Sebastián, Civil Society: For security reasons, what is the minimum distance that should exist between the project activity and human/animal settlements?	Yes	There is no need to have a distance between the project activity and human/animal settlements. The project does not represent any hazard for the surrounding communities, as there are no emissions of any kind of gas, liquid, waste or any other by-product that could harm in some way the communities or any animal. In addition, there will be approximately 100+ people working permanently on the site. The only reason of keeping the site isolated with a fence is for protecting the equipment form any kind of vandalism.
Felix Heredia, Community Inhabitant How many molecules of CO2 are there in a CO2 ton? And what could be the equivalent emission of CO2 that is being avoided because of the project activity?	Yes	There are many molecules in one ton of CO_2. The national electric grid in Dominican Republic has an associated emission factor of approximately 1 ton of CO2 per MWh generated. The project activity will reduce approximately 35,000 tons of

		CO2 per year. One ton of CO2 is equivalent to the emission of an efficient commercial vehicle after covering a distance of 5,000 kms.
Leni Valdes, Council of the Municipality of Monte Plata I want the project to have a real benefic impact for Monte Plata and not only to use the natural resources of the region without any other benefit to the population.	Yes	The project activity is being developed by a company not by a charity. The energy will be delivered to the SENI and they will be distributing it, not the PO. The company is committed with the community and with the government of Monte Plata and will work together for developing new opportunities for the people, but the company should always remain as a business because otherwise we will be jeopardizing its profitability and therefore the company will not continue offering the employment sources to the Monte Plata municipality.

Table 8: Stakeholders comments

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Organization:	Electronic J.R.C., S.R.L.
Street/P.O.Box:	Ave. George Washington, Esq. C. Pasteur
Building:	Torre Veiramar I
City:	Santo Domingo
State/Region:	Santo Domingo
Postcode/ZIP:	N/A
Country:	Dominican Republic
Telephone:	+1-829-340-1454
FAX:	N/A
E-Mail:	bschwind@investment.net.do
URL:	http://www.investment.net.do
Represented by:	Bertram Schwind
Title:	Engineer
Salutation:	Mr.
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Annex 2

INFORMATION REGARDING PUBLIC FUNDING

No public funding is involved in the project activity.

Annex 3

BASELINE INFORMATION

ELECTRICITY POWER PLANTS	YEAR	2007	2008	2009	2010	EFFICIENCY %
COMBINED CYCLE	CESPM 1	121.71	225.93	355.34	31.44	45.26%
	CESPM 2	32.46	82.86	110.44	50.51	45.26%
	CESPM 3	46.03	90.72	11.39	83.04	45.26%
	SAN FELIPE	687.62	1,022.73	761.03	771.68	32.94%
	AES ANDRES	1,892.32	2,029.53	1,717.41	2,082.69	45.36%
HYDROELECTRIC	AGUACATE 1	92.32	-	0.00	-	0.01
	AGUACATE 2	87.14	-	0.00	-	0.01
	ANIANA VARGAS 1	0.56	0.41	0.00	0.27	0.01
	ANIANA VARGAS 2	0.33	0.49	0.48	0.55	0.01
	BAIGUAQUE 1	0.82	0.37	0.70	0.85	0.01
	BAIGUAQUE 2	1.06	1.19	0.97	1.42	0.01
	CONTRA EMBALSE MONCION 1	9.97	7.17	7.86	9.94	0.01
	CONTRA EMBALSE MONCION 2	9.11	6.99	4.80	9.11	0.01
	DOMINGO RODRIGUEZ 1	4.03	5.17	6.46	6.72	0.01
	DOMINGO RODRIGUEZ 2	5.15	5.93	5.70	6.00	0.01
	EL SALTO	3.20	3.67	3.25	2.58	0.01
	HATILLO	60.58	61.35	66.76	63.83	0.01
	JIGUEY 1	196.22	243.44	53.26	-	0.01
	JIGUEY 2	-	0.04	191.74	193.44	0.01
	JIMENOA	26.00	46.38	34.91	47.24	0.01
	LAS BARIAS	-	-	3.65	3.77	0.01
	LAS DAMAS	42.90	58.32	49.83	36.39	0.01
	LOPEZ ANGOSTURA	97.12	108.95	84.81	87.28	0.01
	LOS ANONES	0.03	-	0.00	0.07	0.01
	LOS TOROS 1	25.82	24.96	29.71	16.63	0.01
	LOS TOROS 2	26.93	24.14	26.72	18.61	0.01
	MAGUEYAL 1	-	3.05	8.73	4.07	0.01
	MAGUEYAL 2	-	1.64	2.96	5.79	0.01
	MONCION 1	126.02	62.88	57.03	96.91	0.01
	MONCION 2	138.87	70.63	62.14	120.38	0.01
	NIZAO NAJAYO	0.41	0.00	0.16	0.21	0.01
	PINALITO 1	-	-	22.71	51.75	0.01
	PINALITO 2	-	-	18.28	69.01	0.01
	RINCON	27.51	19.36	30.42	23.67	0.01
	RIO BLANCO 1	80.69	50.91	82.17	69.11	0.01
	RIO BLANCO 2	64.25	69.78	65.01	62.38	0.01
	ROSA JULIA DE LA CRUZ	2.33	2.30	1.79	1.75	0.01
	SABANA YEGUA	66.90	95.93	81.05	60.30	0.01
	SABANETA	33.38	35.50	26.65	30.05	0.01
	TAVERA 1	200.16	114.69	150.07	143.91	0.01

	TAVERA 2	177.16	157.93	180.24	105.13	0.01
	VALDESIA 1	43.45	49.81	47.56	35.86	0.01
	VALDESIA 2	45.11	50.85	50.03	40.96	0.01
THERMOELECTRIC	BARAHONA CARBON	305.01	308.82	266.84	315.97	0.25
	ITABO 1	798.50	782.76	774.81	707.63	30.25%
	ITABO 2	775.31	756.30	710.43	663.63	28.77%
	FALCONDO 1	410.61	317.50	66.64	231.56	28.69%
	FALCONDO 2	360.32	299.98	248.03	165.86	28.69%
	FALCONDO 3	311.07	316.65	148.23	69.55	28.69%
	HAINA 1	50.79	26.49	72.60	35.19	24.29%
	HAINA 2	-	-	-	-	26.45%
	HAINA 4	235.19	109.97	37.62	61.23	26.74%
	PUERTO PLATA 1	-	-	-	-	24.75%
	PUERTO PLATA 2	-	5.77	0.01	18.86	25.97%
	SAN PEDRO VAPOR	-	3.81	41.44	27.90	25.49%
	CEPP 1	73.92	57.63	59.01	84.08	37.93%
	CEPP 2	288.19	207.00	239.48	274.19	39.56%
	ESTRELLA DEL MAR	526.00	538.05	542.39	527.67	41.92%
	ESTRELLA DEL NORTE	254.80	262.33	266.68	213.73	38.19%
	LA VEGA	437.22	532.32	525.21	414.25	39.93%
	METALDOM	240.16	229.93	187.13	195.14	41.75%
	MONTE RIO	464.03	540.85	530.15	525.98	42.82%
	PALAMARA	444.77	544.90	585.18	609.80	39.97%
	PIMENTEL	243.59	235.82	390.63	541.21	42.19%
	SULTANA DEL ESTE	1,000.48	819.41	625.20	688.20	43.55%
	RIO SAN JUAN	-	5.00	8.78	8.66	1.00%
	HAINA TG	27.78	44.20	49.62	79.78	27.49%
GAS TURBINE (NATURAL GAS)	LOS MINA 5	131.78	133.63	30.26	573.53	25.50%
	LOS MINA 6	231.30	202.73	428.30	622.82	30.30%

Table 9: Net Electricity Generation 2007-2010

All the information is publicly available upon request at the National Energy Commission – CNE **www.cne.gov.do**

Electricity Power Plants	Fossil Fuels expressed in Gg											
	2007			2008			2009			2010		
	Coal	Diesel	Fuel Oil	Coal	Diesel	Fuel Oil	Coal	Diesel	Fuel Oil	Coal	Diesel	Fuel Oil
CESPM 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CESPM 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CESPM 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SAN FELIPE	0.00	4110.75	0.00	0.00	5758.79	0.00	0.00	4393.99	3558.53	0.00	3617.03	4688.04
AES ANDRES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AGUACATE 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AGUACATE 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ANIANA VARGAS 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ANIANA VARGAS 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BAIGUAQUE 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BAIGUAQUE 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONTRA EMBALSE MONCION 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CONTRA EMBALSE MONCION 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DOMINGO RODRIGUEZ 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DOMINGO RODRIGUEZ 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EL SALTO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HATILLO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JIGUEY 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JIGUEY 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JIMENOA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LAS BARIAS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LAS DAMAS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LOPEZ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

ANGOSTURA												
LOS ANONES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LOS TOROS 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LOS TOROS 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAGUEYAL 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAGUEYAL 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MONCION 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MONCION 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NIZAO NAJAYO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PINALITO 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PINALITO 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RINCON	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RIO BLANCO 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RIO BLANCO 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ROSA JULIA DE LA CRUZ	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SABANA YEGUA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SABANETA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TAVERA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TAVERA 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VALDESIA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VALDESIA 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BARAHONA CARBON	159.14	0.00	0.00	163.23	0.00	0.00	139.02	0.00	0.00	117.90	0.00	0.00
ITABO 1	0.00	0.00	7.03	0.00	0.00	3.64	0.00	0.00	4.68	0.00	0.00	0.00
ITABO 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FALCONDO 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FALCONDO 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FALCONDO 3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HAINA 1	0.00	0.00	704.05	0.00	0.00	366.74	0.00	0.00	1122.96	0.00	0.00	505.34
HAINA 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

HAINA 4	0.00	0.00	3264.98	0.00	0.00	1491.28	0.00	0.00	509.19	0.00	0.00	488.61
PUERTO PLATA 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PUERTO PLATA 2	0.00	0.00	0.00	0.00	0.00	86.35	0.00	0.00	0.20	0.00	0.00	246.36
SAN PEDRO VAPOR	0.00	0.00	0.00	0.00	0.00	56.32	0.00	0.00	636.63	0.00	0.00	418.69
CEPP 1	0.00	0.00	599.32	0.00	0.00	496.07	0.00	0.00	559.96	0.00	0.00	774.48
CEPP 2	0.00	0.00	2203.01	0.00	0.00	1792.79	0.00	0.00	2250.78	0.00	0.00	2490.42
ESTRELLA DEL MAR	0.00	0.00	2635.52	0.00	0.00	4746.21	0.00	0.00	4733.70	0.00	0.00	4633.26
ESTRELLA DEL NORTE	0.00	0.00	1381.34	0.00	0.00	2464.96	0.00	0.00	2494.16	0.00	0.00	1976.29
LA VEGA	0.00	0.00	3977.36	0.00	0.00	3349.07	0.00	0.00	4765.17	0.00	0.00	3740.50
METALDOM	0.00	0.00	2285.94	0.00	0.00	2011.24	0.00	0.00	1515.29	0.00	0.00	1015.37
MONTERIO	0.00	0.00	3642.69	0.00	0.00	4656.97	0.00	0.00	3774.25	0.00	0.00	4578.44
PALAMARA	0.00	0.00	4217.90	0.00	0.00	3405.08	0.00	0.00	5490.59	0.00	0.00	5679.03
PIMENTEL	0.00	0.00	2110.41	0.00	0.00	2066.18	0.00	22585671.2	0.00	0.00	0.00	27138905.7
SULTANA DEL ESTE	0.00	0.00	8673.81	0.00	0.00	7849.44	0.00	0.00	8295.81	0.00	0.00	6050.10
RIO SAN JUAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HAINA TG	0.00	350.18	0.00	0.00	536.81	0.00	0.00	596.39	0.00	0.00	711.98	0.00
LOS MINA 5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LOS MINA 6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 10: Fossil Fuels Consumption 2007 - 2010

In order to present the information in a concise manner, the total amount of fossil fuels consumption has been converted into a mass unit. The detail of how the calculations were made is available to the DOE for validation purposes.

Electricity Power Plants	**Year of addition**	**Type of Power Plant**	**Net generation 2010 (MWh)**	**%**	**Cumulative %**
LAS BARIAS	2009	Hydroelectric	3768.7814	0.0311%	0.0311%
PIMENTEL	2009	Thermoelectric	541213.7961	4.4722%	4.5034%
PINALITO 1	2009	Hydroelectric	51750.8455	0.4276%	4.9310%
PINALITO 2	2009	Hydroelectric	69009.0210	0.5702%	5.5012%
MAGUEYAL 1	2008	Hydroelectric	4071.5002	0.0336%	5.5349%
MAGUEYAL 2	2008	Hydroelectric	5786.8404	0.0478%	5.5827%

RIO SAN JUAN	2008	Thermoelectric	8655.4070	0.0715%	5.6542%
ROSA JULIA DE LA CRUZ	2006	Hydroelectric	1749.2498	0.0145%	5.6687%
DOMINGO RODRIGUEZ 1	2005	Hydroelectric	6720.4290	0.0555%	5.7242%
DOMINGO RODRIGUEZ 2	2005	Hydroelectric	6003.6310	0.0496%	5.7738%
ANIANA VARGAS 1	2003	Hydroelectric	274.5105	0.0023%	5.7761%
ANIANA VARGAS 2	2003	Hydroelectric	545.8272	0.0045%	5.7806%
MONTE RIO	2003	Thermoelectric	525978.8374	4.3463%	10.1269%
AES ANDRES	2003	Combined Cycle	2082690.7830	17.2099%	27.3368%

Table 11: Build Margin Power Plants

Annex 4

MONITORING INFORMATION

Month	Item	Bill No.	Net Electricity Generation. Measured. (GWh)	Net Electricity Generation Sales. (GWh)	EFy exante (tCO_2/GWh)	ER (tCO_2)	Difference (Measurement-Sales)	Verified by	Signature	Comments
1					654.0765					
2					654.0765					
3					654.0765					
4					654.0765					
5					654.0765					
6					654.0765					
7					654.0765					
8					654.0765					
9					654.0765					
10					654.0765					
11					654.0765					
12					654.0765					

Responsible	
Date	

Figure 10: Monitoring Data Control

This monitoring format will be used in order to generate the emission reductions for the Project Activity, and also for pointing out if there is any difference between the energy that is being fed into the national grid at the PCC and the energy that is being purchased by the clients.

Each one of the following columns should be filled as follows:

Month: The consecutive month in which the measurement is being taken.
Item: Description of the measurement, e.g. "January Measurement"
Bill No. The number of the bill that covers that measurement.
Net Electricity Generation Sales (GWh): Is the total amount of electricity expressed in GWh that is being measured in the meter at the PCC.
EFy ex-ante: Is the emission Factor for the Electric Grid. It is a constant value for the entire project. It will be updated after the first crediting period.
ER (CO_2) Is the total amount of Emissions Reductions achieved with the project activity. It is made by multiplying the Net Electricity Sales and the EF_y ex-ante. Is expressed in tons of CO_2
Difference: In case that there are differences between what is being measured and what is being paid by the clients (verified with the sales receipts), it should be reported here.
Verified by: The name of the person who is reporting the data.
Signature: The signature or personal ID of the person who is reporting the data.
Comments: Any relevant information about the production, maintenance, etc.

This table will be presented as a summary of all the electricity generated during the lifetime of the project activity and also as a record of all the emission reductions generated by the presence of the solar plant.

It is important to mention that all the detailed technical data and any other information that is not listed here, but that is relevant to the project activity, will be fully available to DOE for the validation process.

Description of the Procedure of Monitoring and Validation of the measurements of energy delivered to the national grid:

Objective:

This procedure aims to ensure the correct measurement of the total energy generated and delivered to the national grid, for accounting and invoicing purposes and also for the further calculation of the GHG emission reductions.

Scope:

The present procedure will involve the following areas and employees of the organization:

- General Management of the CPA
  - Plant Manager (PM)
  - Operational Chief (OC)

- Accountability office
  - Finance Manager (FM)
  - Accountant (AC)
  - Document Manager (DocMan)

Equipment to be used:

- Principal meter
- Backup meter

Required and generated documents:

- Daily report (DR)
- Internal monthly report (MR)
- National Grid monthly report (NMR)
- Monthly invoice report (MI)
- Payments receipts (PR)

Activities:

a) The OC will take a daily measurement of the readings of the principal and backup meters.
   i. If there is a disparity on the measurements between the two meters, it will be required the revision of both of them by a certified technician. He will then proceed with the calibration, repair or change of the damaged meter.
   ii. If the principal meter is the one presenting failures on the measurement of the energy, the official amount of energy will be the reading of the backup meter. In

order to generate the corresponding invoices, and adjustment on the total amount reported to the national grid will be made, supported by the verification and authorization of the certified technician.

b) The OC will capture the daily measurement in the DR.
c) The OC will generate the MR
d) The OC will cross check the information of the MR and the MI.
e) The National Grid will generate the NMR for the entire project.
f) The OC will cross check the information of the MR and the NMR.
g) If there are differences between the measurements reported in both reports, an auditing will take place with and authorized representative of the National Electric Grid, in order to make the necessary adjustments.
h) Once the information is validated it will be sent to the PM for verification.
i) The validated information will be sent to the AC for revision and starting the payment process.
j) The AC will cross check the information with the PR.
k) The AC will send the validated information to the FM for verification.
l) Once all data is clear and assessed, all the original documents and evidences will be sent to the DocMan. The archive will hold all evidences until the year 2025 or two years after the last crediting period, whatever occur first.