

**CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM (CDM-SSC-PDD)
Version 03 - in effect as of: 22 December 2006**

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Revision history of this document

Version Number	Date	Description and reason of revision
01	21 January 2003	Initial adoption
02	8 July 2005	<ul style="list-style-type: none">• The Board agreed to revise the CDM SSC PDD to reflect guidance and clarifications provided by the Board since version 01 of this document.• As a consequence, the guidelines for completing CDM SSC PDD have been revised accordingly to version 2. The latest version can be found at http://cdm.unfccc.int/Reference/Documents.
03	22 December 2006	<ul style="list-style-type: none">• The Board agreed to revise the CDM project design document for small-scale activities (CDM-SSC-PDD), taking into account CDM-PDD and CDM-NM.

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SECTION A. General description of small-scale project activity**A.1 Title of the small-scale project activity:**

Baltra Wind Project in the Galapagos (the “Project”)

Document Version 01

Date of Completion: 03/January/2011

A.2. Description of the small-scale project activity:

The Project activity is a greenfield wind power project on the Island of Baltra, the Galapagos Islands in Ecuador. Prior to the implementation of the project activity, no renewable energy power plant is operating at the project site. The electricity generated from the Project will be fed into a mini-grid in the Island of Santa Cruz and Baltra. Santa Cruz is the most populated island in the Galapagos with nearly one half of the population of the Galapagos, and one power station with diesel generators is serving the daily demand. The Project will be implemented in three phases, by gradually expanding the wind capacity and replacing the electricity generated by diesel generators while meeting the increasing electricity demand on the island.

As part of the Ecuadorian government’s voluntary initiative “Zero Fossil Fuel for the Galapagos Islands,” the Project will contribute to the sustainable development of the Galapagos Islands and protect vulnerable ecosystems of the islands.

EIA and other preliminary studies conducted for the Project concluded that the Project will contribute to the Galapagos’s sustainable development on following points:

Environmental contribution

- Reduction of emissions of VOCs from loading and unloading diesel used for power generation for a mini-grid in the Island of Santa Cruz
- Reduction of emissions of CO₂, SO₂, CO, PMs and NO_x from the diesel generator at the power station
- Reduction of land contamination at the power station
- Less risk of oil spill and damage to the fragile ecosystem of the Galapagos by reducing the diesel use for the power generation

Economic contribution

- Alleviation of fuel supply dependence on mainland Ecuador by introducing renewable energy to the islands
- Bolstering the islands’ global image as a model of sustainable life, serving as a showcase for tourism, the main income source for the island inhabitants

Social contribution

- Reduction of noise from the power station, which is located in the capital city of the Santa Cruz
- Education campaign by raising awareness of the people on renewable energy and energy saving, with a common goal to achieve a completely sustainable energy system

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A.3. Project participants:
Table 1: Table of project participant

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)
Ecuador (host)	Fideicomiso Mercantil Energía Renovable para Galápagos (Public entity)	No
Japan	Mitsubishi UFJ Morgan Stanley Securities, Co. Ltd.	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.

See contact information in the Annex 1 of this PDD.

Fideicomiso Mercantil Energía Renovable para Galápagos is responsible for the renewable energy projects in the Galapagos Islands.

Energías Renovables para Galápagos (ERGAL) will be a designated as a responsible local organization for the project implementation and CDM.

Mitsubishi UFJ Morgan Stanley Securities Co., Ltd. is a CDM consultant to the Project activity.

A.4. Technical description of the small-scale project activity:
A.4.1. Location of the small-scale project activity:
A.4.1.1. Host Party(ies):

Ecuador

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

Island of Baltra, Galapagos Province

A.4.1.3. City/Town/Community etc:

Galapagos National Park

A.4.1.4. Details of physical location, including information allowing the unique identification of this small-scale project activity :

The proposed project site is located on the Island of Baltra, in the Galapagos Islands, Ecuador.

Geographical coordinates:

P1(803750, 9951200), P2 (804385, 9951560)

P3 (805800, 9948900), P4 (806100, 9949200)



Figure 1- Map of the Galapagos Islands (Courtesy of Wikipedia)

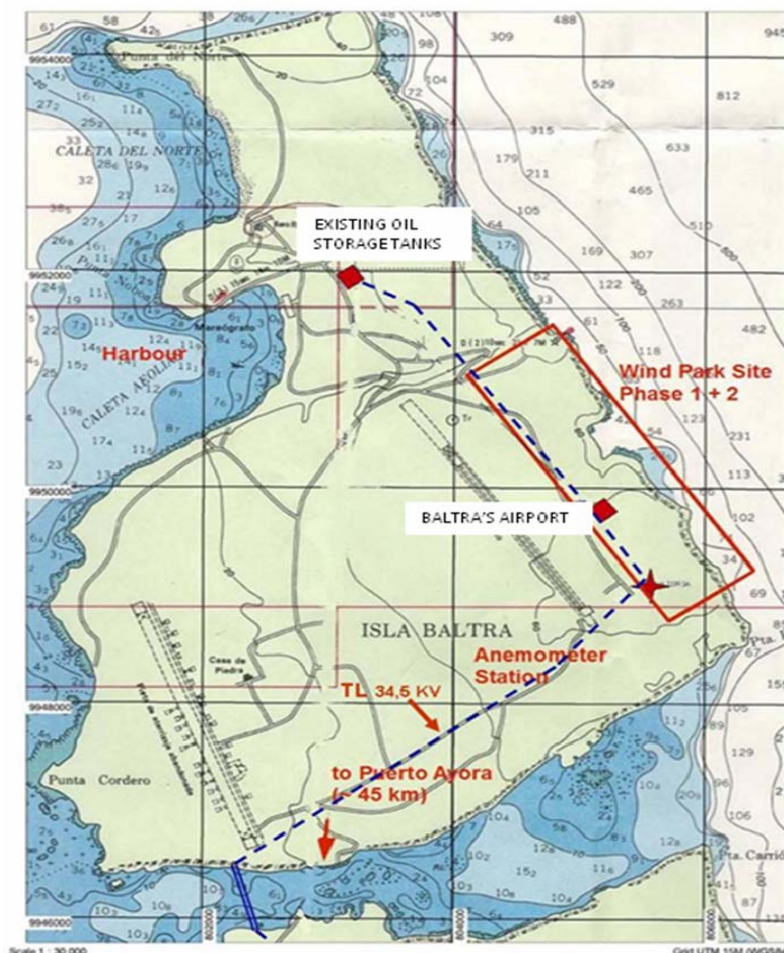


Figure 2- Map of the Island of Baltra and project site location

A.4.2. Type and category(ies) and technology/measure of the small-scale project activity:

The Project activity falls under the following type and category:

AMS-I.F.

Type I: Renewable energy projects

Category F: Renewable electricity generation for captive use and mini-grid

Reference: Version 1, Scope 1, in effect as of 28 May, 2010

Technology Applied:

The proposed project activity is a wind energy project, which is going to be implemented in different phases:

Table 2: Project Implementation Schedule

Phases	Expected Commissioning Date	Turbine Size and Number of Turbines to be Installed	Total Installed Rated Capacity
Phase I	Last quarter 2011	750 kW x 3	2.25 MW
Phase II	Last quarter 2013	750 kW x 7	5.25MW ¹

Although Phase III is under consideration for start in 2015, projects covered under this CDM project activity are the ones implemented in the Phase I and II.

Wind turbine characteristics for the Phase I

- 3-blade, air-foil, up-wind rotor
- Class III IEC wind turbine
- Active yawing
- Pitch control
- Multiple fail & safety systems
- Full automatic operation, interface for remote control & monitoring
- Free-standing tubular steel tower (no guy wires)

Transmission line characteristics

- Length: 50 km
- Voltage: 34.5 kV
- Submarine cable, air compact cable, and underground cable are considered to be installed

The turbines will be transported from abroad and mounted with special caution. For the Phase II, the same wind turbine manufacturer is expected to provide the wind technology. However, this will be determined later after the Phase I wind turbines become operational.

A.4.3 Estimated amount of emission reductions over the chosen crediting period:**Table 3 – Estimated emission reductions**

Years	Estimation of emission reductions in tonnes of CO ₂ e
October 2011-September 2012	3,840
October 2012-September 2013	3,840
October 2013-September 2014	10,974
October 2014-September 2015	10,974
October 2015-September 2016	10,974
October 2016-September 2017	10,974
October 2017-September 2018	10,974
Total estimated reductions	62,550

¹ Currently, it is planned to install 5.25MW of the rated capacity during the Phase II. However, this may be slightly increased or decreased, after re-examining the wind speed availability and operation performance of the Phase I wind turbines.

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(tonnes of CO ₂ e)	
Total number of crediting years	7 years (with renewal)
Annual average over the crediting period of estimated reductions (tonnes of CO₂e)	8,936

A.4.4. Public funding of the small-scale project activity:

The Project is not receiving any funds from Annex I countries, and therefore, it does not result in the diversion of official development assistance.

A.4.5. Confirmation that the small-scale project activity is not a debundled component of a large scale project activity:

As defined in paragraph 2 of Appendix C of the SSC M&P, a proposed small-scale project activity and Guidelines on Assessment of Debundling for SSC Project Activities (version 03) shall be deemed to be a debundled component of a large project activity if there is a registered small-scale CDM project activity or a request for registration by another small-scale project activity:

- With the same project participants;
- In the same project category and technology/measure;
- Registered within the previous 2 years; and
- Whose project boundary is within 1 km of the project boundary of the proposed small-scale activity at the closest point.

The proposed project activity is not a debundled component of any larger project activity as there is no other small-scale project activity that fulfils the abovementioned criteria.

SECTION B. Application of a baseline and monitoring methodology
B.1. Title and reference of the approved baseline and monitoring methodology applied to the small-scale project activity:

The approved baseline and monitoring methodology applicable to the Project activity is as follows:

AMS-I.F.

Type I: Renewable energy projects

Category D: Renewable electricity generation for captive use and mini-grid

Reference: Version 1, Scope 1, in effect as of 28 May, 2010

B.2 Justification of the choice of the project category:

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The Project meets all the applicability conditions set forth by the methodology as presented below:

Table 4: Applicability conditions

	Applicability condition	Project case
1	<p>This category comprises renewable energy generation units, such as photovoltaics, hydro, tidal/wave, wind, geothermal and renewable biomass, that supply electricity to user(s). The project activity will displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit i.e., in the absence of the project activity, the users would have been supplied electricity from one or more sources listed below:</p> <p>(a) A national or regional grid (grid hereafter); (b) Fossil fuel fired captive power plant; (c) A carbon intensive mini-grid.</p>	<p>The Project is a wind project, which supply electricity to both Island of Baltra and Santa Cruz through a mini-grid. Apart from the Project activity, the users in the Island of Baltra will use the electricity generated from gen-sets installed in the individual installations, and the users in the Island of Santa Cruz will use the electricity supplied by diesel-powered mini-grid station.</p>
2	<p>For the purpose of this methodology, a mini-grid is defined as small-scale power system with a total capacity not exceeding 15MW (i.e., the sum of installed capacity of all generators connected to the mini-grid is equal to or less than 15MW) which is not connected to a national or a regional grid.</p>	<p>The mini-grid that the Project activity will feed into is a diesel power system supplying the electricity to the island of Santa Cruz in the Galapagos. It is well under 15MW of installed capacity as of 2011, and it will expected to remain under 15MW in the future considering the given demand size of the island.</p>
3	<p>Project activities or project activity components supplying electricity to a grid shall apply AMS-I.D. Project activities for standalone off-the-grid power systems supplying electricity to households/users included in the boundary are eligible under AMS-I.A.</p>	<p>The Project activity does not feed in either national or regional grid nor it is a standalone off-the-grid power system in its project boundary.</p>
4	<p>Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology:</p> <ul style="list-style-type: none"> • The project activity is implemented in an existing reservoir with no change in the volume of reservoir; • The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the Project Emissions section, is greater than 4 W/m²; • The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the Project Emissions section, is greater than 4 W/m². 	<p>Not applicable. The Project is not a hydro power plant activity.</p>

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5	For biomass power plants, no other biomass other than renewable biomass are to be used in the project plant.	Not applicable. The project activity does not involve biomass.
6	This methodology is applicable for project activities that (a) install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); (b) involve a capacity addition, (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).	The project activity involves a greenfield plant, where a new power plant is installed at a site where there was no renewable energy power plant operating prior to the implementation of the Project activity.
7	In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the unit added by the project should be lower than 15MW and should be physically distinct from the existing units.	Not applicable. The Project activity involves a greenfield plant.
8	In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15MW.	Not applicable. The Project activity is a greenfield project and does not involve retrofitting or modifying an existing facility for renewable energy generation.
9	If the unit added has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15MW for a small-scale CDM project activity applies only to the renewable component. If the unit added co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15MW.	The wind power turbine will be installed in phases, and the total installed capacity of the unit is to be well under the 15MW threshold of the small-scale CDM.
10	Combined heat and power (co-generation) systems are not eligible under this category.	Not applicable. The Project activity does not involve co-generation.
11	In case electricity produced by the project activity is delivered to another facility or facilities within the project boundary, a contract between the supplier and consumer(s) of the electricity will have to be entered into specifying that only the facility generating the electricity can claim emission reductions from the electricity displaced.	Not applicable. The Project activity delivers the electricity produced by the wind power plant to the mini-grid.

B.3. Description of the project boundary:

In accordance with the methodology AMS-I.F., which states the project boundary being the physical, geographical site of the renewable generation source, the boundary for this proposed Project will be the site where wind energy is generated.

B.4. Description of baseline and its development:**< E minus (E-) case >**

The Project is implemented under the Ecuadorian voluntary initiative “Zero Fossil Fuel for the Galapagos Islands“, which was launched in April, 2007. The Zero Fossil Fuel Initiative is a reaction of the tragic oil spill by the Tanker Jessica in 2001, which killed a huge population of sea iguanas and seriously damaged the vulnerable ecosystems in the Galapagos. As the name suggests, this challenging initiative is with an aim to gradually decrease the fossil fuel consumption in the Galapagos to the zero level.

As per the Clarifications on the Consideration of National and/or Sectoral Policies and Circumstances in Baseline Scenarios (version 02), the Project is considered an E- case, where favourable conditions are given to promote sustainable energy after 2001. Therefore, the baseline will take into consider the situation before the Zero Fossil Fuel Initiative was introduced.

The baseline is determined in line with paragraph 13 of AMS-I.F., which allows using the default emission factor for diesel generator systems shown in Table I.F.1, if the system is using exclusively fuel oil and/or diesel fuel.

The Project activity involves replacement of an electricity mini-grid in the island of Santa Cruz, the Galapagos. The mini-grid is fed by one power station, where only diesel generators of the total installed capacity of 4.35MW are running throughout the year.

Therefore, the emission factor is a mini-grid with 24 hour service for over 200kW in Table I.F.1, and the baseline emission is the annual kWh generated by the wind project times an emission factor of 0.8 kg CO₂e/kWh.

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 small-scale CDM project activity:

In line with the Attachment A to Appendix B of the simplified modalities and procedures for small-scale CDM project activities, the Project is deemed to be additional if it faces at least one of the following barriers:

- (a) Investment barriers
- (b) Technological barriers
- (c) Barrier due to prevailing practice
- (d) Other barriers

It is identified that the Project faces following barriers in implementation without CDM.

Investment barriers

This Project is the second wind project to be realized in the Galapagos and Ecuador². The Galapagos, being an island as well as a UNESCO World Heritage Site, requires much more complexity in mounting the wind turbine and installing a transmission line to the mini-grid than projects in main land Ecuador. After long deliberation to protect fragile ecosystems on both Baltra and Santa Cruz based on the findings of the Environmental Impact Assessment (EIA) and other previous studies, the Project had to undergo considerable changes in its location and design. For this reason, the Project faced a number of new technical challenges which was not initially envisaged. This significantly raised the project installation and operational costs, and lack of finances to the additional increase in the costs became barriers for the project implementation.

<Constraints on Site Location >

The Project was originally proposed to be implemented on a hilltop located on the Island of Santa Cruz where the majority of the electricity demand is. However, in a study conducted by Charles Darwin Foundation³ in 2006 prior to the EIA, habitats of birds and bats were observed at the candidate sites on the Santa Cruz, which limited the project site to be within the Galapagos National Park on the island of Baltra. Due to further studies, the permitted site for the project implementation was limited to the area parallel to the international airport on Baltra. This resulted in the requirement of a longer and more complicated transmission line than what was originally planned. However, this also caused a limitation in the height of the wind turbine due to Airport regulation, resulting in a lower installed capacity of each turbine than what the wind conditions allow in the area and increased the initial capital expenditure.

< Constrains on the designing of the transmission line >

Having the project site on Baltra requires crossing the national park and harbour to reach Santa Cruz. Extending the Santa Cruz grid within the island without significantly disturbing the ecosystems is already technologically challenging, but extending it from Baltra has made the construction process much more sophisticated than originally planned. Baltra is the host of the Galapagos Land Iguana (a vulnerable species⁴) and crossing the strait between the two islands requires a submarine cable. The Environmental management plan (EMP) of the EIA has specified the way to have the least disturbance of the endangered species and ecosystems during the installation of the equipment as well as the operation.

< Limited small-scale wind turbine supplier >

Due to regulation of the international airport on Baltra, the wind turbine height is limited to the maximum 82 m. This constrains the individual wind turbine size to be a maximum of 900 kW of theoretical installed capacity. However, due to a boost in the wind market worldwide in recent years, there is an over demand for the wind turbines. When a public bidding was opened for equipment supply in December 2008, only 5 turbine manufacturers showed their interest for the Project, mainly due to the fact of its small size, remote location, significant environmental restrictions for delivery and construction, and technical complexity⁵. This also limited the bargaining power to bring down the initial investment costs.

< Facing financial difficulties >

The Project was originally planned to be implemented with a mixture of funds from both international donors and the Ecuadorian government. The government secured the funds for the Phase I implementation based on the initial estimation of the costs. However, due to the unexpected increase in

² The first wind project was realized with CDM (ref. 1255).

³ Charles Darwin Foundation is a renowned NGO for protection of ecosystems in the Galapagos.

⁴ IUCN Red List of Threatened Species, March 2009 <http://www.iucnredlist.org/apps/redlist/details/5240/0>

⁵ Due to the energy supply security issue, the wind plant's operation is coordinated with diesel generators in Santa Cruz, and this requires additional synchronization and remote control equipment to be installed for the project activity.

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the costs, the Project is currently short of funds. For this reason, the Ecuadorian government has decided to use the CDM scheme to attract CER buyers.

After a few years of identifying other financing sources and discussion on the CDM possibilities, the CDM feasibility study was conducted in 2009 and 2010 with the support of Japanese government's funds. Current estimate of the total investment cost is 15 million USD for the Phase I alone, and it still lacks 0.4 million USD for the full implementation. In addition, the Project urgently needs to identify additional financial support to cover the Phase I operation and maintenance costs and installation costs for the Phase II.

Ecuador is an oil producing country; the government's budgetary source is heavily reliant upon the income from crude oil sales. The governmental budget is designed based on the forecast price of crude oil. For instance, the reference oil price was set at 85 USD/bbl for the year 2009 national budget⁶. However, the oil price later dropped to lower than 60 USD/bbl which significantly affected public investment in various projects.

As in any other country, publicly-funded projects are not risk-free, and it is under constant threat from fund shortage and cancellation of projects. The situation for public financing has become even more difficult recently. In November 2009, Ecuador experienced a nation-wide power crisis due to a water shortage at the one of the main hydropower stations in the country. This has prompted the government to review the public power plan to accelerate construction of thermal power plants by cancelling some projects with designated funds. Though it is under the Zero Fossil Fuel initiative as mentioned in B.4, it would have been much cheaper, if the government continues with the existing diesel generators. The budget allocated to the proposed project activity could have been used for other Zero Fossil Fuel activities such as road transportation. The Galapagos project is a small project and is not treated with the same priority as the thermal power plants in the mainland, and the Project may not receive any additional financial resources until the government identifies a new funding source. This is specifically the reason why the project proponent decided to use the CDM to cover the initial investment costs and operation costs.

The project participant is currently under the preparation to start negotiating with CER buyers for the project implementation. Thus, it is critical that the Project is registered as CDM.

Common Practice

There is only one wind project in Ecuador, located in the Island of San Cristobal in the Galapagos. The project was implemented by the Ecuadorian government and private companies backed by E8 (then E7) and was registered as a CDM project in 2008 (ref. 1255). This clearly shows that the wind power industry is not well established in Ecuador, and it requires additional financial benefits such as through CDM.

All the aforementioned barriers demonstrate that the proposed project is additional.

B.6. Emission reductions:

B.6.1. Explanation of methodological choices:
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⁶ Banco Central del Ecuador.

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Emission reductions associated with electricity displacement of the mini-grid of Santa Cruz Island

The baseline emission is the annual kWh generated by the wind project times an emission factor of 0.8 kg CO₂e/kWh from the Table I.F.1.

$$ER_y = BE_y - PE_y - LE_y \quad (\text{Equation 1})$$

ER_y Emission reductions in year y (t CO₂e/y)

BE_y Baseline Emissions in year y (t CO₂e/y)

PE_y Project emissions in year y (t CO₂/y)

LE_y Leakage emissions in year y (t CO₂/y)

Baseline emissions

Baseline emission will be the annual electricity generated by the wind power plant. The grid is also extended to the Island of Baltra, where the electricity is generated by a diesel gen-set installed in each installation. Since it was not possible to quantify the baseline electricity consumption on the Baltra island, the electricity dispatched to the Baltra grid will be discounted from the total power production by the wind power plant ($EG_{BL-SC,y}$).

$$BE_y = EG_{BL,y} \times EF_{CO_2,y} \quad (\text{Equation 2})$$

Where

$EG_{BL,y}$ Quantity of net electricity displaced as a result of the implementation of the CDM project activity in year y (MWh/y)

$EF_{CO_2,y}$ Emission factor (t CO₂/MWh)

$$EG_{BL,y} = EG_{BL-wind,y} - EG_{BL-Balra,y} \quad (\text{Equation 3})$$

$EG_{BL-wind,y}$ Electricity generated by the wind generators in year y (MWh/y)

$EG_{BL-Balra,y}$ Electricity generated by the wind generators and dispatched to the Island of Baltra in year y (MWh/y)

Project emissions

As per AMS-I.F., $PE_y = 0$.

Leakage

Since the new energy generating equipment is purchased for the Project and it is not transferred from another activity, $LE_y = 0$.

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

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Data / Parameter:	EF _{CO₂,y}
Data unit:	t CO ₂ / MWh
Description:	CO ₂ emission factor for the mini-grid
Source of data used:	AMS-I.F., Table I.F.1
Value applied:	0.8
Justification of the choice of data or description of measurement methods and procedures actually applied :	The Project involves replacement of electricity in the mini-grid, where only one power station with diesel generators feed in the electricity. The emission factor is conditioned for cases where a mini-grid with 24 hour service for over 200kW of capacity.
Any comment:	

B.6.3 Ex-ante calculation of emission reductions:

Baseline emission (BE_y)

<First 2 years before Phase II wind turbines will be installed>

Below emission reduction estimation is calculated using conservative electricity generation figures⁷.

$$\begin{aligned}
 EG_{BL,y} &= EG_{BL-wind,y} - EG_{BL-Balra,y} \\
 &= \mathbf{4,800 \text{ MWh/year} - 0 \text{ MWh/year}} \\
 &= \mathbf{4,800 \text{ MWh/year}}
 \end{aligned}$$

$$\begin{aligned}
 BE_y &= EG_{BL,y} \times EF_{CO_2,y} \\
 &= \mathbf{4,800 \text{ MWh/year} \times 0.8 \text{ tCO}_2/\text{MWh}} \\
 &= \mathbf{3,840 \text{ t CO}_2/\text{year}}
 \end{aligned}$$

<From the third year>

$$\begin{aligned}
 EG_{BL,y} &= EG_{BL-wind,y} - EG_{BL-Balra,y} \\
 &= \mathbf{13,718 \text{ MWh/year} - 0 \text{ MWh/year}} \\
 &= \mathbf{13,718 \text{ MWh/year}}
 \end{aligned}$$

$$\begin{aligned}
 BE_y &= EG_{BL,y} \times EF_{CO_2,y} \\
 &= \mathbf{13,718 \text{ MWh/year} \times 0.8 \text{ tCO}_2/\text{MWh}} \\
 &= \mathbf{10,974 \text{ t CO}_2/\text{year}}
 \end{aligned}$$

Emission reduction (ER_y)

$$ER_y = BE_y - PE_y - LE_y$$

⁷ The conservative figure is calculated by applying a discount factor to the estimation provided by the equipment supplier.

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ER_y Emission reductions in year y (t CO_{2e}/y)
 BE_y Baseline Emissions in year y (t CO_{2e}/y)
 PE_y Project emissions in year y (t CO₂/y)

B.6.4 Summary of the ex-ante estimation of emission reductions:
Table 5: Ex-ante estimation of emission reduction

Year	Estimation of project activity emissions (tCO ₂)	Estimation of baseline emissions (tCO ₂)	Estimation of leakage (tCO ₂)	Estimation of overall emission reductions (tCO ₂)
October 2011-September 2012	0	3,840	0	3,840
October 2012-September 2013	0	3,840	0	3,840
October 2013-September 2014	0	10,974	0	10,974
October 2014-September 2015	0	10,974	0	10,974
October 2015-September 2016	0	10,974	0	10,974
October 2016-September 2017	0	10,974	0	10,974
October 2017-September 2018	0	10,974	0	10,974
Total	0	62,550	0	62,550

B.7 Application of a monitoring methodology and description of the monitoring plan:
B.7.1 Data and parameters monitored:
(Copy this table for each data and parameter)

Data / Parameter:	$EG_{BL-wind,y}$														
Data unit:	MWh/year														
Description:	Electricity generated by the wind generators														
Source of data to be used:	ERGAL														
Value of data	<table border="1"> <tbody> <tr> <td>October 2011-September 2012</td> <td>4,800</td> </tr> <tr> <td>October 2012-September 2013</td> <td>4,800</td> </tr> <tr> <td>October 2013-September 2014</td> <td>13,718</td> </tr> <tr> <td>October 2014-September 2015</td> <td>13,718</td> </tr> <tr> <td>October 2015-September 2016</td> <td>13,718</td> </tr> <tr> <td>October 2016-September 2017</td> <td>13,718</td> </tr> <tr> <td>October 2017-September 2018</td> <td>13,718</td> </tr> </tbody> </table>	October 2011-September 2012	4,800	October 2012-September 2013	4,800	October 2013-September 2014	13,718	October 2014-September 2015	13,718	October 2015-September 2016	13,718	October 2016-September 2017	13,718	October 2017-September 2018	13,718
October 2011-September 2012	4,800														
October 2012-September 2013	4,800														
October 2013-September 2014	13,718														
October 2014-September 2015	13,718														
October 2015-September 2016	13,718														
October 2016-September 2017	13,718														
October 2017-September 2018	13,718														
Description of measurement methods and procedures to be	Monitored continuously using electricity meters. Data will be logged by an electronic system on hourly basis and recorded monthly. The recorded data are archived electronically and kept until 2 years after the end of the crediting period.														

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applied:	
QA/QC procedures to be applied:	The meter will be calibrated according to the latest national standards or any relevant revisions set forth in the future.
Any comment:	N/A

Data / Parameter:	EG_{BL-Balra,y}
Data unit:	MWh/year
Description:	Electricity generated by the wind generator and dispatched to the Island of Baltra
Source of data to be used:	ELECGALAPAGOS
Value of data	0
Description of measurement methods and procedures to be applied:	Monitored continuously using electricity meters. Data will be logged by an electronic system on hourly basis and recorded monthly. The recorded data are archived electronically and kept until 2 years after the end of the crediting period.
QA/QC procedures to be applied:	The meter will be calibrated according to the latest national standards or any relevant revisions set forth in the future.
Any comment:	N/A

B.7.2 Description of the monitoring plan:

All monitoring equipment for the wind turbines will be installed and are regularly calibrated according to the latest national standards or any relevant revisions set forth in the future.

The generation and transmission data to the Island of Baltra and the Island of Santa Cruz will be electronically transferred through a SCADA system, which automatically logs the data electronically. The technician responsible for the wind turbine operation will check this data and ensure that there is no anomaly in the operation.

The manager will check the generation data on a regular basis.

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

The baseline and monitoring study was completed in 03/01/2011 by MUMSS.

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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:

21/07/2010

The date when the wind equipment purchase contract is signed.

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

At least 20 years

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

Renewable crediting period is chosen for the Project activity.

C.2.1. Renewable crediting period

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

01/10/2011 or the date of registration whichever is later.

C.2.1.2. Length of the first crediting period:

7 years and 0 month

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

N/A

C.2.2.2. Length:

N/A

SECTION D. Environmental impacts

D.1. If required by the host Party, documentation on the analysis of the environmental impacts of the project activity:

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An Environmental Impact Assessment was conducted for the Wind project and transmission line from January to October 2008. However, prior to the execution of the EIA, several preliminary studies and public hearing events took place (see Table 6 for details). EIA was approved in March 2009 by three authorities – the Ministry of the Environment, Galapagos National Park, and CONELEC, and the environmental licences were approved in July 2009. In October 2010, a slight modification to the approved Environmental Monitoring Plan was submitted to Galapagos National Park and then to the Ministry of Environment. It is currently waiting for its approval from the ministry.

Table 6: EIA Implementation History

Activity	Dates and Conductor
Previous activities for the Definitive EIA	
Assessment to determine the environmental impact of a wind farm on birds, bats, iguanas and flora in three places Santa Rosa, Camote and Baltra.	May 2006 – August 2007.
Preliminary Environmental Impact Assessment for the wind farm construction on flora in three places Santa Rosa, Camote and Baltra.	August 2006 – January 2007
Public Presentation (1) to present results of the Preliminary Environmental Impact Assessment concluding Baltra as the only available option to build the wind farm	22 nd of January 2007
Public Presentation (2) to present the community of Santa Cruz the project schedule	8 th of November 2007
Execution of Definitive EIA	
Press, radio and TV broadcast to invite the Community for Public Participation for presenting the terms of reference	5, 10 to 16 th of January 2008
Public participation call for receiving community comments on the content of terms of references for the EIA from Baltra Wind Farm and Transmission Line	10 to 16 th of January 2008
Public presentation (3) of terms of reference for the EIA from Baltra Wind Farm and Transmission Line from Baltra to Puerto Ayora	17 th of January 2008
Approval of terms of reference from the Ministry of Environment	7 th of April 2008
Execution of EIA	January 2008 – July 2008
Press, radio and TV broadcast to invite the Community for the Public participation for presenting the results of EIA of Baltra wind farm and Transmission Line	22 nd to 30 th of July 2008
Public participation for receiving community comments on the results for the EIA from Baltra Wind Farm and Transmission Line	22 nd to 30 th of July 2008
Public presentation (4) of EIA results from Baltra Wind Farm and Transmission Line from Baltra to Puerto Ayora	31 st of July 2008

EIA Presentation and Approval Process	
EIA documents presented to the Ministry of Environment, Galapagos National Park and CONELEC (Consejo Nacional de Electricidad – Regulatory Power Agency)	16 th of October 2008
CONELEC approval of the EIA for the wind farm and transmission line	3 rd of December 2008
Galapagos National Park approval of the EIA for the wind farm and transmission line	5 th of January 2009
Ministry of the Environment approval of the EIA for the wind farm and transmission line	7 th of March 2009
Ministry of the Environment approval of the ERGAL project environmental licenses for constructing wind farm and transmission line	24 th of July 2009

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:

The EIA has identified a number of significant impacts caused by the Project and required the environmental management plan (EMP) to be approved for the authorization of the environmental license for construction. Table 7 is a summary of the predicted environmental impacts and their counter measures included in the EMP.

Table 7: Predicted environmental impact and countermeasures

Predicted environmental impact	Environmental Management Plan (EMP)
Soil removal and alteration of nests and temporary displacement of birds and reptiles	Prior to an excavation for creating and establishing the wind generator foundations, access roads and other infrastructure, the nests and presence of <i>Conolophus subcristatus</i> (Land Iguanas) must be verified. For wind farm construction, fences along with access roads need to be installed to protect the iguanas, a vulnerable species.
Change in the landscape view with wind turbines	Reduce the number of installed turbines by selecting wind power turbines with a nominal power higher than 500 kW. This was included in tender documents.
Alteration of flying routes of birds and bats	The EIA study revealed that birds and bats found at the project site do not fly higher than 10 meters. Therefore, the wind power turbines must have the minimum height of 10 meters from the lower extreme of the blade to the ground surface to minimize the risk of collision with birds and bats. In addition, EMP requires the wind towers to be installed without guy-wires in order to prevent potential bird collision and mortality. The height restriction was included in the tender documents and wind turbine manufacturers using guy-wired towers were excluded from participation in the tender.

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Generation of solid and liquid waste	Any solid wastes generated during the construction phase need to be brought back to the mainland. For operation, gearbox wind turbines were considered as a source of generating liquid waste (lubricant oil). The project developer selected the equipment supplier without gearbox turbines in order to avoid any additional waste during the operation.
Temporary impacts to tourism due to construction activities	Educational campaigns. ERGAL has hired a local NGO to conduct the wind energy project and energy efficiency education campaign.
Possible migration of non-native species	A phyto-sanitary control will be conducted on equipment at the port on entry, upon arrival at the Galapagos Islands.

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

Four Stakeholders' meetings were officially organized during the EIA on 22/01/2007, 08/11/2007, 17/01/2008, and 31/07/2008 as summarized in Table 6. Though the project site is located on the Island of Baltra, the direct beneficiaries of the renewable energy generated by the Project are the residents on the Island of Santa Cruz. Therefore, all the community members and business facilities/installations on both islands were considered to be the stakeholders of the Project. In addition, ERGAL has closely consulted with all the regulatory authorities⁸ related to the projects, and they were also invited to the public stakeholders' meetings. The public participation meeting was publicized by press, radio and local TV broadcast 1 week before the event and accepted comments to be submitted during the same period. Prior to the stakeholders' meeting, a brief audiovisual presentation containing a description of the Project was given to the audience to obtain better comments from the participants. Table 8 is a summary of the participants sent for the public audience of the EIA.

Table 8: Summary of the Participants to the Public Audience

Participants	Invitation sent (per institutions)	Number of Participants
Public institutions	24	26
Private companies	5	13
International organizations/NGOs	22	6
Academic institutions	16	6
Media	8	4
Community members	--	10

E.2. Summary of the comments received:

⁸ These regulatory bodies include Ministry of the Electricity and the Renewable Energy, Ministry of the Energy and Mines, Ministry of the Environment, the National Electricity Council (CONELEC), Galapagos National Park, National Galapagos Institute, Fondo de Solidaridad, Galapagos Provincial Council, and Santa Cruz Municipality.

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The Project has been well received by the regulatory authorities and the community members. In particular, the Santa Cruz Municipality finds the Project a very important step to the island's sustainable development.

Nevertheless, many community members were unaware of what the Project might entail, and there were many questions raised at the beginning. This includes the fear of a possible increase in the electricity price, though the Project does not have any direct influence on the price, which is heavily subsidized by the government. However, these questions were clarified to community members through all the public hearing events. Some of the prominent concerns raised during the stakeholders' meetings are as follows:

- Electricity price will increase because of the Project.
- There will be more electric blackouts than now.
- There would be surplus electricity, so the local electricity consumers can consume more, despite efforts to promote sustainability.
- The transmission line will harm our health and affect the cattle.

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

Table 9 summarizes the responses given to the concerns raised during the stakeholders' meeting.

Table 9: concerns raised during the stakeholders' meetings and their answers

Concerns raised by the stakeholders	Answers by the project developer
Electricity price will increase because of the Project.	The price that consumer pays is established by the power utility regulator (CONELEC). The price is decided by the government; therefore, the Project will not contribute to an increase in electricity price in the future.
There will be more electric blackouts than now.	Project design has considered measures to prevent this situation from occurring.
There would be enough amount of electricity, so the local electricity consumers can consume more than now.	No, energy is a limited resource, and rational use of energy has to be promoted. The project developer has designated a local NGO to raise the environmental consciousness and promote good energy saving practices.
The transmission line will harm our health and affect the cattle.	No, the voltage level is in the medium voltage scale. The transmission line will be mainly installed in the Galapagos National park. Though the line passes through some farms, the voltage level is sufficiently low that it is unlikely to cause any harm or diseases to human beings and cattle.

The Ministry of the Environment, CONELEC, and the Galapagos National Park reviewed the stakeholders' comments, and they found the project developer's responses satisfactory and approved of the EIA and environmental license.

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Annex 1**CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY**

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Annex 2

INFORMATION REGARDING PUBLIC FUNDING

No Official Development Assistance (ODA) from parties included in Annex I of the convention is involved in the Project activity.

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Annex 3

BASELINE INFORMATION

As per section B.4.

Annex 4

MONITORING INFORMATION

As per section B.7.2.
