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

CONTENTS

Annexes

Revision history of this document

Version Number	Date	Description and reason of revision
01	21 January 2003	Initial adoption
02	8 July 2005	• 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	• 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.

SECTION A. General description of small-scale project activity

A.1 Title of the small-scale project activity:

Renewable Power Generation Project for the International Convention Centre in Hambantota, Sri Lanka

Version 1.0

01/02/2012

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

The Renewable Power Generation Project for the International Convention Centre in Hambantota, Sri Lanka (hereafter referred to as the "Project" or the "Project activity") involves the installation of two 2 MW wind turbines in the Hambantota district in the southern part of Sri Lanka. The average annual wind speed there is approximately 5.5 m/s, which is suitable for low speed wind turbines. However, Hambantota still remains one of the areas with insufficiently explored wind conditions in Sri Lanka.

The Project is expected to generate annually approximately 7,008 MWh of green electricity, which will be delivered to the Ceylon Electricity Board grid and will be used for offsetting the grid electricity consumption of the newly constructed International Convention Centre ("ICC"). It is estimated that this will lead to approximately 4,599 tons CO_2/yr of emission reductions through the substitution of fossil fuel based electricity generation with green power or approximately 32,193 tCO_2e over a period of seven years.

Hambantota was severely hit during the 2004 Indian Ocean tsunami. Currently, the area is undergoing wide scale redevelopment under the Urban Development Authority ("UDA") of Sri Lanka. The UDA has already developed a master plan for a new city, selected the city development area and completed the urban designing and plan. Some of the key projects under the current plan include the construction of a new sea port, the second international airport in Sri Lanka, a cricket stadium and the Hambantota International Convention Center ('ICC'). The ICC is planned as a "green facility" which will meet all it electricity needs through the use of renewable sources such as solar and wind energy, and incorporate various energy efficiency measures in its design.

Takasago Thermal Engineering[1] ("TTE"), the developer of the Project and a leading Japanese engineering company with active international operations in many Asian countries, approached the Urban Development Authority[2] ("UDA") of Sri Lanka with a proposal to build a wind power plant that will provide clean electricity to the ICC. The ICC studied various ideas for implementing the 'green building' concept, proposed by local and international companies, and selected the TTE's idea as the most feasible and attractive, as it will utilize locally available renewable energy sources and will provide significant transfer of technology to Sri Lanka.

[1] http://www.tte-net.co.jp/english/index.html

[2] http://www.uda.lk

Contribution to Sustainable Development

The Project activity will significantly contribute to the sustainable development of Sri Lanka and to meeting some of the targets laid in the National Sustainable Development Strategy[3], as well as the "Mahinda Chintana: Vision for a New Sri Lanka" ten-year development framework.

Economic contribution
The project activity contributes to sustainable development through the generation of economic growth in the region and conserving natural resources. This will help Sri Lanka partially reduce its overall fossil fuel consumption, dependence on imports, and thus will improve energy security of the country.

Environmental contribution
The renewable electricity generated by the project will displace electricity produced by grid connected fossil fuel power plants and will lead to reduction of GHG emissions, as well as reduction of SO_x and NO_x emissions associated with natural gas, oil and diesel combustion.

Social contribution
The project activity will have strong social benefits, as it will provide employment and income-earning opportunities during its construction and operation. The project will create new training opportunities for the local community members, as it will create hands on experience for a number of local workers as well as engineers.

A.3. Project participants:

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)
Sri Lanka (host)	**Takasago Thermal Engineering (Sri Lanka)**	**No**

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):

Socialist Democratic Republic of Sri Lanka

[3] Sri Lanka Ministry of Environment and Natural Resources (2007). *Sri Lanka Strategy for Sustainable Development.*

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

Southern Province, Hambantota District

A.4.1.3. City/Town/Community etc:

Hambantota Town

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

The project is located in the southern part of Sri Lanka in the Hambantota District. The geographical coordinates of the project site are: $6^0$13’32.73” N, 81^0 4’38.86” E.

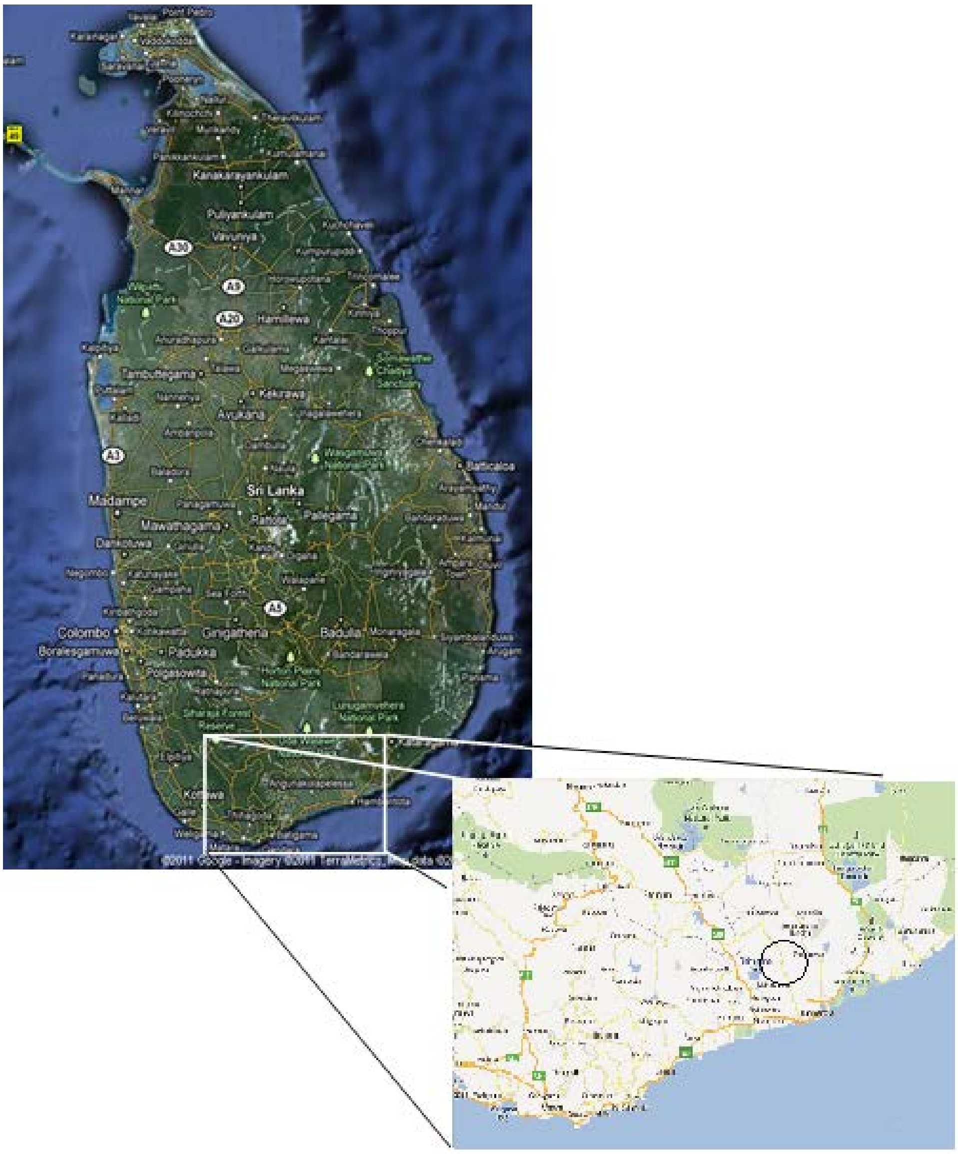

Figure 1 Project Site

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

Project type: Type I – Renewable Energy Projects
Project Category: AMS-I.D. "Grid Connected Renewable Electricity Generation"

The project will install two JSW J82 wind turbines with capacity of 2 MW each. The turbines will be manufactured by Japan Steel Works, Ltd. who possess technology suitable for the proposed wind speed.

The specifications are provided below:

Specifications		**Model: J82-2.0/II**
Basic Characteristics	**Capacity**	2000 kW
	Cut-in Speed	3.5 m/s
	Rated Wind Speed	13 m/s
	Cut-out Speed	25 m/s
	IEC Class	S
	Survival Wind Speed (IEC-I)	70 m/s
	Design average Wind Speed (IEC-III)	8.5 m/s (IIa)
	Scattering Coeffficient (IEC-III)	0.18 (IIa)
Rotor	**Blade Material**	GFRP
	Blade Length	40 m
	Rotor Diameter	83.3 m
	Rated Speed	19 rpm
	Rotating Speed	variable
Tower	**Hub Height**	65/75/77/80 m
Power Characteristics	**Generator Type**	Direct Drive Gearless Permanent-Magnet Multipolar Synchronous Generator AC-DC-AC Full Converter
	Output Voltage	660V
	Frequency	50/60Hz
Controls	**Output Control**	Pitch control, variable speed control
	Wind Direction Control	Active Yaw Control
Mass	**Rotor**	42t
	Nacelle Subframe	34t
	Generator	60t

	Tower	130t (Hub Height 65m) 160t (Hub Height 75m) 175t (Hub height 77m) 170t (Hub Height 80m)

The project will represent technology transfer of state-of-the-art wind power generators from an Annex I country (Japan). Wind power generation technology is well established around the world and is one of the most environmentally sound and safe means for power generation, which has been attracting growing attention around the world.

A.4.3 Estimated amount of emission reductions over the chosen crediting period:

Years	Estimation of annual emission reductions in tonnes of CO_2 e
2014	4,599
2015	4,599
2016	4,599
2017	4,599
2018	4,599
2019	4,599
2020	4,599
Total estimated reductions (tonnes of CO_2e)	**32,193**
Total number of crediting years	7
Annual average of the estimated reductions over the crediting period (tCO_2e)	4,599

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

The Project uses no public funding.

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

According to "Compendium of guidance on the debundling for SSC project activities (Annex 27, EB36)", a proposed small-scale project activity shall be deemed to be a debundled component of a large project activity if there is a registered small-scale CDM project activity or an application to register another small-scale CDM project activity:

(a) With the same project participants;
(b) In the same project category and technology/measure; and
(c) Registered within the previous 2 years; and

(d) Whose project boundary is within 1 km of the project boundary of the proposed small-scale activity at the closest point.

There is no registered small-scale CDM project activity or an application to register another small-scale CDM project activity by the same project participants. The project participants are not engaged in any way in any other small scale CDM project activities in wind power generation or by using other technologies within the project boundary. Therefore, the Project activity is not a debundled component of a large scale 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 small-scale project activity:

AMS-I.D. “Grid Connected Renewable Electricity Generation”, version 17

The Project will also refer to the “Tool to calculate the emission factor for an electricity system”, version 2.2.1.

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

AMS-I.D. is applicable to the Project as demonstrated below.

Applicability Condition	Project
1. Renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass.	The project is a wind power generation facility.
2. Supplying electricity to a national or regional grid; or supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.	The project supplies electricity to the Ceylon Electricity Board grid.
3. The methodology is applicable to 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; or (d) involve the replacement of an existing plant.	The Project is a Greenfield facility.
4. The installed capacity does not exceed the	The installed capacity is 4 MW_{el}, which is less

limit of 15 MW_{el}.	than the limit of 15 MW_{el} for small-scale renewable power generation CDM projects.

The installed capacity of the Project is not projected to change over its lifetime and it will not exceed the limit for small-scale Type I projects during the first crediting period.

B.3. Description of the project boundary:

The spatial extent of the project boundary includes the project power plant and all power plants connected to the Ceylon Electricity Board grid, as shown in Figure 1 below.

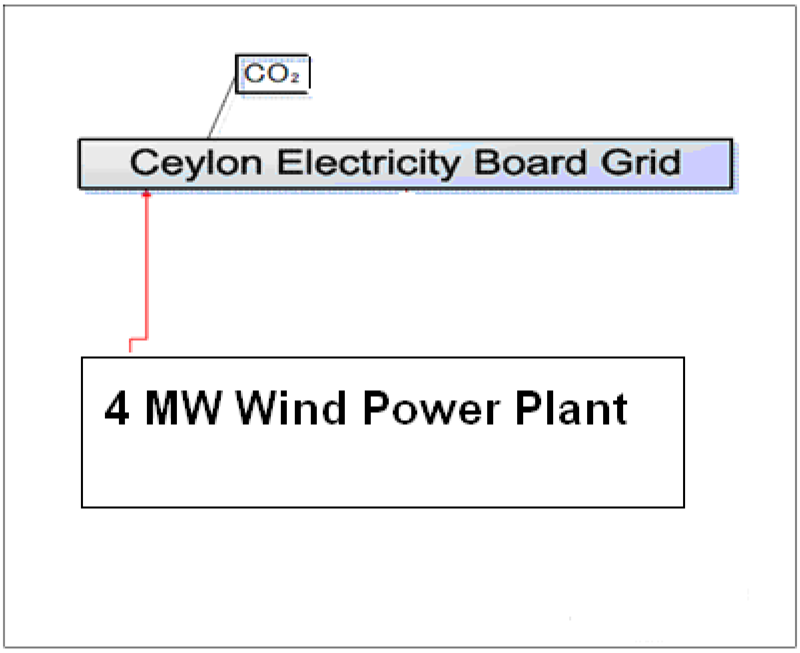

Figure 2 Project Boundary

All emission sources in the baseline and the project activity are shown in the table below.

	Source	Gas	Included	Justification/ Explanation
Baseline	Fossil fuel-fired CEB grid-connected power plants	CO_2	Yes	Main emission source
		CH_4	No	Negligible
		N_2O	No	Negligible
Projec t activit	Wind power plant	CO_2	No	No GHG emissions are associated with wind power generation

		CH_4	No	No GHG emissions are associated with wind power generation
		N_2O	No	No GHG emissions are associated with wind power generation

B.4. Description of baseline and its development:

As per the guidance provided in AMS I.D. Version 17 "…the baseline emissions are the product of electrical energy baseline $EG_{BL,y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor." The grid emission factor can be calculated as:

(a) A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the 'Tool to calculate the emission factor for an electricity system (Version 02.2.1)'.

OR

(b) The weighted average emissions (in kg CO_2e/kWh) of the current generation mix. The data of the year in which project generation occurs must be used.

The Project will apply Option (a) for the CEF determination. All the data for calculating the baseline emissions are presented in Annex 3. The CM emission factor is calculated as 0.6564 tCO_2/MWh. All assumptions for the CM CEF calculations are presented in Section B.6.1.

Thus, baseline emission calculations are summarized as shown below.

$$BE_y = EG_{BL,y} * EG_{CO2,grid,y} \qquad \textbf{(1)}$$

Where

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

$EF_{CO2,grid,y}$ CO_2 emission factor of the grid in year y (tCO_2/MWh)

The information of the data used for determining the baseline emissions is presented in the Table 1 below.

Table 1 Information Used for the Determination of the Baseline

No.	Variable	Value	Comment
1.	$EG_{BL,y}$	7,008 MWh/yr	To be monitored constantly. Based on the assumption of 20% load of a 4 MW plant.
2.	$EF_{CO2,grid,y}$	0.6564 tCO_2/MWh	Calculated as per the Tool to

			calculate the emission factor for an electricity system. Please refer to Section 6.B.1. for details and Annex 3 for the background data.

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 the absence of the Project, two alternatives are considered:

Alternative 1: Supply of electricity from the CEB Grid (continuation of the current practice)

Alternative 2: Construction of a 4 MW wind power plant (the Project without the CDM)

The implementation of Alternative 1 is prevented by an investment barrier as demonstrated below. At the same time, supply of electricity from the CEB grid does not require any additional investments and is not prevented by the investment barrier, therefore, this more carbon intensive alternative will be more financially viable in the absence of the CDM.

To demonstrate the investment barrier, benchmark analysis is applied. The equity IRR (pre-tax) will be calculated for the period of twenty years, which is the expected project lifetime. The IRR will be compared against a benchmark of 13.62% which is the average weighted lending rate for commercial bank lending in Sri Lanka, announced on September 30, 2011[4]. This is also a suitable benchmark as the “Guidelines for assessment of investment analysis” state that commercial lending rates can be a suitable benchmark for project IRR.

The IRR is calculated based on the following assumptions from the feasibility study of the project.

Data	**Value**	**Unit**
Initial investment costs	5,200,000	USD
O&M Costs (per year)	660,000	USD
Revenue from electricity sales	1,261,333	USD
Project lifetime	20	years
IRR (without revenue from CER sale)	**9.77 %**	

This IRR is lower than the benchmark, which means that the project will not be attractive on a business as usual basis, and the more carbon intensive alternative, use of grid electricity will be implemented.

In order to confirm the validity of the above, sensitivity analysis is carried out as shown below. As per the Guidance on the Assessment of Investment Analysis (Annex 5, EB 62), only variables, including the initial investment cost, that constitute more than 20% of either total project costs (for cost items) or total

[4] See: http://www.cbsl.gov.lk/htm/english/_cei/ir/i_4.asp?date=&Mode=2&Page=1

project revenues (for revenue items) are subjected to positive and negative variations in the +/- 10 % range.

Case		Increased by 10%	Decreased by 10%
Case 1	Investment costs	8.43 %	11.35 %
Case 2	Revenue from electricity sales	12.71 %	6.59 %

In all four cases within the +/- 10 % band, the IRR remains under the established benchmark. Therefore, the project is not financially attractive and cannot be implemented on a business as usual basis.

B.6. Emission reductions:

B.6.1. Explanation of methodological choices:

Baseline Emissions

As per the guidance provided in AMS I.D. Version 17 "…the baseline emissions are the product of electrical energy baseline $EG_{BL,y}$ expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor" or:

$$BE_y = EG_{BL,y} * EG_{CO2,grid,y} \qquad \textbf{(1)}$$

Where

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

$EF_{CO2,grid,y}$ CO_2 emission factor of the grid in year *y* (tCO_2/MWh)

The grid emission factor can be calculated as:

(a) A combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed in the 'Tool to calculate the emission factor for an electricity system (Version 02.2)'.

OR

(b) The weighted average emissions (in kg CO_2e/kWh) of the current generation mix. The data of the year in which project generation occurs must be used.

The Project will apply Option (a) for the CEF determination.

Step 1: Identify the relevant electricity system

Since the project will supply the entire energy generated to the Ceylon Electricity Board (CEB) grid, the relevant electric power system for the purpose of calculating the CM is the CEB grid.

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

Option I, only grid power plants are included in the calculation, is selected.

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

The OM emissions factor can be calculated in one of four ways:

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

As per Table 2 in Appendix 3 (Data on the generation by the CEB for the period 2006 - 2010), the share of low cost/must run resources (hydro and wind) in the total grid generation (the additional plants all being thermal plants), is less than 50%. Therefore, the Simple OM method can be applied. The OM will be determined *ex-ante*.

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

The Simple OM is calculated Option A, based on the net electricity generation and a CO_2 emission factor for each power unit. Further, Option A2 is applied, as data for fuel consumption was not available for most plants.

The OM emission factor is determined using formula 2 below.

$$EF_{grid,OMaverage,y} = \frac{\sum_m EG_{m,y} \times EF_{EL,m,y}}{\sum_m EG_{m,y}} \qquad \textbf{(2)}$$

$EF_{grid,OMaverage,y}$	Simple operating margin CO_2 emission factor in year y (tCO_2/MWh)
$EG_{m,y}$	Net quantity of electricity generated and delivered to the CEB 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_2e/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 this case 2008 – 2010

Where:

$$EF_{EL,m,y} = \frac{EF_{CO2,m,i,y} \times 3.6}{\eta_{m,y}} \tag{3}$$

$EF_{EL,m,y}$	CO_2 emission factor of power unit *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)
$\eta_{m,y}$	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
y	The relevant year as per the data vintage chosen, in this case 2008 – 2010

Based on the above data, the operating margin is estimated to be 0.6955 tCO_2/MWh using data for the period 2008 - 2010.

Step 5: Calculate the build margin emission factor

The BM will be calculated in accordance to Option 1 based on the most recent information available on grid connected units already built for the sample group *m* and fixed *ex ante*. The set of the most recently built grid-connected power plants, except for those registered as CDM projects is presented in Appendix 3. For the second crediting period, the build margin emission factor will be updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE. The third period uses the value from the second period. This option does not require monitoring the emission factor during the crediting period.

In the case of Sri Lankan CEB grid, which comprises the relevant electricity system as identified in Step 1, the set of the most recently built 5 plants comprises only 5.35% of total grid generation in 2010; thus the set of the most recently built power plants generating at least 20% of total electricity in 2010 is larger and $SET_{\geq 20\%}$ forms SET_{sample}. Additionally, all plants in SET_{sample} were built in December 2004 or later, or less than 10 years ago. So SET_{sample} is equivalent to the sample group of power plants *m*, as described in the Tool and sub-steps (d) ~ (f) should not be performed.

The BM is calculated as per equation 4.

$$EF_{grid,BM,y} = \frac{\sum_{m} EG_{m,y} \times EF_{EL,m,y}}{\sum_{m} EG_{m,y}} \qquad \textbf{(4)}$$

$EF_{grid,BM,y}$	Build margin CO_2 emission factor in year *y* (tCO_2/MWh)
$EG_{m,y}$	Net quantity of electricity generated and delivered to the CEB 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_2e/MWh)
m	All power units included in the build margin
y	Data for 2010 as the most recent year for which data is available

The $EF_{EL,m,y}$ is calculated as per the guidance in formula 2 above.

Based on the above, BM emission factor is estimated to be 0.5390.

Step 6: Calculate the combined margin emission factor

The CM is calculated as per option (a), weighted average CM. As the Project is a wind power generation activity, the following weights are applied for the first crediting period as per the guidance in the methodology.

$\boldsymbol{w_{OM} = 0.75}$

$\boldsymbol{w_{BM} = 0.25}$

Thus the combined margin is estimated to be 0.6564 tCO2/MWh.

Project Emissions

As this is a wind power project, project emissions are considered to be zero.

Leakage

No leakage emissions are considered for the proposed project activity since no energy generating equipment will be transferred from another activity and no existing equipment will be transferred to another activity.

Emission Reductions

Emission reductions are equivalent to the baseline emissions as project elisions and leakage are zero for the project. Thus

$$ER_y = BE_y \quad \textbf{(5)}$$

Where,

ER_y Emission reductions in year *y* (tCO_2/yr)

The exact emission reduction calculations are available in the attached MS Office © Excel file.

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

Data / Parameter:	$EF_{CO2,m,i,y}$
Data unit:	tCO_2/GJ
Description:	CO_2 emission factor of fossil fuel type *i* used in power unit *m* in year *y*
Source of data used:	IPCC 2006 Default Values
Value applied:	Naphtha: 69.3 Diesel oil: 72.6 Furnace oil: 75.5
Justification of the choice of data or description of measurement methods and procedures actually applied :	This parameter is monitored once for each crediting period using the most recent three historical years for which data is available at the time of submission of the CDM-PDD to the DOE for validation. (ex-ante option)
Any comment:	IPCC default value at the lower limit of the uncertainty at a 95% confidence interval as provided in Table 1.2, Chapter 1, Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories.

Data / Parameter:	$EG_{m,y}$
Data unit:	MWh
Description:	Net electricity generated by power plant/unit *m* in year *y*
Source of data used:	Official data provided by Ceylon Electricity Board for Year 2008-2010
Value applied:	See EF calculation data in Annex 3
Justification of the choice of data or description of measurement methods and procedures actually applied :	Based on the official data provided by National Grid Authority (Ceylon Electricity Board).
Any comment:	-

Data / Parameter:	$\eta_{m,y}$
Data unit:	-
Description:	Average net energy conversion efficiency of power unit *m* in year *y*
Source of data used:	The default values provided in the Annex I of "Tool to calculate the emission factor for an electricity system"
Value applied:	Please refer to Annex 3
Justification of the choice of data or description of measurement methods and procedures actually applied :	The default values provided in the Annex I of "Tool to calculate the emission factor for an electricity system" (Version 2.2.1) is used for the calculation.
Any comment:	This parameter is monitored once for each crediting period

B.6.3 Ex-ante calculation of emission reductions:

Baseline emissions

As per AMS I.D, the baseline emissions are calculated as the net electricity generated by the project activity, multiplied with the baseline emission factor for the project grid.

Baseline emissions calculated as explained in section B.6.1 above are summarized as below.

$$BE_y = EG_{BL,y} * EF_{CO2,grid,y} \qquad \textbf{(1)}$$

Where

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

$EF_{CO2,grid,y}$ CO_2 emission factor of the grid in year *y* (tCO_2/MWh)

Hence,

BE_y = 7,008 MWh/yr * 0.6564 tCO_2/MWh

BE_y = 4,599 tCO_2/yr

Project emissions

There are no project emissions. Therefore,

PE_y = 0

Leakage

No leakage emissions are applicable. Therefore,

$LE_y = 0$

Emission reductions

Emissions reductions are calculated as:

$ER_y = BE_y$ **(5)**

$ER_y = 4{,}599$ tCO_2

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

Year	Estimation of project activity emissions (tCO_2e)	Estimation of baseline emissions (tCO_2e)	Estimation of leakage (tCO_2e)	Estimation of overall emission reductions (tCO_2e)
2014	4,599	0	0	4,599
2015	4,599	0	0	4,599
2016	4,599	0	0	4,599
2017	4,599	0	0	4,599
2018	4,599	0	0	4,599
2019	4,599	0	0	4,599
2020	4,599	0	0	4,599
Total (tonnes of CO_2e)	**32,193**	**0**	**0**	**32,193**

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

B.7.1 Data and parameters monitored:

Data / Parameter:	EX_y
Unit:	MWh/y
Description:	Quantity of electricity exported to the grid in year *y*
Source of data:	Measured
Value of data:	7,008
Brief description of measurement methods and procedures to be applied:	Measurements are undertaken using energy meters. Measurements will be conducted continuously.

QA/QC procedures to be applied (if any):	CEB will install and maintain the primary meter. A check meter will also be installed to cross check the electricity exported to the CEB grid. The check meter reading would also be used in case of failure of the primary meter. Measurement results shall be cross checked with records for sold/purchased electricity (e.g. invoices/receipts) for consistency. The electricity exported will be jointly recorded and certified by CEB and the project developer on a meter owned by CEB.
Any comment:	-

Data / Parameter:	***EI_y***
Unit:	MWh/y
Description:	Quantity of electricity imported from the grid in year *y*
Source of data:	Measured
Value of data:	0
Brief description of measurement methods and procedures to be applied:	Measurements are undertaken using energy meters. Measurements will be conducted continuously.
QA/QC procedures to be applied (if any):	A check meter is also installed to cross check the electricity exported to the CEB grid. The check meter reading would also be used in case of failure of the primary meter. Measurement results shall be cross checked with records for sold/purchased electricity (e.g. invoices/receipts) for consistency. The electricity exported will be jointly recorded and certified by CEB and the project developer on a meter owned by CEB.
Any comment:	-

B.7.2 Description of the monitoring plan:

A. Description of the formulae used for calculation of the emission reductions

Emission Reduction Calculations

$$ER_y = BE_y \quad \textbf{(5)}$$

where:

ER_y Emission reductions in year y (tCO_2e/yr)

BE_y Baseline emissions in year y (tCO_2e/yr)

Baseline Emissions

Baseline emissions calculations, as explained in section B.6.1 above, are summarized below.

$BE_y = EG_{BL,y} * EF_{CO2,grid,y}$ **(1)**

Where

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

$EF_{CO2,grid,y}$ CO_2 emission factor of the grid in year *y* (tCO_2/MWh)

And where,

$EG_{BL} = EX_y - EI_y$ **(7)**

EX_y Quantity of electricity exported to the grid in year *y* (MWh)

EI_y Quantity of electricity imported from the grid in year *y*

B. Location of the Monitoring Equipment

The monitoring equipment will be located in the substation and will be owned an maintained by the CEB.

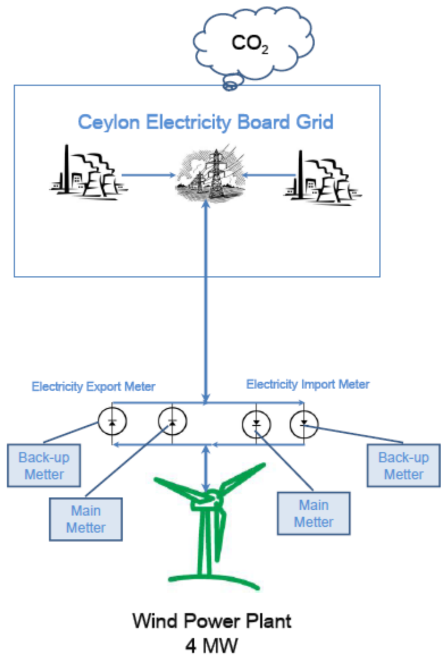

Figure 3 Location of Monitoring Equipment

C. Monitoring Organization

Operational and Management Structure

Figure 3 below outlines the operational and management structure that Takasago has implemented to monitor emission reductions generated by the Project. Takasago has formed an operational and management team, which will be responsible for monitoring of all the parameters aforementioned. This team composes of a general manager and a group of operators. A group of operators, who are under the supervision of the general manager, are assigned for monitoring of different parameters on a timely basis as well as recording and archiving data in an orderly manner. Operators will be trained in the operation of all monitoring equipment and all readings will be taken under the supervision of management. An operations manual will be developed for the operating personnel.

Quality control and assurance procedures are to be undertaken for data monitored as outlined in the monitoring plan. A database will be maintained to record all relevant data as outlined in the monitoring plan. Monitoring reports are forwarded to and reviewed by the general manager on a monthly basis in order to ensure the Project follows the requirements of the monitoring plan.

All monitoring equipment will be installed by CEB experts using standard methods. Once installed, this equipment will be calibrated to the highest standards by authorized Sri Lankan agencies. Any irregularities or problems with equipment will be reported to management and rectified as soon as possible.

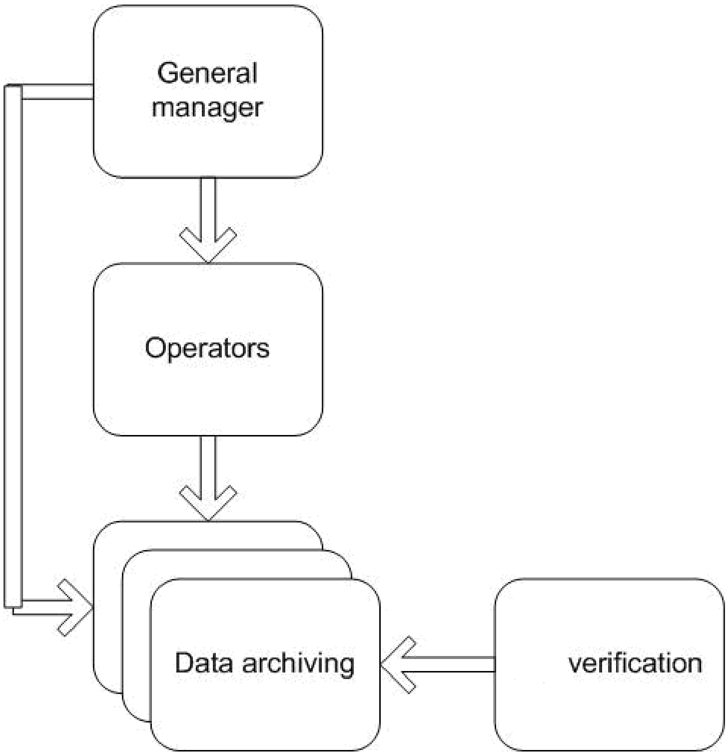

Figure 4 Operating and Management Structure of the Project

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 application of the baseline and monitoring methodology was completed on 01/02/2012 by

Clean Energy Finance Committee
Mitsubishi UFJ Morgan Stanley Securities Co., Ltd.
Tokyo, Japan
Tel: +81-3-6213-6382
Fax: +81-3-6213-6175
E-mail: watanabe-hajime@sc.mufg.jp

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:

June 1, 2012

This is the date when an investment decision is expected to be taken.

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

20 years

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

Renewable crediting period is selected.

C.2.1. Renewable crediting period

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

January 1, 2014

C.2.1.2. Length of the first crediting period:

7 years 0 months

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:

The Project is located on the territory of an existing solar park, for which already and Environmental Impact Assessment has been conducted. Additionally, in the vicinity of the Project site there is a wind power plant that has been operation for more than 10 years and for which already environmental impact assessment has been completed. Both EIA identified no significant issues.

At the same time, Sri Lankan legislation requires every CDM project to complete an Environmental Impact Assessment. TTE is currently working with the Board of Investment of Sri Lanka and the Ministry of Environment of Sri Lanka to confirm whether weather a through EIA should be conducted and what should it cover. Following the results of these discussions, this section will be expanded.

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:

No significant environmental impacts are expected.

SECTION E. Stakeholders' comments

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

The stakeholder comments were collected in two stages.

As this is a Sri Lankan government supported project on a government-owned land, consultations were conducted with officials from the concerned agencies and ministries, including Board of Investment of Sri Lanka, Ceylon Electricity Board, Sustainable Energy Authority, Ministry of Environment, Ministry of Power and Energy and Urban Development Authority. In the period November 2010 – January 2012 individual meetings were held to explain the project concept and discuss the relevant project details.

Additionally, a stakeholder's consultation meeting was organized with residents in areas adjacent to the solar park. In a radius of approximately 6 km there is a banana plantation, so the target residents were some farmers working there. No specific residential area exists around the project site. The meeting was organized on November 16, 2011 in a local temple in the presence of the priest. The information on the stakeholders' consultation was distributed through the temple.

Approximately 30 people gather on the date of the stakeholders' consultation. A brief presentation about the project and its goals was made, which was followed by a Q&A sessions. Photographs from the meeting are presented in Figure 5 below.

Figure 5: Stakeholders' Meeting

E.2. Summary of the comments received:

The comments received from the relevant government officials were extremely supportive, as the project is in line with the Sri Lankan renewable energy policy. Two major comments were received.

Regarding the Project site

The Ministry of Power and Energy and the Sustainable Energy Authority suggested transferring the project site to an existing solar park in Hambantota; originally the project site was planned to be next to the ICC.

Regarding the stability of the CEB grid

CEB representatives commented that the grid has limited regulatory capacity and addition of a new power plant might add to the increased grid fluctuations.

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

Regarding the project site, it was agreed to locate the project in the existing Hambantota Solar Park. Regarding the stability of the grid, TTE is currently considering some changes in the design of the plant in order to reduce grid fluctuations.

No further action is required to address any of the received comments.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Organization:	Takasago Thermal Engineering Co., Ltd.
Street/P.O.Box:	7-1, Nishi Shinjuku 3-Chome
Building:	Shinjuku Park Tower 20F
City:	Shinjuku-ku
State/Region:	Tokyo
Postfix/ZIP:	163-1020
Country:	JAPAN
Telephone:	
FAX:	
E-Mail:	
URL:	
Represented by:	
Title:	General Manager
Salutation:	Mr.
Last Name:	Inoue
Middle Name:	
First Name:	Yoshiyuki
Department:	Oversees Business Division
Mobile:	
Direct FAX:	+81-3-5323-3883
Direct tel:	+81-3-5323-3887
Personal E-Mail:	inoue@takasago.com.sg

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

The project involves no public funding.

Annex 3

BASELINE INFORMATION

Table 2 Power Generation mix of Sri Lanka Electricity Grid for Last Five Years (GWh)

Generation	2006	2007	2008	2009	2010
Total Power Generation	8,769	9,791	9,793	9,756	10,561
Total Thermal Power Generation	5,314	5,842	5,654	5,849	4,844
Total Low Cost Power Generation	3,455	3,949	4,139	3,907	5,717
Thermal % of Total grid generation	60.60	59.67	57.74	59.96	45.87
Low Cost % of Total grid generation	39.40	40.33	42.26	40.04	54.13
Average of the five most recent years of % of Low Cost generation out of Total grid generation					**42.23**

Source: Based on data from the CEB

Operating Margin Data for 2008

Plant Name	Unit No.	Generation Type (Most Efficient)	Fuel Type Used	Installation Year	Net Electricity Generation 2008 (GWh)	Net Energy Conversion Efficiency (%)	Average CO2 Emission factor of Fuel Type (tCO2/GJ)	CO2 emission factor of Power Plant/Unit (tCO2/MWh)	CO2 emission from Power Plant/Unit (tCO2)
CEB Owned Thermal Power Plants									
Kelanitissa Gas Power station									
	5 Units	Gas turbine (old)	Diesel	1981-82	25.000	30.00%	0.073	0.871	21,780.00
	1 Unit	Gas turbine(New)	Diesel	1997	94.000	30.00%	0.073	0.871	81,892.80
	2 unit	Combined Cycle	Naptha	2001 and 2003	781.000	46.00%	0.069	0.542	423,573.65
		Combined Cycle	Diesel		263.000	46.00%	0.073	0.568	149,429.74
Sapugaskanda Power station									
	4 Units	Diesel Generator	Diesel	1984	384.000	30.00%	0.073	0.871	334,540.80
	8 Units	Diesel Generator	Diesel	1997 and 1999	527.000	30.00%	0.073	0.871	459,122.40
IPP's Thermal Power Plants									
Lakdhanavi		Diesel Generator	Furnace Oil	November, 1997	129.000	30.00%	0.076	0.906	116,874.00
Asia Power Ltd		Diesel Generator	Heavy Fuel	June, 1998	371.000	30.00%	0.076	0.906	336,126.00

Colombo Power (Pvt) Ltd (BARGE MOUNTED)	Diesel Generator	Furnace Oil	May,2000	480.000	39.50%	0.076	0.688	330,288.61
ACE Power Matara	Diesel Generator	Furnace Oil	April, 2002	170.000	39.50%	0.076	0.688	116,977.22
ACE Power, Horana	Diesel Generator	Furnace Oil	November, 2002	165.000	39.50%	0.076	0.688	113,536.71
AES Kelanitissa (Pvt) Ltd	Combined Cycle	Diesel	GT- March 2003 ST- October, 2003	797.000	46.00%	0.073	0.568	452,834.61
Heladanavi (Pvt) Ltd	Diesel Generator	Furnace Oil	Dec-04	692.000	39.50%	0.076	0.688	476,166.08
Ace Power Embilipitiya Ltd	Diesel Generator	Furnace Oil	Apr-05	667.000	39.50%	0.076	0.688	458,963.54
West Coast Kerawalapitiya	Diesel Generator	Natural Gas	Sept-2008 and May-2010	109.000	39.50%	0.054	0.495	53,942.58
			Apr-09					
TOTAL				**5,654.000**				**3,926,048.73**

Average OM for the Year 2008	**0.6944**

Plant Name	Unit No.	Generation Type	Installation Year	Net Electricity Generation in 2008(GWh)
CEB Owned Hydro Power Projects				

Laxapana hydro generation complex

Canyon	2 x 30 MW	Hydro Power	May 1983 May 1989	146.00
Wimalasurendra	2 x 25 MW	Hydro Power	Jan-65	100.00
Old Laxapana	3 x 8.33 + 2 x 12.5 MW	Hydro Power	Dec 1950 Dec 1958	256.00
New Laxapana	2 x 50 MW	Hydro Power	Feb 1974 March 1974	495.00
Samanala	2 x 37.5 MW	Hydro Power	Apr-69	393.00

Mahaweli hydro generation complex

Victoria	3 x 70 MW	Hydro Power	Jan 1985 Oct 1984 Feb 1986	593.00
Kotmale	3 x 67 MW	Hydro Power	April 1985 Feb 1988	281.00
Randenigala	2 x 61 MW	Hydro Power	Jul-86	317.00
Ukuwela	2 x 20 MW	Hydro Power	July 1976 August 1976	153.00
Bowetanna	1 x 40 MW	Hydro Power	Jun-81	53.00
Rantambe	2 x 24.5 MW	Hydro Power	Jan-90	180.00

Other Hydro Projects

Samanalawewa	2 x 60 MW	Hydro Power	Oct-92	312.00
Kukule	2 x 35 MW	Hydro Power	Jul-03	369.00

Mini Hydro - CEB	20 MW	Hydro Power	1960-1970	53.00
Total CEB Owned Hydro Power Generation				**3,701.00**
CEB - Wind Power Generation	1 x 3 MW	Wind Power	Mar-99	**3.00**
Small Power Producers (Solar, Wind, Mini Hydro etc.)		Renewable Energy		**434.85**
Total Power Generation by CEB Grid in Year 2010				**9,792.85**

Operating Margin Data 2009

Plant Name	Unit No.	Generation Type (Most Efficient)	Fuel Type Used	Installation Year	Net Electricity Generation 2009 (GWh)	Net Energy Conversion Efficiency(%)	Average CO2 Emission factor of Fuel Type (tCO2/GJ)	CO2 emission factor of Power Plant/Unit (tCO2/MWh)	CO2 emission from Power Plant/Unit (tCO2)
CEB Owned Thermal Power Plants									
Kelanitissa Gas Power station									
	5 Units	Gas turbine (old)	Diesel	1981-82	98.00	30.00%	0.073	0.871	85,377.60
	1 Unit	Gas turbine(New)	Diesel	1997	137.00	30.00%	0.073	0.871	119,354.40
	2 unit	Combined Cycle	Naptha	2001 and 2003	585.00	46.00%	0.069	0.542	317,273.48
		Combined Cycle	Diesel		335.00	46.00%	0.073	0.568	190,338.26
Sapugaskanda Power station									
	4 Units	Diesel Generator	Diesel	1984	393.00	30.00%	0.073	0.871	342,381.60
	8 Units	Diesel Generator	Diesel	1997 and 1999	535.00	30.00%	0.073	0.871	466,092.00
IPP's Thermal Power Plants									

Lakdhanavi	Diesel Generator	Furnace Oil	November, 1997	149.00	30.00%	0.076	0.906	134,994.00
Asia Power Ltd	Diesel Generator	Heavy Fuel	June, 1998	362.00	30.00%	0.076	0.906	327,972.00
Colombo Power (Pvt) Ltd (BARGE MOUNTED)	Diesel Generator	Furnace Oil	May,2000	502.00	39.50%	0.076	0.688	345,426.84
ACE Power Matara	Diesel Generator	Furnace Oil	April, 2002	184.00	39.50%	0.076	0.688	126,610.63
ACE Power, Horana	Diesel Generator	Furnace Oil	November, 2002	189.00	39.50%	0.076	0.688	130,051.14
AES Kelanitissa (Pvt) Ltd	Combined Cycle	Diesel	GT- March 2003 ST- October, 2003	587.00	46.00%	0.073	0.568	333,518.09
Heladanavi (Pvt) Ltd	Diesel Generator	Furnace Oil	Dec-04	687.00	39.50%	0.076	0.688	472,725.57
Ace Power Embilipitiya Ltd	Diesel Generator	Furnace Oil	Apr-05	703.00	39.50%	0.076	0.688	483,735.19
West Coast Kerawalapitiya	Diesel Generator	Natural Gas	Sept-2008 and May-2010	403.00	39.50%	0.054	0.495	199,439.09
TOTAL				**5,849.00**				**4,075,289.88**

Average OM for the Year 2009	**0.6967**

Plant Name	Unit No.	Generation Type	Installation Year	Net Electricity Generation in 2009 (GWh)
<u>CEB Owned Hydro Power Projects</u>				
Laxapana hydro generation complex				
Canyon	2 x 30 MW	Hydro Power	May 1983 May 1989	158.00
Wimalasurendra	2 x 25 MW	Hydro Power	Jan-65	115.00
Old Laxapana	3 x 8.33 + 2 x 12.5 MW	Hydro Power	Dec 1950 Dec 1958	305.00
New Laxapana	2 x 50 MW	Hydro Power	Feb 1974 March 1974	480.00
Samanala	2 x 37.5 MW	Hydro Power	Apr-69	414.00
Mahaweli hydro generation complex				
Victoria	3 x 70 MW	Hydro Power	Jan 1985 Oct 1984 Feb 1986	428.00
Kotmale	3 x 67 MW	Hydro Power	April 1985 Feb 1988	384.00

Randenigala	2 x 61 MW	Hydro Power	Jul-86	134.00
Ukuwela	2 x 20 MW	Hydro Power	July 1976 August 1976	161.00
Bowetanna	1 x 40 MW	Hydro Power	Jun-81	41.00
Rantambe	2 x 24.5 MW	Hydro Power	Jan-90	89.00
Other Hydro Projects				
Samanalawewa	2 x 60 MW	Hydro Power	Oct-92	286.00
Kukule	2 x 35 MW	Hydro Power	Jul-03	326.00
Mini Hydro - CEB	20 MW	Hydro Power	1960-1970	34.00
Total CEB Owned Hydro Power Generation				**3,355.00**
CEB - Wind Power Generation	1 x 3 MW	Wind Power	Mar-99	**3.00**
Small Power Producers (Solar, Wind, Mini Hydro etc.)		Renewable Energy		**548.50**
Total Power Generation by CEB Grid in Year 2010				**9,755.50**

Operating Margin Data 2010

Plant Name	Unit No.	Generation Type (Most Efficient)	Fuel Type Used	Installation Year	Net Electricity Generation 2009 (GWh)	Net Energy Conversion Efficiency(%)	Average CO2 Emission factor of Fuel Type (tCO2/GJ)	CO2 emission factor of Power Plant/Unit (tCO2/MWh)	CO2 emission from Power Plant/Unit (tCO2)
CEB Owned Thermal Power Plants									
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	1 Unit	Gas turbine(New)	Diesel	1997	137.00	30.00%	0.073	0.871	119,354.40
	2 unit	Combined Cycle	Naptha	2001 and 2003	585.00	46.00%	0.069	0.542	317,273.48
		Combined Cycle	Diesel		335.00	46.00%	0.073	0.568	190,338.26
Sapugaskanda Power station									
	4 Units	Diesel Generator	Diesel	1984	393.00	30.00%	0.073	0.871	342,381.60
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ACE Power, Horana	Diesel Generator	Furnace Oil	November, 2002	189.00	39.50%	0.076	0.688	130,051.14
AES Kelanitissa (Pvt) Ltd	Combined Cycle	Diesel	GT- March 2003 ST- October, 2003	587.00	46.00%	0.073	0.568	333,518.09
Heladanavi (Pvt) Ltd	Diesel Generator	Furnace Oil	Dec-04	687.00	39.50%	0.076	0.688	472,725.57
Ace Power Embilipitiya Ltd	Diesel Generator	Furnace Oil	Apr-05	703.00	39.50%	0.076	0.688	483,735.19
West Coast Kerawalapitiya	Diesel Generator	Natural Gas	Sept-2008 and May-2010	403.00	39.50%	0.054	0.495	199,439.09
TOTAL				**5,849.00**				**4,075,289.88**

Average OM for the Year 2009	**0.6967**

Plant Name	Unit No.	Generation Type	Installation Year	Net Electricity Generation in 2009 (GWh)
CEB Owned Hydro Power Projects				
Laxapana hydro generation complex				
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Mahaweli hydro generation complex				
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Kotmale	3 x 67 MW	Hydro Power	April 1985 Feb 1988	384.00
Randenigala	2 x 61 MW	Hydro Power	Jul-86	134.00
Ukuwela	2 x 20 MW	Hydro Power	July 1976 August 1976	161.00
Bowetanna	1 x 40 MW	Hydro Power	Jun-81	41.00

Rantambe	2 x 24.5 MW	Hydro Power	Jan-90	89.00
Other Hydro Projects				
Samanalawewa	2 x 60 MW	Hydro Power	Oct-92	286.00
Kukule	2 x 35 MW	Hydro Power	Jul-03	326.00
Mini Hydro - CEB	20 MW	Hydro Power	1960-1970	34.00
Total CEB Owned Hydro Power Generation				**3,355.00**
CEB - Wind Power Generation	1 x 3 MW	Wind Power	Mar-99	**3.00**
Small Power Producers (Solar, Wind, Mini Hydro etc.)		Renewable Energy		**548.50**
Total Power Generation by CEB Grid in Year 2010				**9,755.50**

Build margin Data 2010

	Plant Name	Fuel Type Used	Installation Year	Net Electricity Generation (GWh)	commulative annual electricity generation, AEG_{SET}	Comprise of AEG_{total}
1	Willpita WPP	Wind Power	Oct-10	0.039	547.099	5.18%
2	Vidatamunai	Wind Power	Jul-10	14.619	547.099	5.18%
3	Aggra Oya	Hydro Power	Jun-10	3.843	582.600	5.52%
4	West Coast Kerawalapitiya power station	Natural Gas	May-10	547.099	547.099	5.18%
5	Segumanthivu	Wind Power	May-10	17.646	564.745	5.35%
6	Mampuri	Wind Power	May-10	17.855	582.600	5.52%
7	Ganthuna	Hydro Power	Mar-10	3.528	590.365	5.59%
8	Watakelle	Hydro Power	Jan-10	4.237	590.365	5.59%
9	Gangawerallya	Hydro Power	2009	1.302	591.667	5.60%
10	Bogandana	Hydro Power	2009	12.931	604.598	5.72%
11	Adavikanda	Hydro Power	2009	CDM	604.598	5.72%
12	Amanawala	Hydro Power	2009	4.915	609.513	5.77%
13	Pathaha Oya	Hydro Power	2009	3.888	613.401	5.81%
14	Badulu Oya	Hydro Power	2009	CDM	613.401	5.81%
15	Nugedola	Hydro Power	2009	1.617	615.018	5.82%
16	Halathura Ganga	Hydro Power	2009	5.917	620.935	5.88%
17	Lower Atabage	Hydro Power	2009	1.310	622.245	5.89%
18	Tokyo	Biomass Power	2008	CDM	622.245	5.89%
19	Soranathota	Hydro Power	2008	3.139	625.384	5.92%
20	Magal Ganga	Hydro Power	2008	CDM	625.384	5.92%
21	Giddawa	Hydro Power	2008	8.744	634.128	6.00%
22	Palmerston	Hydro Power	2008	3.871	637.999	6.04%
23	Sheen	Hydro Power	2008	2.796	640.795	6.07%
24	Somerset	Hydro Power	2008	5.131	645.926	6.12%
25	Manelwala	Hydro Power	2008	8.222	654.148	6.19%

26	Loggal Oya	Hydro Power	2008	9.282	663.430	6.28%
27	Kadawala II	Hydro Power	2008	5.191	668.621	6.33%
28	Koswatta Ganga	Hydro Power	2008	5.650	674.271	6.38%
29	Blackwater	Hydro Power	2008	5.837	680.108	6.44%
30	Kadawala I	Hydro Power	2008	14.408	694.516	6.58%
31	Barcaple	Hydro Power	2008	7.741	702.257	6.65%
32	Lower Neluwa	Hydro Power	2007	6.458	708.715	6.71%
33	Kotankanda	Hydro Power	2007	0.828	709.543	6.72%
34	Kehelgagu Oya	Hydro Power	2007	10.168	719.711	6.81%
35	Batatota	Hydro Power	2007	11.165	730.876	6.92%
36	Forest Hill	Hydro Power	2006	0.704	731.580	6.93%
37	Guruluwana	Hydro Power	2006	7.720	739.300	7.00%
38	Gurugoda Oya	Hydro Power	2006	1.192	740.492	7.01%
39	Nilambe Oya	Hydro Power	2006	1.857	742.349	7.03%
40	Kalapathana	Hydro Power	2006	2.492	744.841	7.05%
41	Labuwewa	Hydro Power	2006	6.834	751.675	7.12%
42	Kudah Oya	Hydro Power	2006	7.755	759.430	7.19%
43	Gomala Oya	Hydro Power	2006	3.741	763.171	7.23%
44	Delta	Hydro Power	2006	CDM	763.171	7.23%
45	Dunsiname	Hydro Power	2006	12.884	776.055	7.35%
46	Henfolde	Hydro Power	2006	10.171	786.226	7.44%
47	Coolbawan	Hydro Power	2006	2.380	788.606	7.47%
48	Ace Power Ambilipitiya Ltd power station	Furnace Oil	2005	611.755	1,400.361	13.26%
49	Badalgama	Biomass Power	2005	CDM	1,400.361	13.26%
50	Upper Korawaka	Hydro Power	2005	6.500	1,406.861	13.32%
51	Kalupahana	Hydro Power	2005	3.270	1,410.131	13.35%
52	Assupini Ella	Hydro Power	2005	17.903	1,428.034	13.52%
53	Kumburuneniwela	Hydro Power	2005	9.627	1,437.661	13.61%
54	Radella	Hydro Power	2005	0.672	1,438.333	13.62%
55	Wee Oya	Hydro Power	2005	18.798	1,457.131	13.80%
56	Kotapola	Hydro Power	2005	1.805	1,458.936	13.81%
57	Hemingford	Hydro Power	2005	0.458	1,459.394	13.82%
58	Heladanavi (Pvt) Ltd power station	Furnace Oil	Dec. 2004	636.840	2,096.234	19.85%

S.No.	Plant Name	Generation Type (Most Efficient)	Fuel Type Used	Net Electricity Generation 2010 (GWh)	Net Energy Conversion Efficiency(%)	Average CO2 Emission factor of Fuel Type (tCO2/GJ)	CO2 emission factor of Power Plant/Unit (tCO2/MWh)	CO2 emission from Power Plant/Unit (tCO2)
1	West Coast Kerawalapitiya power station	Diesel Generator	Natural Gas	547.099	39.50%	0.0543	0.4949	270,751.68
2	Ace Power Ambilipitiya Ltd power station	Diesel Generator	Furnace Oil	611.755	39.50%	0.0755	0.6881	420,949.39
3	Heladanavi (Pvt) Ltd power station	Diesel Generator	Furnace Oil	636.840	39.50%	0.0755	0.6881	438,210.41
4	Renewable Power Plants	Renewable Energy	-	300.540	-	-	-	-
			TOTAL	**2,096.234**				**1,129,911.48**
		BM for the year 2010		**0.539**				

Annex 4

MONITORING INFORMATION

No additional monitoring information is included here.