Gold standard for the global goals
Monitoring report

June 2017, version 1

Title of the project	Adavikanda, Kuruwita Division Mini Hydro Power Project
Gold Standard project id	GS 6051
Version number of the monitoring report	03
Completion date of the monitoring report	06/05/2019
Date of project design certification	22/11/2018
Start date of crediting period	22/11/2016
Duration of this monitoring period	22/11/2016 to 23/08/2017
Duration of previous monitoring period	N/A
Project representative(s)	Infinite Environmental Solutions LLP
Host Country	Sri Lanka
Certification pathway (activity certification/impact certification)	Project Certification
SDG Contributions targeted (as per approved PDD)	1 – SDG 7 Affordable and Clean Energy 2 – SDG 8 Decent Work and Economic Growth 3- SDG 13 Climate Action
Gold Standard statement/product certification sought (GSVER/ADALYs/RECs etc.)	GS CER
Selected methodology(ies)	AMS ID version 18
Estimated amount of annual average certified SDG impact (as per approved PDD)	1. SDG 7 Affordable and Clean Energy • 19,929 MWh/year • 15,015 MWh (for 275 days) 2. SDG 8 Decent Work and Economic Growth- 22 3. SDG 13 Climate Action • 13,483 tCO2/year • 10,158 tCo2 for 275 days
Total amount of certified SDG impact (as per approved methodology) achieved in this monitoring period	SDG 7 : 10,715 MWh SDG 8: 22 Employees LKR : 8,556,079 SDG 13 :7,249 tCO2

SECTION A. Description of project

A.1. Purpose and general description of project

Alternate Power Systems (Pvt.) Ltd. constructed and operates a run-of-river 6.5 MW mini hydro power plant in Sri Lanka. The project activity involves generation of electricity from the small-scale hydropower plant and supply of the power generated to the Sri Lankan national utility grid, the Ceylon Electricity Board. The project exported 10.715 GWh of electricity to the National grid during the monitoring period.

The project is run of the river; hence, minimal storage is required at the weir. The weir is 25 meters long with a maximum height of 2.0 meters and designed as a concrete gravity structure with dowels provided for added safety against sliding. The Full Supply Level (FSL) of the pond is 370 m. MSL. The intake is a closed reinforced concrete conduit with a flow area of 3.6 meters width and 1.5 meters height. The intake designed for a maximum flow of 6.0 cubic meters per second.

The start date of the project activity (the signing date for the penstock clearing, transportation and painting) was 21/01/2008. Project operation began on 29/09/2009 (commercial production start date). The project registered under CDM on 24/08/2010.
The total emission reductions achieved in this third monitoring period (22/11/2016 - 23/08/2017) are 7,249 tCO2e.

A.2. Location of project

The Project site is located along the Kuru Ganga River. This site can be accessed by proceeding approximately 15 km from Kuruwita along the trail road to Sri Pada through the Kuruwita Division of District Ratnapura in Sri Lanka.
The coordinates for the plant site are: N 6^{o} 49’ 56”, E 80^{o} 25’ 27”. The map is shown below.

Project site at Kuruwita Division Ratnapura District

A.3. Reference of applied methodology

In accordance with Appendix B of the simplified modalities and procedures for small-scale clean development mechanism project activities (“SSC M&P”), the project falls under the following type and category:

Type I: Renewable Energy Projects

Category D: Grid connected renewable electricity generation (Version 18.0)
The web reference of the applied methodology can be accessed from the below link
https://cdm.unfccc.int/filestorage/2/P/7/2P7FS6ZQAR84LG3NMKYUH50WI9ODBC/EB81_repan24_AMS-I.D_ver18.pdf?t=QWd8cGkyaGVnfDDXd-3BX7dxFw2zKDwtvSlA

Sectoral Scope: 01 – Energy industries (renewable / non-renewable sources)

A.4. Crediting period of project

Chosen crediting period : 5 years (renewable)
Start date of crediting period : 22/11/2016
Monitoring period : 22/11/2016 to 23/08/2017

SECTION B. Implementation of project

B.1. Description of implemented project

The project was designed to construct as 6.5 MW run off the river mini hydropower project utilizing water resource in Kuru Ganga stream with the total head of 153m and design flow of 6m^3/S. The project is a medium head project and there are three horizontal shafts Francis type turbines and synchronous generators. The estimated annual power generation of the project is 19.93 GWhs.

1. The starting date of the project activity was 21/01/2008 and commercial operation started on 29/09/2009 following successful testing of the plant.
2. The current monitoring period is from 22/11/2016 to 23/08/2017 (275 days)
5. During the monitoring period, the plant has achieved 7,249 CERs

There was no event during the monitoring period that had an impact on the applicability of the methodology.
Technical Specifications:

Hydrology		
Catchments Area at Intake Site	:	19.5 km^2
Catchments Rainfall	:	4,900 mm
Design Discharge	:	6 m^3/sec (3 x 2.0 m3/sec)
Design Flood Discharge	:	170 m^3/sec (once in 100 years)
Waterways		
Total Length	:	300m
Structures	:	Channel-Boxed
Intake – (near outfall of Erathna Project)		
Type of Intake	:	Side Intake
Type	:	Rectangular-Box
Length	:	310 m
Size	:	3.1 m wide and 1.5 m high, internally
Size of Intake Opening	:	3.6 m wide and 1.5 m high
Fore bay/Sedimentation Tank		
Capacity of Forebay	:	1000 m^3
Length excluding transition	:	18 m
Width	:	6 m
Depth	:	3.8 m
Penstock		
Material	:	Steel Penstock
Length of main pipe	:	2,100 m
Size of main pipe (dia/thickness)	:	1.65 m @ 10 mm

		1.55 m @ 12 mm 1.45 m @ 12 mm 1.35 m @ 14 mm 1.25 m @ 14 mm 0.90 m @ 14 mm
Length of Branched Triple Pipes	:	149 m
Size of Triple Pipe (dia/thickness)	:	0.90 m @ 14 mm
Design Discharge	:	6 m_3/sec
Design Net Head	:	141m
Turbine		
Manufacturer	:	Gilbert Gilkes & Gordon Ltd
Country of origin	:	United Kingdom
Model	:	550G150
No. of Units	:	3 (Three)
Mean Diameter of Runner	:	550 mm
Rated Speed	:	1000 rpm
Over Speed	:	1960 rpm
Inlet Pipe Nominal Diameter	:	800 mm
Shaft Attitude	:	Horizontal
Altitude	:	302 meters above sea level
Turbine Power Output	:	2418 kW
Generator		
No. of units	:	3
Input power	:	2418 kW
Type	:	NIR6375A-6
Apparent output	:	2920 kVA
Maximum power output	:	2336 kW
Power Factor	:	0.8
Tension	:	660 V
Frequency	:	50 Hz
Speed	:	1000 rpm
Runaway Speed	:	1960 rpm
Runaway Speed Period	:	60 minutes every 24 hours
Protection	:	IP-23
Service	:	S1

B.2. Post-registration changes

B.2.1. Temporary deviations from Certified Key Project Information, Project Design Document, Monitoring & Reporting Plan, applied methodology or applied standardized baseline

There have been no changes after registration.

B.2.2. Corrections

PP would like to confirm that no corrections to project information or parameters fixed during the validation have been approved during this monitoring period or submitted with this monitoring report. .

B.2.3. Changes to start date of crediting period

There have been no such changes to the start date of the crediting period.

B.2.4. Permanent changes from registered monitoring plan, applied methodology or applied standardized baseline

There have been no such changes.

B.2.5. Changes to project design of approved project

There have been no such changes to the design of the project.

SECTION C. Description of monitoring system applied by the project

Monitoring Organisation

The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data rests with the Deputy General Manager DGM of the Company. A team of experienced personnel in various disciplines assists the Shift Engineering Superintendents in plant operation, measurements and management. The primary responsibility of the team is to measure, monitor, and record and report the information on various data items to the Engineer-in-Charge, in accordance with the applicable standards.

The responsibility of review, storage and archiving of information in good condition lies with the DGM. The DGM undertakes periodic verifications and onsite inspections to ensure the quality of the data collected by the team and initiate steps in case of any abnormal conditions. An internal verification report is prepared for review by the DGM followed by submission for verification by an independent entity (DOE).
The team including the Engineer-in-Charge is appointed by the DGM in advance before the start of project operations. The POM reports to the DGM and seeks guidance in case of conflicts or difficulties in order to maintain the monitoring organisation in good spirit.

<table>
<tr><td colspan="4"></td><td colspan="4">Organizational Chart</td><td colspan="4"></td></tr>
<tr><td colspan="4"></td><td colspan="4"></td><td colspan="4"></td></tr>
<tr><td colspan="4"></td><td colspan="4">Jt. Chief Executive Officer</td><td colspan="4"></td></tr>
<tr><td colspan="4"></td><td colspan="4">↓</td><td colspan="4"></td></tr>
<tr><td colspan="4"></td><td colspan="4">Deputy General Manager (DGM)</td><td colspan="4"></td></tr>
<tr><td colspan="4"></td><td colspan="4">↓</td><td colspan="4"></td></tr>
<tr><td colspan="4"></td><td colspan="4">Plant Operations Manger (POM)</td><td colspan="4"></td></tr>
<tr><td colspan="4"></td><td colspan="4">↓</td><td colspan="4"></td></tr>
<tr><td colspan="4">Shift Engineering</td><td colspan="4">Shift Engineering</td><td colspan="4">Shift Engineering</td></tr>
<tr><td colspan="4">Superintendent</td><td colspan="4">Superintendent</td><td colspan="4">Superintendent (Plant)</td></tr>
<tr><td colspan="4">(Plant) Shift– I</td><td colspan="4">(Plant) Shift – II</td><td colspan="4">Shift – III</td></tr>
<tr><td colspan="4">↓</td><td colspan="4">↓</td><td colspan="4">↓</td></tr>
<tr><td colspan="2">Plant Operator</td><td colspan="2">Plant Operator</td><td colspan="2">Plant Operator</td><td colspan="2">Plant Operator</td><td colspan="2">Plant Operator</td><td colspan="2">Plant Operator</td></tr>
<tr><td colspan="2">(Mechanical)</td><td colspan="2">(Electrical)</td><td colspan="2">(Mechanical)</td><td colspan="2">(Electrical)</td><td colspan="2">(Mechanical)</td><td colspan="2">(Electrical)</td></tr>
<tr><td colspan="4">↓</td><td colspan="4">↓</td><td colspan="4">↓</td></tr>
<tr><td colspan="4">Helper</td><td colspan="4">Helper</td><td colspan="4">Helper</td></tr>
</table>

Parameters Requiring Monitoring

This monitoring plan requires monitoring of all parameters indicated in section B7 of the PDD. The necessary documents required for verification of the data are maintained for later archiving. Using the power exported to the grid, the emission reductions are calculated as illustrated in Section B 6.3 of the PDD. Emission reductions generated by the project are monitored at regular intervals and are reported to the DGM.

Procedures for training of monitoring personnel

The project employs qualified and experienced persons for plant operation. Basic personnel to deal with monitoring of parameters are Shift Engineering Superintendents. The project maintains standard log sheets and formats to record the monitoring parameters. The personnel are given proper training to maintain the plant records. The POM of the Plant verifies, compiles and archives all the monitored data. The parameters to be monitored during the crediting period are provided in a tabular format. The Shift Engineering Superintendents and the POM of the Plant are provided with necessary training with respect to maintenance of the relevant monitoring records to enable them to deal with the monitoring independently. Training is provided to the monitoring personnel for monitoring of the following parameters:

- Electricity Export
- Electricity Import
- Gross electricity generated
- Periodical calibration of monitoring equipment
- Diesel Consumption

Procedures for documentation and storage:
Operations of the hydro power project are overseen by the Shift Engineering Superintendent (ES) of the company. The company has three Shift Engineering Superintendent (ES) for each of the three shifts. Qualified electrical engineers (POM) who have obtained necessary training in plant operations, data monitoring, report generation etc. occupy the Shift Engineering Superintendent (ES)'s position. To maintain the smooth operations of the plant, the company will has two Plant Operators (Mechanical and Electrical) and one helper for each of the three shifts to help the shift Engineering Superintendent.

The Shift Engineering Superintendents record the required parameters every day during the operation of the plant. Since the project is a hydropower project, only the following energy related data are to be monitored:
- Gross electricity generation;
- Energy export and import; and
- Diesel consumption for the diesel generator set

The Energy meter readings are taken at the end of each shift at a designated time every day to ensure a constant recording frequency of parameter. The recorded parameters are documented every day in the standard log books maintained at the plant. The day-to-day records are verified, compiled and documented for preparation of internal verification reports by the POM.

The net electricity exported to the grid is recorded from the export meter installed within the premises, jointly with the representatives of Ceylon Electricity Board in the last week of each month. This reading is taken as the basis for raising invoices from the CEB for the payment against net electricity exported to the grid.

The energy imported from the CEB grid is recorded in the import meter installed by the CEB for billing the project activity.

The project proponent at the project site as well as at their head office maintains these records.

Internal audits

The company has introduced an internal verification system for documentation and safe storage of data. Internal verification is carried out as per the monitoring plan and whenever necessary. An internal verification report is prepared for review by the Deputy General Manager (DGM). The DGM verifies the records independently with reference to the power exported and imported. Internal verification reports are the basic documents for the monitoring and storage of plant operational data.

The DGM of the company visits the plant once a month and conducts an internal audit of the various monitoring parameters of the project. The DGM reviews all safety installations, operating procedures, monitoring records, etc. and discusses any corrective actions to be taken for the smooth functioning of the plant.

Procedures for Corrective actions

The parameters to be monitored during a crediting period are compiled in an internal verification report in every quarter of each crediting year and submitted to the DGM for review. The parameters include the gross generation, auxiliary consumption, energy export and import and diesel consumption for the diesel generator set. Based on the verification reports submitted by the Shift Engineering Superintendents the POM assesses the performance of plant. The DGM discusses and recommends necessary mechanisms to improve the operational efficiency of the plant and directs the respective personnel to rectify any problems.

QA & QC Procedures

The project employs such equipment or instruments to measure, record, report, monitor and control the various key parameters of the plant. These monitoring and controls are part of the Control Systems of hydroelectric plant.

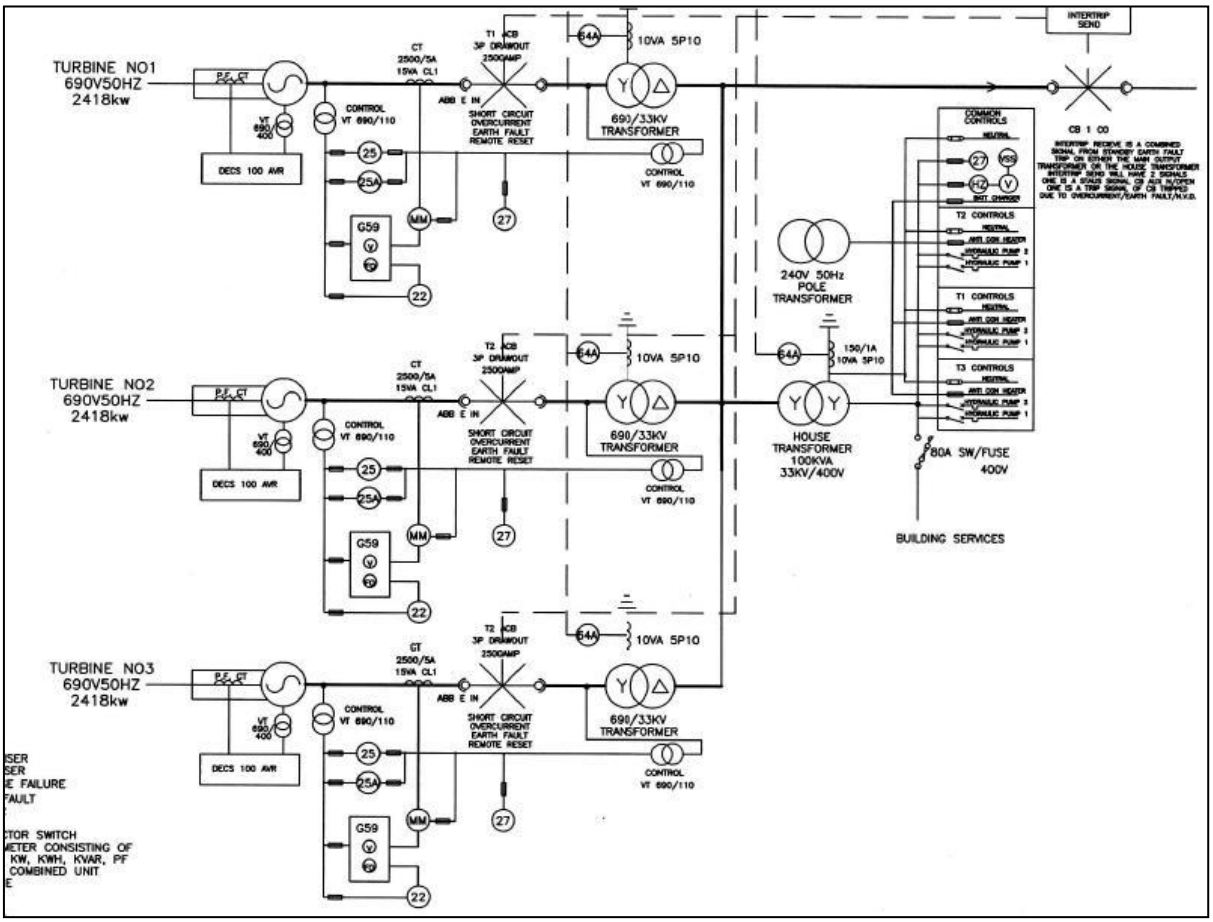
For measuring the energy exported / imported a main meter and a check meter have been installed as required. The check meter reading is used to measure electricity export/import in case of failure of the main meter. The CEB officials are able to replace the main meter immediately on request of the PP. Both the meters are calibrated and sealed at least once every year, as per the standards of the CEB. Delivery records are used and kept for checking the consistency of the recorded data.

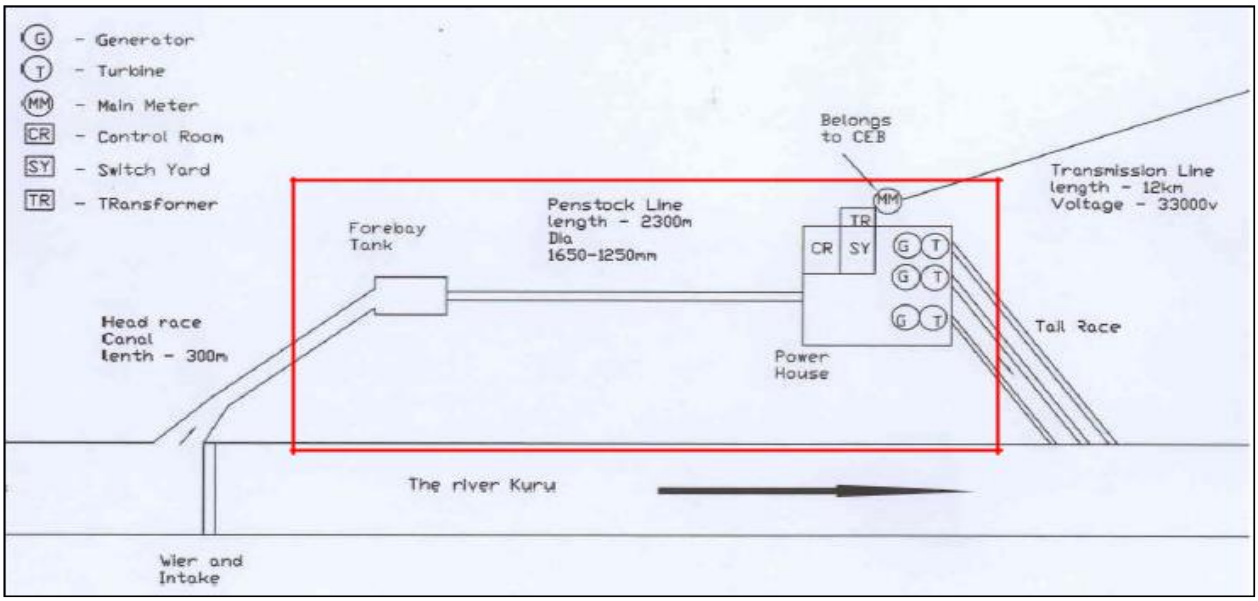
Data Storage & Archiving

All the data items monitored under the monitoring plan are kept for two years after the end of crediting period or the last issuance of CERs, for this project activity, whichever occurs later. The Methodology adopted for determining the base line emission factor is the combined margin of the generation mix in the CEB grid system, which represents the intensity of carbon emissions of the grid system. The baseline emission factor is adopted from the CEB published generation data for the latest available year for the CEB grid at the time of project validation and the same figure is used for future projections and is reviewed each year based on data published by the CEB. The monitored data is presented to an independent verification agency or DOE to whom verification of emission reductions is assigned.

Maintenance of Equipment

All the equipment used in the project activity undergoes scheduled maintenance as specified in the operational manual of the equipment supplier. The Deputy General Manager is responsible to oversee maintenance activity on a periodic basis.





Adavikanda mini hydropower plant

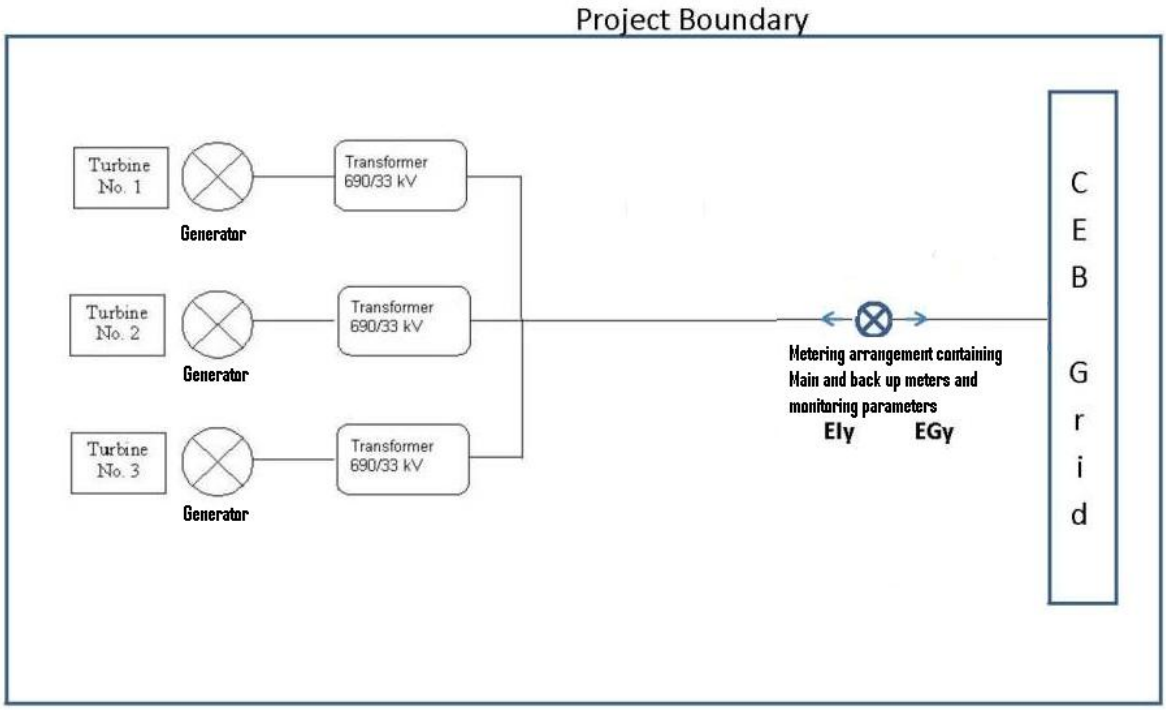


Diagram showing relevant Project Monitoring Points

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante or at renewal of crediting period

Relevant SDG Indicator	**SDG13 : Climate Action**
Data/parameter:	**Density**
Unit	Kg/Liter
Description	Density of Diesel used at project activity
Source of data	Sri Lanka Sustainable Energy Authority
Value(s) applied)	0.8460

Choice of data or measurement methods and procedures	National default value for the Auto Diesel is used. The values are publically available on the Sri Lanka Sustainable Energy Authority's website at http://www.energy.gov.lk/spec/fual.php
Purpose of data	Calculation of Baseline Emissions
Additional comments	

Relevant SDG Indicator	**SDG13 : Climate Action**
Data/parameter:	**$NCV_{Diesel,y}$**
Unit	GJ/kg
Description	Weighted average Net Calorific Value of diesel
Source of data	IPCC 2006 default values
Value(s) applied)	$43.3 * 10^{-3}$
Choice of data or measurement methods and procedures	IPCC default value at the upper 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.
Purpose of data	Calculation of Baseline Emissions
Additional comments	

Relevant SDG Indicator	**SDG13 : Climate Action**
Data/parameter:	**$EF_{CO2,Diesel,y}$**
Unit	tCO2/GJ
Description	Weighted Average CO2 emission factor of Diesel
Source of data	IPCC 2006 default values
Value(s) applied)	$74.8 * 10^{-3}$
Choice of data or measurement methods and procedures	IPCC default values at the upper limit of the uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories
Purpose of data	Calculation of Baseline Emissions
Additional comments	

Relevant SDG Indicator	**SDG13 : Climate Action**
Data/parameter:	**$EF_{elec,i,j,y}$**
Unit	tCO2/MWh
Description	CO2 emission factor for the electricity source i (i=grid), displaced due to the project activity, during year y
Source of data	Calculated
Value(s) applied)	0.6766
Choice of data or measurement methods and procedures	Calculated as per "Tool to calculate the emission factor for an electricity system(Version 06)"
Purpose of data	Calculation of Baseline Emissions
Additional comments	This parameter will be calculated once for each crediting period

Relevant SDG Indicator	SDG13 : Climate Action
Data/parameter:	**$EF_{OM\ y}$**
Unit	tCO2/MWh
Description	Simple Operating Margin for the CEB Grid
Source of data	Calculated based on the Official data provided by Ceylon Electricity Board
Value(s) applied)	0.7073
Choice of data or measurement methods and procedures	Calculated according to procedure prescribed in the "Tool to calculate the emission factor for an electricity system (Version 06)".
Purpose of data	Calculation of Baseline Emissions
Additional comments	This parameter will be calculated once for each crediting period

Relevant SDG Indicator	SDG13 : Climate Action
Data/parameter:	**$EF_{BM\ y}$**
Unit	tCO2/MWh
Description	Build Margin for the WESTERN Grid
Source of data	Calculated based on the Official data provided by Ceylon Electricity Board
Value(s) applied)	0.6459
Choice of data or measurement methods and procedures	Calculated according to procedure prescribed in the "Tool to calculate the emission factor for an electricity system (Version 06)".
Purpose of data	Calculation of Baseline Emissions
Additional comments	This parameter will be calculated once for each crediting period

Relevant SDG Indicator	SDG13 : Climate Action
Data/parameter:	**$EF_{CO2,m,i,y}$**
Unit	tCO2/GJ
Description	CO2 emission factor of fossil fuel type i in year y
Source of data	IPCC 2006 Default Values
Value(s) applied)	Naphtha: 69.3 Diesel oil: 72.6 Furnace oil: 75.5
Choice of data or measurement methods and procedures	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)
Purpose of data	Calculation of Baseline Emissions
Additional comments	

Relevant SDG Indicator	SDG13 : Climate Action
Data/parameter:	**$\eta_{m,y}$**
Unit	-
Description	Average net energy conversion efficiency of power unit m in year y

Source of data	The default values provided in the Annex I of "Tool to calculate the emission factor for an electricity system(Version 06)"
Value(s) applied)	Please refer to Annex 3 of registered PDD
Choice of data or measurement methods and procedures	The default values provided in the Annex I of "Tool to calculate the emission factor for an electricity system (Version 06)" is used for the calculation.
Purpose of data	Calculation of Baseline Emissions
Additional comments	This parameter is monitored once for each crediting period

D.2. Data and parameters monitored

Relevant SDG Indicator	**SDG 7.2.1: Affordable and Clean Energy**
Data/parameter:	**EG_Y**
Unit	MWh
Description	Net Electricity exported to the grid
Measured/calculated/default	Calculated
Source of data	Monthly Invoice
Value(s) of monitored parameter	10,715.625 MWh Gross Electricity Exported (**EG_Y**) – Electricity imported from the grid (EI_y) = 10,719.401 MWh – 3,776 MWh = 10,715.625 MWh
Monitoring equipment	Measured by the export meter installed at the project boundary.
Measuring/reading/recording frequency:	Monthly
Calculation method (if applicable):	Measured by the export meter installed at the project boundary. The net electricity exported will be jointly recorded and certified by CEB and the project developer. The data will be archived electronically for the entire crediting period.
QA/QC procedures:	Meter will be calibrated as per CEB standards. A check meter is also installed near to the export meter to cross check the electricity exported to the CEB grid. The check meter reading would also be used in case of failure of export meter.

Type	3 phase 4 wire
Accuracy Class	1.0
Serial Number	208196328 (main meter)/ 205017629 (check meter)
Calibration frequency	Once every year

The calibration details are:

Main Meter Date	Backup Meter Date	Result -Main	Result – BackUp meter
15-May-2015	15-May-2015	No Error	No Error
1-Jul-2016	1-Jul-2016	No Error	No Error
26-Oct-2017	26-Oct-2017	No Error	No Error

The calibration delay is observed for the months of July-17 and August-17. Accordingly, procedure for delayed calibration is applied considering accuracy class of the meter.

Purpose of data:	Calculation of Baseline Emissions
Additional comments:	The accuracy class of the energy meter is 1.0

<table>
<tr><td>Relevant SDG Indicator</td><td>SDG 7.2.1 : Affordable and Clean Energy</td></tr>
<tr><td>Data/parameter:</td><td>EI_Y</td></tr>
<tr><td>Unit</td><td>MWh</td></tr>
<tr><td>Description</td><td>Electricity imported from the grid</td></tr>
<tr><td>Measured/calculated/default</td><td>Measured</td></tr>
<tr><td>Source of data</td><td>Monthly bill from CEB</td></tr>
<tr><td>Value(s) of monitored parameter</td><td>3.776</td></tr>
<tr><td>Monitoring equipment</td><td>Measured by the export meter installed at the project boundary.</td></tr>
<tr><td>Measuring/reading/recording frequency:</td><td>Monthly</td></tr>
<tr><td>Calculation method (if applicable):</td><td>Measured by the import meter installed by the CEB at the project site for billing the project activity. This CEB bill will be used to calculate the project emission which includes the auxiliary consumption for the plant equipments. The data will be archived electronically for the entire crediting period.</td></tr>
<tr><td>QA/QC procedures:</td><td>The meter will be calibrated as per CEB standards. A check meter is also installed near to the import meter to cross check the electricity imported from the CEB grid. The check meter reading would also be used in case of failure of import meter.

<table>
<tr><td>Type</td><td>3 phase 4 wire</td></tr>
<tr><td>Accuracy Class</td><td>1.0</td></tr>
<tr><td>Serial Number</td><td>208196328 (main meter)/ 205017629 (check meter)</td></tr>
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</table>

The calibration details are:
<table>
<tr><td>Main Meter Date</td><td>Backup Meter Date</td><td>Result -Main</td><td>Result – BackUp meter</td></tr>
<tr><td>15-May-2015</td><td>15-May-2015</td><td>No Error</td><td>No Error</td></tr>
<tr><td>1-Jul-2016</td><td>1-Jul-2016</td><td>No Error</td><td>No Error</td></tr>
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</table>

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<tr><td>Purpose of data:</td><td>Calculation of Baseline Emissions</td></tr>
<tr><td>Additional comments:</td><td>The accuracy class of the energy meter is 1.0</td></tr>
</table>

<table>
<tr><td>Relevant SDG Indicator</td><td>SDG13.2.1 : Climate Action</td></tr>
<tr><td>Data/parameter:</td><td>$FC_{Diesel,y}$</td></tr>
<tr><td>Unit</td><td>Liter</td></tr>
<tr><td>Description</td><td>Quantity of Diesel used in DG sets during the year</td></tr>
<tr><td>Measured/calculated/default</td><td>Measured</td></tr>
<tr><td>Source of data</td><td>Stores Record/ On site measurements</td></tr>
<tr><td>Value(s) of monitored parameter</td><td>0 (There is no diesel generator installed at the site)</td></tr>
<tr><td>Monitoring equipment</td><td>N/A (There is no diesel generator installed at the site)</td></tr>
<tr><td>Measuring/reading/recording frequency:</td><td>N/A (There is no diesel generator installed at the site)</td></tr>
</table>

Calculation method (if applicable):	N/A (There is no diesel generator installed at the site)
QA/QC procedures:	N/A (There is no diesel generator installed at the site)
Purpose of data:	Project emission calculations
Additional comments:	

Relevant SDG Indicator	**SDG 8.5.1 : Decent Work and Economic Growth**
Data/parameter:	**Number of employment generation and trainings given**
Unit	Number
Description	Number of people employed directly due to the project activity and the trainings
Measured/calculated/default	Measured
Source of data	Declaration letter from the PP , Training Records & Employee feedback forms
Value(s) of monitored parameter	During the current monitoring period there are 22 employees. 1 Training was conducted during the monitoring period.
Monitoring equipment	The Project personnel observes and take records in Training Records once in a year; there is no equipment to monitor it
Measuring/reading/recording frequency:	Monthly monitoring and annual compilation
Calculation method (if applicable):	Manually by PP representative
QA/QC procedures:	The number of persons employed would be mentioned in the plant register, which can be crossed checked with daily attendance register. The Training records and attendance register
Purpose of data:	-
Additional comments:	-

Relevant SDG Indicator	**SDG 8.5.1 : Decent Work and Economic Growth**
Data/parameter:	**Salary/Wages distributed to employees**
Unit	Sri Lankan Rupees
Description	Amount of salary/wages distributed to the employees
Measured/calculated/default	Measured
Source of data	Declaration letter from the PP
Value(s) of monitored parameter	During the current monitoring period, there are 22 employees and the income provided to all the 22 employees for the monitoring period is: **LKR 8,556,079**
Monitoring equipment	The Project personnel keep the records in the employees register and records once in a year; there is no equipment to monitor it.
Measuring/reading/recording frequency:	Monthly monitoring and annual compilation
Calculation method (if applicable):	Manually by PP representative
QA/QC procedures:	-
Purpose of data:	To monitor the contribution to SDG 8
Additional comments:	The declaration with the Number of employees involved in the project, the income generated due to project and the salary certificates have been submitted to the assessment team.

D.3. Implementation of sampling plan

Not applicable

SECTION E. Calculation of SDG outcomes

E.1. Calculation of baseline value or estimation of baseline situation of each SDG outcome

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

The baseline emissions are calculated below:

BEy = EGy x EFy
= 10,715.625 MWh x 0.6766 tCO2/MWh
= 7,249 tCO2e

Where:
BEy = Baseline emissions in the year, y (tCO2e)
EGy = Net electricity exported to the grid system during the year y (MWh)
EFy = Emission factor of the grid to which the project exports electricity (tCO2/MWh)

E.2. Calculation of project value or estimation of project situation of each SDG outcome

No diesel generator set has been installed yet at the Project site so the quantity of diesel consumed for emergency situations is zero. Therefore, no calculations of projects emissions are provided below.

Also, as described in AMS-I.D, no leakage calculations are applicable.

E.3. Calculation of net benefits as difference of baseline and project values or direct calculation for each SDG outcome

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ERy = BEy - PEy - ERy = 7,249 - 0 -0
ERy = 7,249 tCO2 (ERy = BEy)

E.4. Summary of ex-post values of each SDG outcome for the current monitoring period

Item	Baseline estimate	Project estimate	Net benefit
SDG 13	**10,158 tCO2**	**0**	**7,249 tCO2**
SDG 7	**0**	**10,715 MWh**	**10,715 MWh**
SDG 8	**0**	**13 Employees** **-** **-**	**22 Employees** **LKR 8,556,079**

E.5. Comparison of actual value of outcomes with estimates in approved PDD

Item	Values estimated in ex ante calculation of approved PDD	Actual values achieved during this monitoring period

SDG 13	**10,158 tCO2**	**7,249 tCO2**
SDG 7	**15,015 MWh**	**10,715 MWh**
SDG 8	**13 Employees** **-** **-**	**22 Employees** **LKR 8,556,079 (Lankan Rupees)**

E.6. Remarks on difference from estimated value in approved PDD

The actual emission reduction achieved for the monitoring period considered is less than the estimated emission reductions in the registered PDD by 29%.
This variation is due to variation of water availability in "Kuru Ganga River" (where the project activity is installed). The water availability in "Kuru Ganga River" is get affected by rainfall or monsoon season, hence, this factor is beyond the control of the PP. In the Year 2017, was not good monsoon year, thus resulting into lesser actual generation as comparative to approved PDD

SECTION F. Stakeholder inputs and legal disputes

F.1. List all inputs/grievances which have been received for the project during the monitoring period together with their respective answers/actions

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Since the project is a retroactively validated project, thus grievance procedure was not available at the time of verification for this monitoring period.

F.2. List all inputs/grievances from previous monitoring period where follow up action is to be verified in this monitoring period

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Not applicable

F.3. Provide details of any legal contest or dispute that has arisen with the project during the monitoring period

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Not applicable