jProject design document form

(Version 11.0)

BASIC INFORMATION	
Title of the project activity	6.25 MW grid-connected Sattegala Mini Hydel Scheme at SLS Power Industries Ltd in Chamarajanagar District, Karnataka
Scale of the project activity	☐ Large-scale ☒ Small-scale
Version number of the PDD	3.3
Completion date of the PDD	26/11/2019
Project participants	M/s Bhoruka Power Corporation Limited
Host Party	India
Applied methodologies and standardized baselines	AMS I.D. "Grid connected renewable electricity generation" Version 18.0 , EB 81 Standardized baseline: Not Applicable
Sectoral scopes	Sectoral scope- 1: Energy industries (renewable/ non-renewable sources)
Estimated amount of annual average GHG emission reductions	24,408 tCO_2e

SECTION A. Description of project activity

A.1. Purpose and general description of project activity

Description of the project
The project activity is generation of electricity using hydro potential available in Cauvery River and exporting the generated electricity to the state owned power utility company Karnataka Power Transmission Corporation Ltd. (KPTCL).

The project activity involves implementation and operation of a 6.25 MW (4 X 1.563) Small Hydroelectric grid connected renewable energy project on right bank of Cauvery River about 2 Km upstream of the Sattegala bridge in District Chamarajanagar of the state of Karnataka, India. In the absence of this project activity, equivalent magnitude of electricity would have been supplied by electricity grid which is mostly fed by fossil-fuels based generation sources.

Purpose

The run-of-the river hydro power project activity is intended to generate electricity using the kinetic energy of water resources in the Cauvery River and exporting the generated electricity to grid through the state owned power utility company Karnataka Power Transmission Corporation Ltd. (KPTCL). For this activity it is proposed to construct a small hydroelectric project where the hydro potential is available.

The project falls under

Sectoral Scope: 01 - Energy industries (renewable / non-renewable sources)
Project Type: I - Renewable Energy Projects
Project Category: I.D. - Grid connected renewable electricity generation (Version 18, EB 81, Annex 24)[1]

Technology

The project design comprises an approach channel, diversion structure, scouring sluice, Intake Structure, powerhouse, Switchyard and tailrace canal. The project scheme intercepts water flows of around 546 cum/sec (average) in Dhanagere anicut at 8 Km upstream of the proposed site and diverts it for power generation over a net head of 5m, in the power house located on the right bank of Cauvery river about 2 Km upstream of the Sattegala bridge. Water after power generation will be led back into the parent stream by means of a tailrace channel emanating from the powerhouse. There is a diesel generator of 63 kVA capacity, which is used at the time of construction and the present use of the same is negligible (since the project is run of river and not canal based) compared to the amount of CO_2 displacement of the project activity. Details of the technical specifications of the project are mentioned in section A.3 of this document.

Pre-project Scenario
The project activity is the green field activity, which involves installation of new thermal power cooling water discharge channel based small hydro power project at site where there was no renewable energy power plant operating prior to the implementation of the project activity.

Baseline Scenario
The generated electricity by the project is planned to be supplied into INDIAN grid through Southern regional grid, which is dominated by fossil fuel-fired power plants, thereby precluding the

[1] https://cdm.unfccc.int/filestorage/2/P/7/2P7FS6ZQAR84LG3NMKYUH50WI9ODBC/EB81_repan24_AMS-I.D_ver18.pdf?t=Zlp8cTI4ZGs1fDCarppbs-JroWqsrI8TxvV

emission of greenhouse gases (GHGs) that would resulted in the absence of this renewable energy-based power project activity. Hence, the entire INDIAN grid has been considered for baseline emission calculations for the proposed project activity.

Project Boundary

As per the latest version of the applied methodology, AMS-I.D., the spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to.

Emission Reductions from anthropogenic sources

The hydroelectric power generated from the project site will be displacing the electricity generated from thermal power stations feeding into regional grid (during power surplus time) and will be replacing the usage of diesel generators for meeting the power demand during shortage periods. Since hydro power is Green House Gas (GHG) emissions free, the power generated will prevent the anthropogenic greenhouse gases (GHGs) emissions generated by the fossil fuel based thermal power stations comprising coal, diesel, furnace oil and gas. The estimation of GHG reductions by this project is limited to carbon dioxide (CO_2) only. Thus the proposed project activity leads to an annual emission reduction of 24,408 tCO_2e over the chosen crediting period of seven years.

View of project participants about the project activity's contribution to sustainable development

The main purpose of the project activity is to generate electrical energy through sustainable means without causing any negative impact on the environment and to contribute to climate change mitigation efforts. Apart from the generation of electrical power, the project also contributes to the following.

(a) Sustainable development, through utilisation of renewable hydro resources available in the project region
(b) Rural area development due to the location of the project being in rural area
(c) Capacity addition to the present installed capacity and increase in the energy availability
(d) Generation of additional employment

Ministry of Environment, Forest and Climate Change (MoEFCC), National CDM Authority of India has stipulated the following indicators for sustainable development in the interim approval guidelines for CDM projects.

Social well-being:

The CDM project activity should lead to alleviation of poverty by generating additional employment, removal of social disparities and contribution to provision of basic amenities to people leading to improvement in quality of life of people.

Economic well-being:

The CDM project activity should bring in additional investment consistent with the needs of the people.

Environmental well-being:

This should include a discussion of impact of the project activity on resource sustainability and resource degradation, if any, due to proposed activity; bio-diversity friendliness; impact on human health; reduction of levels of pollution in general.

Technological well-being:

The CDM project activity should lead to transfer of environmentally safe and sound technologies with a priority to the renewable sector or energy efficiency projects that are comparable to best practices in order to assist in up gradation of technological base.

Each of the above criteria is studied in the context of the project activity to ensure that the project activity contributes to the sustainable development and meets the above criteria.

Environmental well-being:

- The project utilizes environmentally safe and sound technologies of small-scale hydroelectric power generation and demonstrates harnessing of hydro potential thus encouraging setting up of similar projects.
- The project does not create any negative impact on the environment, as there is no submergence or stagnation of water.
- The project will not have any negative impact on public health scenario or natural resources of the region.
- The project activity reduces GHG emissions which would have taken place in the absence of the project due to generation of the similar proportion of electricity generated by the project from fossil fuel based generating stations.

Social well-being:

- The project involves no displacement of people living near the project area and hence no rehabilitation and resettlement.
- The project is implemented in a rural area that does not have proper roads and other infrastructure facilities. Project proponents had constructed a road for approach and other infrastructure facilities in the village as a part of the project construction.
- The project has led to direct and indirect employment for the local population as the construction and maintenance staff has been drawn from the nearby local areas.
- More and more rural industries will be set up and new opportunities for development will be created as a consequence to the hydroelectric project in the area. This will result in infrastructure development, which ultimately lead to the rural development and prevent the migration of rural poor to cities.
- The project may promote eco-tourism in due course.

Economic well-being:

- The project proponent has invested approximately INR 551.637 Million in the project, which is a considerable additional investment in rural area, which would not have happened otherwise, in the absence of the project activity.
- The project activity leads to alleviation of poverty by generating direct and indirect employment during construction and operation of the CDM project. Mini Hydel scheme created direct employment opportunities totally for about more than 200 persons during the construction amounting to about 90,000 man-days. The project provides additional source of income for the local poor people by providing employment amounting to an investment of Rs.90,00,000/- during construction period as salaries / wages for construction workers, mostly rural poor people, which otherwise would not happen in the absence of the project. In addition, the project creates direct permanent employment for about 20 persons during operation of the plant. This translates into an investment of about INR.6,00,000/- per year.
- The project will bring in additional investment to the region due to increased earnings of residents creating increased demand.

Technological well-being:

- The project makes use of efficient environmentally safe technology for power generation.
- The generation of electricity from the project leads to strengthening of the grid, increasing the energy availability and quality of power in the nearby rural areas thereby meeting the energy demand to a certain extent leading to technological well-being.

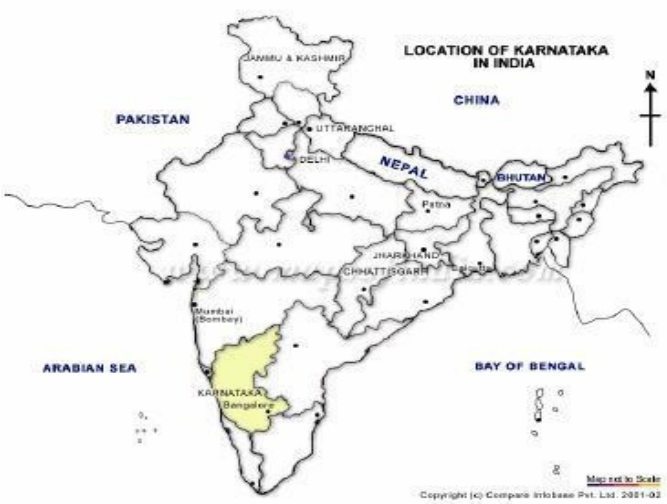
In view of the above, proposed project activity strongly contributes to the sustainable development.

A.2. Location of project activity

The project activity is located at

Village - Sattegala
Taluka – Kollegal
District – Chamarajanagar
State - Karnataka.

The site is well connected by roads.. The nearest railhead is at Mandhya from the powerhouse site. Total area of land acquired for the project is 14.20 acres in which 5 Acres is owned by BPCL and the remaining land is leased from Government. The project is located between Dhanangere anicut on the upstream and Siva anicut on the downstream side. The Krishnaraja Sagar (KRS) dam across Cauvery river is about 110 km upstream of the proposed project. The nearest airport from the project site is Mysore. The project site can be reached by taking a deviation from state highway SH 58 near Maddur town towards Kollegala. Geographical coordinates of the project are: 12°15' 8"N & 77°8'47"E. The physical location of the Karnataka state in India and project site in Karnataka state is shown in the maps given below.



A.3. Technologies/measures

The present proposed project activity involves installation of four units of 1.563 MW capacities each. Based on the availability of water in the canal the project proponents anticipated a net

generation of 27.47 Million Units per year, which reflects a PLF of 50.17 %. The brief technical particulars of the project activity are given below in the table.

Hydrology

Design Flow	37.52 m3/sec per turbine
Gross head	5.2m
Net rated head	5 m
Runner Diameter	3000 mm
Rate Speed	750 rpm

Energy

Expected annual gross generation	28.32 Mu
Generation voltage level	3.3kV
Grid interfacing voltage	66kV

Plant Equipment

Hydro Turbine	4 Nos. Vertical Shaft Full Kaplan.
Rated Flow	37.52 m3/sec
Rated Net Head	5.0 m
Rated Speed	180 RPM
Type of generator	Vertical Shaft Synchronous.
No. of generating units	4 Nos. (In one single plant)
Capacity of generating unit	4 x 1.563 MW (6,250 kW)

Expected operational lifetime of the project is 30 years as per normal industry standard and specification by manufacturer. The present age of the project equipment is 15 years.

The detail of monitoring equipment's and their location in the systems have been provided under Section B.3 - Project boundary and B.7.1. & B.7.3. The technology used for the project activity is well established and available within the country hence, there is no transfer of technology involved.

A.4. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
India (host Party)	M/s Bhoruka Power Corporation Limited (Private entity)	No

A.5. Public funding of project activity

Total funding required for the project is around INR. 551.637 Million that was mobilized through debt financing and equity capital. Debt portion, which is around 51 % of the total investment, was funded by Punjab National Bank and Andhra Bank and does not include any public funding from Annex I countries. The project proponents mobilized the equity capital at their own risk out of their resources. Apart from the above, no other funding is involved. Hence, the project proponents hereby confirm that public funding from parties included in Annex -I is not involved in the project activity.

A.6. History of project activity

(a) The proposed CDM project activity is registered as CDM project having UNFCCC reference number as UN 0923;
(b) The proposed CDM project activity is not a project activity that has been deregistered.

(c) The proposed CDM project activity is not a CPA that has been excluded from a registered CDM PoA;

A registered CDM project activity or a CPA under a registered CDM PoA whose crediting period has or has not expired (hereinafter referred to as former project) doesn't exist in the same geographical location as the proposed CDM project activity

Details of post-registration have been provided in Appendix 7 of this document

A.7. Debundling

According to Appendix C of Simplified Modalities & Procedures for small-scale CDM project activities, 'Debundling' is defined as the fragmentation of a large project activity into smaller parts.

The Hydel based power plant is not a de-bundled component of a large project activity as the project proponents:

- Do not propose another Hydel power plant with higher capacity;
- Have not registered within the previous two years; and
- Project boundary is not within 1 km radius of any other proposed small-scale activity.

SECTION B. Application of methodologies and standardized baselines

B.1. References to methodologies and standardized baselines

Methodology: AMS-I.D. "Grid connected renewable electricity generation", Version 18, EB 81, Annex 24[2]
TYPE: I - Renewable Energy Project
Category: I.D - Grid connected renewable electricity generation

The methodology draws upon following tools:

Tool to calculate the emission factor for an electricity system, Version 07.0, EB 100, Annex 4 [3]

Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion, Version 03.0, EB 96, Annex 4 [4]

Tool to determine the remaining lifetime of equipment, Version 01, EB 50, Annex 15 [5]

Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period, Version 03.0.1, EB 66, Annex 47[6]

B.2. Applicability of methodologies and standardized baselines

[2] https://cdm.unfccc.int/filestorage/2/P/7/2P7FS6ZQAR84LG3NMKYUH50WI9ODBC/EB81_repan24_AMS-I.D_ver18.pdf?t=Zlp8cTI4ZGs1fDCarppbs-JroWqsrI8TxvV_

[3] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf

[4] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-03-v3.pdf

[5] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-10-v1.pdf

[6] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf

In accordance with Appendix B of the simplified modalities and procedures for small-scale CDM project activities, the project is categorized as Type I.D. Version 18, Scope 1; Grid connected renewable electricity generation. Category I.D. is applicable to projects generating electricity from renewable energy technologies and supplying the electricity to grid.

The project activity involves generation of grid connected electricity from a 6.25 MW hydro power project. The project activity has an installed capacity of 6.25 MW which will remain less than the maximum qualifying capacity of 15 MW for a small scale CDM project activity under Type-I of the small scale methodologies. The installed capacity will not increase throughout and even after the crediting period therefore the project activity will remain within the limit of small scale in each year of the crediting period. The project status is corresponding to the methodology AMS-I.D and applicability of methodology AMS-I.D are discussed below:

Applicability Criterion	Project case
1.This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: (a) Supplying electricity to a national or a regional grid. (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.	The project activity is a Renewable Energy Project i.e. hydroelectric power project which falls under applicability criteria option 1 (a) i.e., "Supplying electricity to a national or a regional grid". Hence the project activity meets the given applicability criterion.
2. Illustration of respective situations under which each of the methodology (i.e. AMS-I.D, AMS-I.F and AMS-I.A) applies is included in Table [7]	The project is installation of a new hydroelectric energy based electricity generation plant that supply electricity to the integrated INDIAN grid (through Southern regional grid). Hence methodology AMS-I. D. is applicable to this project .
3. This 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	The project is installation of new hydroelectric energy based electricity generation plants (not addition to existing system). Option (a) is applicable.

[7]

	Project type	AMS-I.A	AMS-I.D	AMS-I.F
1	Project supplies electricity to a national/regional grid		√	
2	Project displaces grid electricity consumption (e.g. grid import) and/or captive fossil fuel electricity generation at the user end (excess electricity may be supplied to a grid)			√
3	Project supplies electricity to an identified consumer facility via national/regional grid (through a contractual arrangement such as wheeling)		√	
4	Project supplies electricity to a mini grid system where in the baseline all generators use exclusively fuel oil and/or diesel fuel			√
5	Project supplies electricity to household users (included in the project boundary) located in off grid areas	√		

plant); (b) involve a capacity addition ; (c) involve a retrofit[8] of (an) existing plant(s); or (d) involve a replacement[9] of (an) existing plant(s).	
4. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: • 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/m^2.	The project activity is a run of river hydroelectric power project, hence no reservoir is required for this project activity; thus the criterion is not applicable to this project activity.
5. If the new unit has both renewable and non-renewable components (e.g., a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW	The project activity is a 6.25 MW hydroelectric energy based electricity generation. Generation facility does not involve using of co- fire fossil fuels. Hence the criterion is not applicable to the project activity.
6. Combined heat and power (co generation) systems are not eligible under this category.	The project activity is a small hydro power project and is not a combined heat and power system. Hence the criteria is not applicable to the project activity
7 .In the case of project activities that involve the addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct[10] from the existing units.	The project activity is Greenfield and there is no existing power generation facility at the site. Hence the criteria is not applicable to the project activity
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 15 MW.	Not applicable, the hydro power project is a Green field project activity and this project is not the enhancement or up gradation project.
9. In the case of landfill gas, waste gas, wastewater treatment and agro-industries	Not applicable; this is a hydro power project activity

[8] Retrofit (or rehabilitation or refurbishment). It involves an investment to repair or modify an existing power plant/unit, with the purpose to increase the efficiency, performance or power generation capacity of the plant, without adding new power plants or units, or to resume the operation of closed (mothballed) power plants. A retrofit restores the installed power generation capacity to or above its original level.

[9] Replacement. It involves investment in a new power plant or unit that replaces one or several existing unit(s) at the existing power plant. The installed capacity of the new plant or unit is equal to or higher than the plant or unit that was replaced.

[10] Physically distinct units are those that are capable of generating electricity without the operation of existing units, and that do not directly affect the mechanical, thermal, or electrical characteristics of the existing facility. For example, the addition of a steam turbine to an existing combustion turbine to create a combined cycle unit would not be considered “physically distinct”.

projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid then the baseline for the electricity component shall be in accordance with procedure prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as "AMS-I.C.: Thermal energy production with or without electricity" shall be explored.	
10. In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply	Not applicable; this is a hydro power project activity

Hence from above, it is evident that the project is eligible under methodology AMS-I.D. (Version 18/EB 81, Annex 24).

B.3. Project boundary, sources and greenhouse gases (GHGs)

As per AMS-I.D Version 18, EB 81 - "*The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the CDM project power plant is connected to."*

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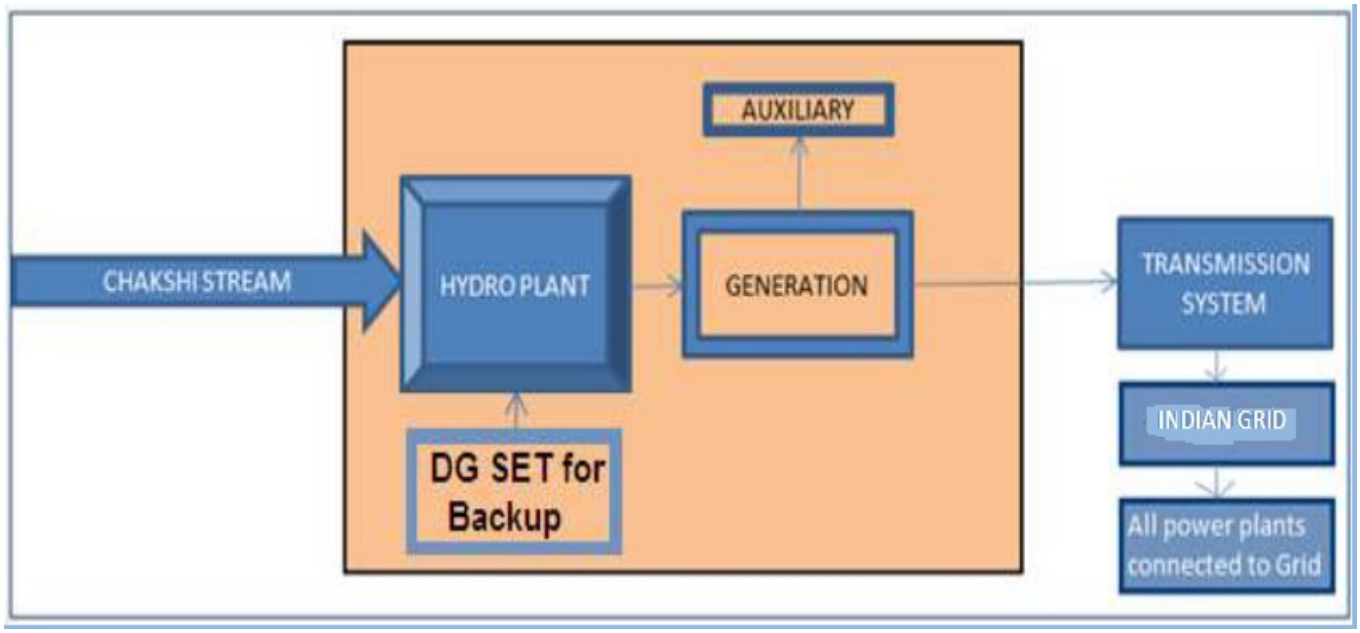
Also, project boundary specified in the Appendix B of simplified modalities and procedures is that encompasses the physical, geographical site of the renewable generation source.

For the project activity under consideration, the project boundary considered encompasses the diversion structure, power canal, penstock, powerhouse, power evacuation system and tailrace canal.



Gases and sources considered in the project activity

Source		Gas	Included?	Justification/Explanation
Baseline	CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity	CO_2	Yes	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
Project Activity	For hydro power plants having fossil-fuel based generation source used as a stand-by source of power	CO_2	Yes	Major emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
	For dry or flash steam geothermal power plants, emissions of CH_4 and CO_2 from non-condensable gases contained in geothermal steam	CO_2	No	Not applicable as project activity is a hydro power project.
		CH_4	No	Not applicable as project activity is a hydro power project.
		N_2O	No	Not applicable as project activity is a hydro power project.
	For binary geothermal power plants, fugitive emissions of CH_4 and CO_2 from non-condensable gases contained in geothermal steam	CO_2	No	Not applicable as project activity is a hydro power project.
		CH_4	No	Not applicable as project activity is a hydro power project.
		N_2O	No	Not applicable as project activity is a hydro power project.
	For binary geothermal power plants, fugitive emissions of hydrocarbons such	CO_2	No	Not applicable as project activity is a hydro power project.
		CH_4	No	Not applicable as project activity is a hydro power project.
		N_2O	No	Not applicable as project activity is a

Source		Gas	Included?	Justification/Explanation
	as n-butane and isopentane (working fluid) contained in the heat exchangers			hydro power project.
	CO2 emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants	CO_2	No	Not applicable as project activity is a hydro power project.
		CH_4	No	Not applicable as project activity is a hydro power project.
		N_2O	No	Not applicable as project activity is a hydro power project.
	For hydro power plants, emissions of CH_4 from the reservoir	CO_2	No	Not applicable as project activity is a run-of-the river hydro power project and does not include any reservoir.
		CH_4	No	Not applicable as project activity is a run-of-the river hydro power project and does not include any reservoir
		N_2O	No	Not applicable as project activity is a run-of-the river hydro power project and does not include any reservoir

B.4. Establishment and description of baseline scenario

Updated baseline for the second crediting period in line with the "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period." Version 03.0.1[11]

This tool provides a stepwise procedure to assess the continued validity of the baseline and to update the baseline at the renewal of a crediting period, as required by paragraph 274 to 295 of Project Standard version 02.0.

The tool stipulates the following steps to be carried out.

Step 1: Assess the validity of the current baseline for the next crediting period

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

The baseline scenario remains unchanged and is in compliance with all the relevant mandatory national and/or sectoral policies.

Step 1.2: Assess the impact of circumstances

The baseline scenario identified at the validation of the project activity was the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid connected power plants and by the addition of new generation sources into the grid. Thus this project activity was a voluntary investment which intends to replace equivalent amount of electricity at grid from renewable source. PP was not bound to incur this investment; hence absence of

[11] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf

project activity (i.e. the investment) does not lead to any continued baseline practice for PP within their scope whereas the continued operation of the project activity would continue to replace equivalent amount of electricity at grid. Hence, the same baseline as identified in the previous crediting period is still valid for the project. Therefore, the assessment of the changes in market characteristics is not required for the renewal of the project's crediting period under CDM.

Nevertheless, there is an impressive growth attained by the Indian Power Sector within the recent years, the installed capacity has grown from mere 1,713 MW in 1950 to 344,002.39 MW as on 31.03.2018, consisting of 222,906.59 MW Thermal, 69,022.39 MW Renew and 6,780 MW Nuclear. Sector-wise details of installed capacity are shown in Table 1. However, it is evident from Table 1[12] that the installed capacity is predominantly coal based and therefore, is a major source of carbon dioxide emissions in India. Hence, there exists scope for reducing the CO_2 emissions in the country by increased use of renewable energy sources.

Furthermore, project participant has considered the latest available CO_2 Baseline Database (CEA database, version 14) at the time of requesting renewal of the crediting period for establishing the baseline emission factor, which itself considered all the new circumstances. Hence, the new circumstances do not have an impact on the baseline emission. As per below table, the fossil fuel based thermal power generation is dominant over the renewable based power generation, thus baseline scenario remains same as original.

Table 1: Sector- wise installed capacity (MW) as on 31/03/2018 (CEA Database version 14)[13]

Sector	Thermal				Nuclear	Hydro	RES	Total
	Coal	Gas	Diesel	Total				
State	64670.50	7078.95	363.93	72113.38	0.00	29858.00	2003.37	103974.75
Central	56955.00	7237.91	0.00	64192.91	6780.00	12041.42	1502.30	84516.63
Private	75546.00	10580.60	473.70	86600.30	0.00	3394.00	65516.72	155511.02
All India	197171.50	24897.46	837.63	222906.59	6780.00	45293.42	69022.39	344002.39

Thus current baseline remain same and there is no impact if circumstances, existing at the time of requesting renewal of crediting period.

Step 1.3: Assess whether the continuation of the use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested

As explained in step 1.2, the baseline scenario was the electricity import/generation from the power plants connected to the electricity grid. The project activity in green field project and there is no any baseline equipment or investment involved in project activity. Therefore this condition is not applicable to the project activity.

Step 1.4: Assessment of the validity of the data and parameters

This step stipulates that "Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the CDM project activity."

[12] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

[13] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

In the context of the present project activity the emission factor has been updated along with the approach used to calculate the emission factor.

Step 2: Update the current baseline and the data and parameters

As evident from the explanation provided above the baseline scenario remains unchanged. Only the approach used to calculate the baseline emission factor is updated as per the latest version of CEA database available at the time of PDD submission for renewal.

In line with the project standard version 02.0, the impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant EB guidance with regard to renewal of the crediting period at the time of requesting renewal of crediting period; and the correctness of the application of an approved baseline methodology for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions for the applicable crediting period.

Impact of the national and/or sectoral policies and circumstances upon the baseline scenario of the project activity

The Government of India enacted the Electricity Act in the year 2003 to harmonize and rationalize the provisions in the existing laws. The Act consolidated the laws relating to generation, transmission, distribution, trading and use of electricity. With the Enactment of the act, the then existing laws viz, The Indian Electricity Act 1910, The Electricity Supply Act, 1948 and The Electricity Regulatory Commissions Act, 1998 were repealed. The Electricity Act 2003 was in force at the time of the completion of the baseline study for the registered PDD.

Section 3 of the said act required the Central Government to prepare the national electricity policy and tariff policy, in consultation with the State Governments and the Authority for development of the power system based on optimal utilization of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy. In accordance with the section 3 of the Electricity Act 2003, the Central Government notified the National Electricity Policy[14] on 12th February 2005 which was in force at the time of completion of the baseline study as stated in the registered PDD of the project activity. This policy has not been revised since then and is currently in force as well.

In addition to the above policies, State Electricity Regulatory Commissions (SERCs) have announced preferential tariffs and Indian Renewable Energy Development Agency (IREDA) provides term loan assistance towards establishing biomass power projects. All these fiscal and financial incentives were in force at the time of completion of the baseline study for the registered PDD of the project activity and still continue to exist.

The state electricity regulatory commission issues tariff order in respect of procurement of power generated from small and mini hydro power plants and there is no mandatory national and/or sectoral policies have come into effect that would affect the compliance of the current baseline. Hence, it can be concluded the current baseline complies with all relevant mandatory national and/or sectoral policies that have come into effect after the submission of the project activity for validation and are applicable at the time of requesting renewal of the crediting period.

However, in spite of the financial incentives given by the government to renewable power projects in India the generation from the low cost must run resources connected to the Southern Grid has not increased to such an extent that this would lead to more than 50% contribution from the low cost must run resources towards the total generation from the Southern Grid.

[14] http://www.cercind.gov.in/Act-with-amendment.pdf

The approved consolidated baseline methodology, AMS-I. D. (Version 18), has been used to determine the baseline and the estimation of emission reductions for the applicable crediting period. As referred in the methodology "*Tool to calculate the emission factor for an electricity system*" *(version 07.0)* has been used to determine continued validity of the baseline based on combined margin (CM) calculations.

As per CEA database version 14, the fossil fuel dominated electricity is more than renewable sector and is continuing with same pattern. In light of the above discussion it is to be concluded that in accordance with relevant guidelines stipulated in the Project Standard version 02.0, national and/or sectoral policies and circumstances had been considered towards formulating the OM & BM baseline scenario .Hence the baseline scenario as applied for the present project activity remains justified.

As per the approved methodology AMS-I. D Version 18[15]

If the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "TOOL07: Tool to calculate the emission factor for an electricity system".

The project activity involved setting up of a small hydroelectric power generation plant to harness the kinetic energy of water resources to produce electricity and supply to the grid. In the absence of the project activity, the equivalent amount of power would have been supplied by the state grid (part of Indian grid), which is fed mainly by fossil fuel fired plants.

In the absence of the project activity, the equivalent amount of power would have been drawn from the state grid. Hence, the baseline for the project activity is the equivalent amount of power from the Indian grid.

The combined margin ($EF_{grid,CM,y}$) is the result of a weighted average of two emission factor pertaining to the electricity system: the operating margin (OM) and build margin (BM). Calculations for this combined margin must be based on data from an official source (where available) and made publically available. The CEA database version 14 is the latest available data at the time of PD submission to DOE for validation, hence same is considered for emission factor calculations.

The combined margin of the Indian grid used for the project activity is as follows

Parameter	Value	Nomenclature	Source
$EF_{grid,CM,y}$	0.8885 tCO_2/MWh	Combined margin CO_2 emission factor for the project electricity system in year y	Calculated as the weighted average of the operating margin (0.25) & build margin (0.75) values, sourced from Baseline CO_2 Emission Database, Version 14.0, Dec 2018 published by Central Electricity Authority (CEA), Government of India

[15] https://cdm.unfccc.int/filestorage/2/P/7/2P7FS6ZQAR84LG3NMKYUH50WI9ODBC/EB81_repan24_AMS-I.D_ver18.pdf?t=STZ8cTE1cXF1fDCYiuRrT4lg3aQpmRT9awZE

$EF_{grid,OM,y}$	0.9610 tCO_2/MWh	Operating margin CO_2 emission factor for the project electricity system in year y	Calculated as the last 3 year (2015-16, 2016-17, 2017-18) generation-weighted average, sourced from Baseline CO_2 Emission Database, Version 14.0, Dec 2018 published by Central Electricity Authority (CEA), Government of India
$EF_{grid,BM,y}$	0.8644 tCO_2/MWh	Build margin CO_2 emission factor for the project electricity system in year y	Baseline CO_2 Emission Database, Version 14.0, Dec 2018 published by Central Electricity Authority (CEA), Government of India

B.5. Demonstration of additionality

As this is a case of renewal of crediting period, it is not necessary to demonstrate establishment of additionality again. Hence the project participant has decided not to update this section and is willing to continue the follow additionality demonstrated in the previous PDD as below:

Evidence for CDM revenues in project planning
Construction of the Sattegala Mini Hydel Scheme commenced in March 2005. Additional revenues under the CDM of Kyoto Protocol from sale of emissions reductions were considered during the project's planning stage. Events leading to the development of the project under CDM are furnished below, which will show that CDM revenues are considered before start of the project's construction activities.

During negotiations on power purchase tariff with the state owned power utility company Karnataka Power Transmission Corporation Ltd. (KPTCL) for evacuation of the generated power to the KPTCL grid, project proponents had to agree in principle to share the benefits accruing on account of the carbon credits at the ratio 30:70 between the project proponents and the KPTCL. Subsequently, a Power Purchase Agreement was signed on 28 February 2004 for Sattegala MHS between the project proponent and KPTCL, which contains a clause on sharing of CDM revenues. Power Purchase Agreement will be provided for validation.

Approval and registration of the project as a CDM activity enable the project proponents to access additional revenues by selling CO2e emission reductions. It is estimated that the project would generate around 20,514 CERs per year. Assuming a sale price of 12 Euros per CER, additional gross revenues from the sale of CERs account for 246,154 Euros or Rs. 15.507 millions per year. All the barriers described earlier are of perceived risks associated with the project activity and the additional revenue would only alleviate risk factors and act as margin money in the event of occurring any unexpected breakdowns. For instance, additional revenue could compensate financial losses arising out of lack of water resources for power generation or breakdown of the power canal due to silting or reduction of power purchase price by KPTCL etc.

Justification for additionality of the project:

UNFCCC simplified modalities seek to establish additionality of the project activity as per Attachment A to Appendix B, which listed various barriers, out of which, at least one barrier shall be identified due to which the project would not have occurred any way. Project participants identified the following barriers for the proposed project activity

1. **Other barriers**

The project activity faces the following perceived risks and barriers that prevent project proponents investing in the proposed project activity if it were not registered under the CDM.

Hydrology risks. Uncertainty with respect to the availability of water in the river on which the proposed project is constructed is a major concern. Requirement / consumption of water for irrigation crops is not uniform. During the path of river and upstream of the project site there are several branch canals which divert water for irrigation purposes in the region. In case irrigation pattern at the upstream side of the proposed project changes due to local pressures then the water availability at the project site for power generation will be affected. Though sufficient head is available for power generation, due to uncertainty in the hydrology as explained above, the power projections may not represent the true situation, which is a barrier for private investments.

Geology risks: There is a possibility of water carrying a lot of silt. This will block the flow of water into the channel and choke intake pipes. Hence, the project operation demands frequent periodical maintenance at a remote place to remove the accumulated silt, reducing the plant availability for power generation. This will damage the power channel, which in turn will effect power generation and unexpected plant outages. The project will generate power only for 5 to 6 months in a year. Any breakdown within this period will affect operation of the power plant and power generation, since bringing back the plant in operation may take considerable time during monsoon season.

Lack of infrastructure: The area of the project of the mini hydel scheme is an underdeveloped area. No infrastructure such as roads, electricity, communication, transportation and proper civic amenities etc. are available. The project proponents developed these facilities before implementation of the project. This adds to the project cost and makes a burden for private investors in the hydroelectric sector.

Institutional barriers: Often government policies keep changing from time to time in the Karnataka state. As for instance before 2 years the power purchase price was at INR.3.20 per kWh (in the year 2004-05) with 5% annual escalation. The same has been revised twice since then; even a legally valid power purchase agreement is in place. Now the price stands at INR.2.90 per kWh with 2% annual escalation. This indicates inconsistency in government policies and no guarantee that the project receives the same tariff in future for the power fed to grid. This makes a significant barrier for the private sector investments in the power sector in the Karnataka state.

Another critical issue is that the project proponents have to back down the generation whenever required by the utility company, KPTCL. A clear clause is built into the Power Purchase Agreement to this effect. Accordingly, a significant risk is existing for the project activity that demands shut down of the project in situations such as an emergency, surplus power situation, off-peak duration etc. This risk is already felt recently by some of the power developers in Karnataka when KPTCL issued orders to some of the power plant operators to stop generating power due to low demand for power across the state during a particular time. For seasonally operating small hydroelectric projects, risk associated with this PPA clause makes a significant barrier.

2. Prevailing practice

In the Indian power sector, the common practice is investing in only medium or large scale fossil fuel fired power projects, which is evident from a host of planned projects that comprises mostly large-scale fossil fuel based power generation projects. This is mainly due to the assured return on investment, economies of scale and easy availability of finances. This is also true in the Karnataka state also.

According to the Ministry of Non-conventional Energy Sources i.e. MNES (now Ministry of New and Renewable Energy) annual report (2000-01), India has an estimated small hydro potential of about 15,000 MW[16]. The total installed capacity (1423 MW) of small hydro projects is only 9.48 % of the total potential, which indicates that there exists some barrier due to which the potential couldn't be fully exploited.

[16] http://www.mnes.nic.in/annualreport/2001_2002_English/ch5_pg20.htm

The share of electricity from small hydroelectric projects in India's total installed capacity is very small. According to the latest statistics published by the Ministry of Power, the total installed capacity of small hydroelectric projects is 1,705 MW where as the India's total installed capacity is around 123,667 MW[17] as on 31 December 2005. This translates into a very small share of 1.4% from small hydro sector.

As per the Annual report 2005-06 of Ministry of Power, the total installed capacity in Karnataka is 7,766 MW in which Small Hydro Project is 275 MW. The share of SHP is only 3.5% of the total installed capacity in the state.

As per published data in KREDL Website
Progress of non-conventional energy power projects in Karnataka till 30.09.2005

Sl No.	Sector	Potential Available	Projects allotted by Government		Projects commissioned	
			No.	MW	No.	MW
1	Wind	7000	295	4112.17	217	467.99
2	Small Hydro	1500	239	1398.80	44	252.94
3	Cogeneration	1000	46	815.10	15	293.80
4	Biomass	650	64	465.70	8	58.00
Total				6791.77	284.00	1072.73

From the above table it could be seen that though the potential to the tune of 1500 MW exists for small hydro projects in Karnataka only the capacity to the extent of 252.9 MW has been harnessed though the govt of Karnataka has allotted 1398.8MW. This clearly indicates existence of barriers to harness the small hydro units as proposed by the project proponents.

Further the Independent Power Producers (IPP) instead opt for medium scale thermal units (based on coal/diesel/naptha/natural gas), because of the prevailing conditions in India which are conducive for setting up pro-conventional fuel based generating stations for the following reasons:

- Easy availability of coal/diesel/naptha/natural gas as a fuel
- Small gestation period of the plant.
- Less debatable as compared to storage type multipurpose hydropower projects.
- Ease of expansion of generating capacity.

In the light of above arguments under other barriers and prevailing practice barriers the project is not a business – as – usual project.

B.6. Estimation of emission reductions

B.6.1. Explanation of methodological choices

As per the small-scale Methodology AMS-I.D. (Version 18.0) para 5.6:

Baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid- connected power plants. The baseline emissions are to be calculated as follows:

$$BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$$

Where:

BE_y = Baseline emissions in year y (t CO_2/yr)

[17] Annual Report 2005-06 of Ministry of Power, Govt. of India

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)

$EF_{grid,CM,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (t CO_2/MWh)

As per methodology, combined grid emission factor as per the "Tool to calculate the emission factor for an electricity system" version 07 is calculated as below:

CO_2 Baseline Database for the Indian Power Sector, Version 14, Dec 2018[18] published by Central Electricity Authority (CEA), Government of India has been used for the calculation of emission reduction.

As per Methodological tool: Tool to calculate the emission factor for an electricity system (Version 07.0, EB 100, Annex 4), following six steps have been followed:

(a) **Step 1:** Identify the relevant electricity systems;

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

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

(d) **Step 4:** Calculate the operating margin emission factor according to the selected method;

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

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

Step 1: Identify the relevant electricity systems

As described in tool "For determining the electricity emission factors, identify the relevant project electricity system. Similarly, identify any connected electricity systems". It also states that "If the DNA of the host country has published a delineation of the project electricity system and connected electricity systems, these delineations should be used". Keeping this into consideration, the Central Electricity Authority (CEA), Government of India has divided the Indian Power Sector into five regional grids viz. Northern, Eastern, Western, North-eastern and Southern.

However since August 2006, however, all regional grids except the Southern Grid had been integrated and were operating in synchronous mode, i.e. at same frequency. Consequently, the Northern, Eastern, Western and North-Eastern grids were treated as a single grid named as NEWNE grid from FY 2007-08 onwards for the purpose of this CO_2 Baseline Database. As of 31 December 2013, the Southern grid has also been synchronised with the NEWNE grid, hence forming one unified Indian Grid. Since the project supplies electricity to the Indian grid, emissions generated due to the electricity generated by the Indian grid as per CM calculations will serve as the baseline for this project.

Table: Geographical Scope of Indian Electricity Grid

Northern	Eastern	Western	North-Eastern	Southern
Chandigarh	Bihar	Chhattisgarh	Arunachal Pradesh	Andhra Pradesh
Delhi	Jharkhand	Gujarat	Assam	Karnataka
Haryana	Orissa	Daman & Diu	Manipur	Kerala

[18] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

Himachal Pradesh	West Bengal	Dadar& Nagar Haveli	Meghalaya	Tamil Nadu
Jammu & Kashmir	Sikkim	Madhya Pradesh	Mizoram	Telangana
Punjab	Andaman & Nicobar	Maharashtra	Nagaland	Puducherry
Rajasthan		Goa	Tripura	Lakshadweep
Uttar Pradesh				
Uttarakhand				

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

Project participants may choose between the following two options to calculate the operating margin and build margin emission factor:

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

The Project Participant has chosen only grid power plants in the calculation.

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

The calculation of the operating margin emission factor ($EF_{grid,OM,y}$) is based on one of the following methods, which are described under Step 4:

(a) Simple OM; or

(b) Simple adjusted OM; or

(c) Dispatch data analysis OM; or

(d) Average OM.

The data required to calculate Simple adjusted OM and Dispatch data analysis OM is not possible due to lack of availability of data to project developers. The choice of other two options for calculating operating margin emission factor depends on generation of electricity from low-cost/ must-run sources. In the context of the methodology low cost/must run resources typically include hydro, geothermal, wind, low cost biomass, nuclear and solar generation.

Share of Must-Run (Hydro/Nuclear) (% of Net Generation)

	2013-14	**2014-15**	**2015-16**	**2016-17**	**2017-18**
India	18.6%	16.8%	15.1%	14.6%	14.3%

The above data clearly shows that the percentage of total grid generation by low-cost/ must-run plants (on the basis of average of five most recent years) for the Indian grid is less than 50 % of the total generation. Thus the Average OM method cannot be applied, as low cost/must run resources constitute less than 50% of total grid generation.

The simple OM emission factor is calculated as the generation-weighted average CO_2 emissions per unit net electricity generation (tCO_2/MWh) of all generating power plants serving the system, not including low-cost/must-run power plants/units.

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

(a) **Ex-ante option:** if the ex-ante option is chosen, the emission factor is determined once at the validation stage, thus no monitoring and recalculation of the emissions factor during the crediting period is required.

OR

(b) **Ex-post option:** if the ex-post option is chosen, the emission factor is determined for the year in which the project activity displaces grid electricity, requiring the emissions factor to be updated annually during monitoring.

(c) PP has chosen ex-ante option for calculation of Simple OM emission factor using a 3-year generation-weighted average, based on the most recent data available at the time of submission of the PD to the DOE for validation.

(d) OM determined at validation stage will be the same throughout the crediting period. There will be no requirement to monitor & recalculate the emission factor during the crediting period.

(e)

(f) **Step 4: Calculate the operating margin emission factor ($EF_{grid,OMSimple,y}$) according to the selected method**

(g) The operating margin emission factor has been calculated using a 3 year data vintage:

(h)

Net Generation in Operating Margin (GWh) (incl. Imports)			
	2015-16	**2016-17**	**2017-18**
INDIAN Grid	8,71,753	9,16,278	9,60,693

(i)

Simple Operating Margin (tCO_2/MWh) (incl. Imports)			
	2015-16	**2016-17**	**2017-18**
INDIAN Grid	0.9655	0.9636	0.9543

(j)

Weighted Generation Operating Margin	
INDIAN Grid	**0.9610**

(k)

(l) **Step 5: Calculate the build margin (BM) emission factor ($EF_{grid,BM,y}$)**

(m) As per Methodological tool: "Tool to calculate the emission factor for an electricity system" (Version 07.0, EB 100, Annex 4) para 72:

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

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

(p) (b) **Option 2 -** For the first crediting period, the build margin emission factor shall be updated annually, ex post, including those units built up to the year of registration of the project activity or, if information up to the year of registration is not yet available, including

those units built up to the latest year for which information is available. For the second crediting period, the build margin emissions factor shall be calculated ex ante, as described in Option 1 above. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used.

(q) Option 1 as described above is chosen by PP to calculate the build margin emission factor for the project activity. BM is calculated ex-ante based on the most recent information available at the time of submission of PD and is fixed for the entire crediting period.

(r)

Build Margin (tCO_2/MWh) (not adjusted for imports)	
	2017-18
INDIAN Grid	**0.8644**

Step 6: Calculate the combined margin (CM) emission factor ($EF_{grid,CM,y}$)

As per Methodological tool: "Tool to calculate the emission factor for an electricity system" (Version 07.0, EB 100, Annex 4) para 81:

The calculation of the combined margin (CM) emission factor ($EF_{grid,CM,y}$) is based on one of the following methods:

(a) Weighted average CM; or

(b) Simplified CM.
PP has chosen option (a) i.e weighted average CM to calculate the combined margin emission factor for the project activity.

The combined margin emissions factor is calculated as follows:

$$\mathbf{EF_{grid,CM,y} = EF_{grid,OM,y}* W_{OM} + EF_{grid,BM,y}* W_{BM}}$$

Where:

$EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year y (t CO_2/MWh)
$EF_{grid,OM,y}$ = Operating margin CO_2 emission factor in year y (t CO_2/MWh)
W_{OM} = Weighting of operating margin emissions factor (%)
W_{BM} = Weighting of build margin emissions factor (%)

The following default values should be used for W_{OM} and W_{BM}:

For renewable projects other than wind and solar energy based power generation project activities (hydro power projects belong to this category): W_{OM} = 0.50 and W_{BM} = 0.50 for the first crediting period and for subsequent crediting periods. Since project activity is of hydroelectric power generation, the above weightage has been considered for OM and BM.

Therefore, $EF_{grid,CM,y}$ = 0.9610 * 0.25 + 0.8644 * 0.75 = 0.8885 tCO_2e

As per para 19 of the methodology AMS-I.D. (Version 18/EB 81, Annex 24), "*The baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid.*"

The proposed project activity will evacuate power to the INDIAN electricity grid (through Southern regional grid) & completely comply with the para 19 of AMS-I.D. (Version 18/EB 81, Annex 24)

.Thus, as per para 22 of the methodology AMS I D (Version 18/EB 81, Annex 24), the baseline emissions are to be calculated as follows:

$BE_y = EG_{PJ,y} X EF_{grid,y}$

Where

BE_y = Baseline Emissions in year *y* (t CO_2)

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh)

$EF_{grid,CM,y}$ = $EF_{grid,y}$ = Combined Margin CO_2 emission factor for INDIAN grid

For Greenfield projects, $EG_{PJ,y} = EG_{PJ,facility,y}$

where $EG_{PJ,facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh)

This project activity being a Greenfield hydro power project, $EG_{PJ,y} = EG_{PJ,facility,y}$

Hence, baseline emissions $BE_y = EG_{PJ,facility,y} \times EF_{grid,y}$

where $EG_{PJ,facility,y}$ = Quantity of net electricity generation supplied by the project plant to the grid in year y (MWh)

Project activity emissions

As per paragraph 39 of methodology AMS I.D. Version 18, for most renewable energy project activities, $PE_y = 0$. However, for the following categories of project activities, project emissions have to be considered following the procedure described in the most recent version of ACM0002.

- Emissions related to the operation of geothermal power plants (e.g. non-condensable gases, electricity/fossil fuel consumption);
- Emissions from water reservoirs of hydro power plants.

The proposed project activity neither involves any geothermal application nor any reservoirs. Proposed project activity is a run-of-the-river hydro power project therefore no project emissions have been considered.

The project activity envisages the installation of one DG set of 63 KVA which is used at the time of construction and though present use of the same, is negligible (since the project is run of river and not cannal based) compared to the amount of CO_2 displacement of the project activity. So insignificant amount of greenhouse gas emissions within the project boundary are identified. During the first crediting, project participant monitored diesel consumption but in the second crediting period, diesel consumption is almost negligible and hence does not need to be monitored as per applied mthodoligy AMS. I.D. Hence there are no project emissions for this project activity.

$PE_y = 0$

Leakage

According to AMS-I.D., Version 18.0, leakage emissions are considered only for biomass projects to quantify leakages pertaining to the use of biomass residues. As this project activity is a run-of-the river hydro power project, no leakage emissions are considered. $LE_y = 0$.

B.6.2. Data and parameters fixed ex ante

Data/Parameter	$EF_{grid,CM,y}$
Data unit	tCO_2/MWh
Description	Combined Margin CO_2 grid Emission factor for the INDIAN electricity grid
Source of data	Calculated from CEA database, Version 14, Dec 2018[19]
Value(s) applied	0.8885
Choice of data or measurement methods and procedures	The combined margin emissions factor is calculated as follows: $\mathbf{EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}}$ Where: $EF_{grid,BM,y}$= Build margin CO_2 emission factor in year *y* (tCO_2/MWh) $EF_{grid,OM,y}$= Operating margin CO_2 emission factor in year *y* (tCO_2/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 25% W_{BM}= Weighting of build margin emissions factor (%) = 75%
Purpose of data	To calculate baseline emissions .
Additional comment	The data will be archived 2 years after the end of the crediting period or the last issuance of CERs.

Data/Parameter	$EF_{grid,OM,y}$
Data unit	tCO_2/MWh
Description	Operating Margin CO_2 emission factor for INDIAN electricity grid (weighted average of 3 years 2015-16, 2016-17 and 2017-18
Source of data	Calculated from CEA database, Version 14, Dec 2018[20]
Value(s) applied	0.9610
Choice of data or measurement methods and procedures	Calculated as per "Tool to calculate the emission factor for an electricity system, version 07" as 3-year generation weighted average using data for the years 2015-16, 2016-17 & 2017-18. The data are obtained from "CO_2 Baseline Database for Indian Power Sector" version 14,December 2018, published by the Central Electricity Authority, Ministry of Power, Government of India
Purpose of data	To calculate baseline emissions.
Additional comment	The data will be archived 2 years after the end of the crediting period or the last issuance of CERs.

Data/Parameter	$EF_{grid,BM,y}$
Data unit	tCO_2/MWh
Description	Build Margin CO_2 emission factor of the INDIAN electricity grid
Source of data	Calculated from CEA database, Version 14, Dec 2018[21]
Value(s) applied	0.8644

[19] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

[20] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

[21] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

Choice of data or measurement methods and procedures	Calculated as per "Tool to calculate the emission for an electricity system, version 07" as per the latest data available for the most recent year 2017-18. The data is obtained from "CO_2 Baseline Database for Indian Power Sector" version 14, December 2018 published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data	To calculate baseline emissions.
Additional comment	The data will be archived 2 years after the end of the crediting period or the last issuance of CERs.

B.6.3. Ex ante calculation of emission reductions

The ex-ante calculations of the emission reductions are given below. The applicable formulae are as described in section B.6.1.

Baseline Emissions (BE_y):
$BE_y = EG_{PJL,y} * EF_{grid, CM, y}$

$EG_{PJL,y}$ = 27470 MWh/Year[22]
$EF_{grid, CM, y}$ = 0.8885 tCO_2/MWh

BE_y = 27470* 0.8885 =24,408 tCO_2e

Project emissions (PE_y) :

As per methodology AMS-I. D. version 18.0, no project emissions are considered for this project activity. Hence project emissions $PE_y = 0\ tCO_2e$

Leakage emissions (LE_y):
No leakage is anticipated due to the project activity as the generating equipment is not transferred from another activity.

$LE_y = 0\ tCO_2e$

$ER_y = BE_y – PE_y – LE_y$

B.6.4. Summary of ex ante estimates of emission reductions

Year	Baseline emissions (t CO_2e)	Project emissions (t CO_2e)	Leakage (t CO_2e)	Emission reductions (t CO_2e)
2014-15	24,408	0	0	24,408
2015-16	24,408	0	0	24,408
2016-17	24,408	0	0	24,408
2017-18	24,408	0	0	24,408
2018-19	24,408	0	0	24,408
2019-20	24,408	0	0	24,408
2020-21	24,408	0	0	24,408
Total	170,856	0	0	170,856
Total number of crediting years	7			

[22] As per the registered PDD of 1st CP,, the annual net generation is 27.47 MU i.e. 27470 MWh

Annual average over the crediting period	24,408	0	0	24,408

B.7. Monitoring plan

B.7.1. Data and parameters to be monitored

Data/Parameter	$EG_{PJ, y}$
Data unit	MWh
Description	Net electricity supplied to grid by the project activity in year y
Source of data	Monthly Joint Meter Reading report (Form B) of main and check meters of both line 1 and line 2 located at Transformer Yard of the project site.
Value(s) applied	27,470
Measurement methods and procedures	Monitored for baseline Emissions. One set of main and check meters at line 1 and one set of main and check meters at line 2 located at the Transformer Yard of the project site. Representative of KPTCL and representative of PP will take the monthly reading of both the main and check meters jointly. The monthly net energy export to the grid is calculated by deducting the total energy import from grid through line 1 and line 2 from total energy export to grid through line 1 and line 2. The net energy exported to grid is calculated by subtracting total energy import from total energy export and adjusting transmission losses as presented in the Joint Meter Reading report, which is used for baseline emission calculation. $EG_y = EG\ export – EG_{import}$ Monitoring Equipment: Bi-directional tri vector meters (main and check) of accuracy class 0.2s Calibration Frequency: Once in a year
Monitoring frequency	Continuous Monitoring - Hourly Measurement & Monthly Recording
QA/QC procedures	The energy meters are being periodically calibrated and the calibration certificates are being maintained. The project proponents also have the provision of check meters which are also regularly calibrated whenever the main meter becomes faulty the check meter is used as reference for arriving at the energy generated data. Sales bills/receipts may be compared as an alternative proof of the power exported to the grid.
Purpose of data	To calculate Baseline emissions
Additional comment	The data monitored and required for verification and issuance be kept and archived electronically for two years after the end of the crediting period or the last issuance of CERs, whichever occurs later

B.7.2. Sampling plan

The data and parameters mentioned in section B.7.1 are not determined by sampling approach. Hench sampling plan is not applicable.

B.7.3. Other elements of monitoring plan

The management structure proposed for monitoring of emission reductions due to the project activities mainly comprises a GHG audit team / committee appointed for the purpose. The committee will be authorised to perform various functions such as measuring, recording, storage of measured data and reporting to the project participants. The outcome of the committee will be

monthly and annually GHG audit reports. The committee may also include outside experts. Whenever required external independent GHG auditors will be deputed for the monitoring activities. The Committee will review the data collected at regular intervals such as monthly and suggest corrective actions wherever required.

A CDM team will be formed in M/s Bhoruka Power Corporation Limited (BPCL) for monitoring and verification of all the monitoring parameters as per the guidelines formulated by the management of BPCL. Qualified and trained people will monitor the parameters and emission reduction calculations. In the complete implementation and monitoring Plan, BPCL will be the sole agency responsible for implementation and monitoring of project activity. The details of monitoring team are detailed below:

1. Managing Director
2. General Manager (Operations)
3. Shift In-charge

Rules and responsibilities of Team

Managing Director

Managing Director will be responsible for the total monitoring plan. The Managing Director will examine the reports generated by General Manager (Operations) w.r.t, the monthly electricity exported to grid, electricity imported from grid and annual emission reduction calculations as per the monitoring plan. He will also examine the internal audit reports prepared by internal auditor/General Manager (Operation) and will in particular take note of any deviations in data over the norms and monitor that the corrective actions have resulted in adherence to standards.

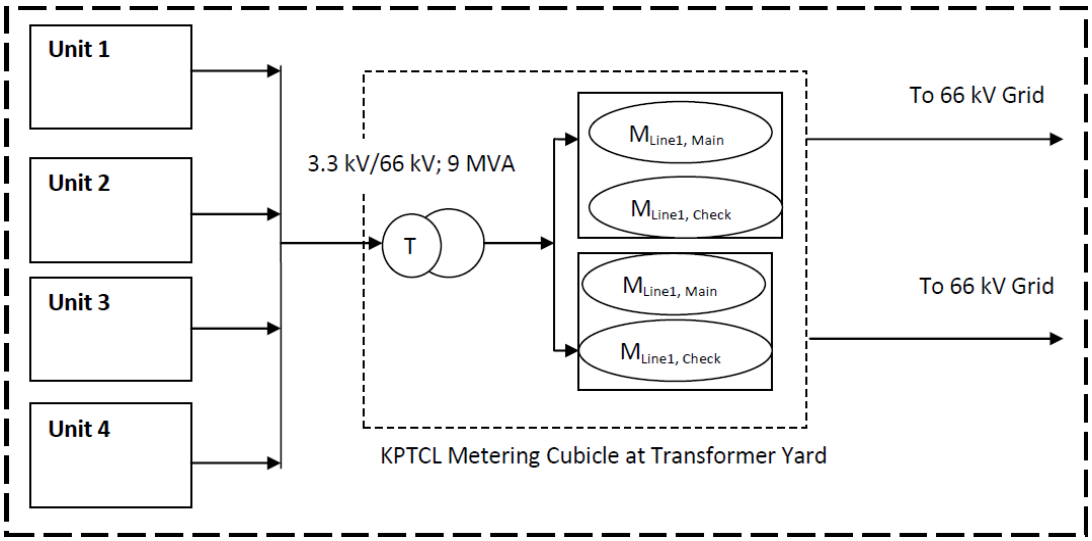
General Manager (Operations)

General Manager (Operations) will be assisting and reporting to Managing Director for completing the task discussed above. The General Manager (Operation) will be responsible for the electricity generations at their individual locations. They will cross check, sign the log book regularly and report to Managing Director for any abnormality. The calibration of the meters installed will be taken care of by him as per the monitoring plan. The responsibility of storage and archiving of information in good condition also lies with the General Manager. He will also generate internal audit reports as per the monitoring plan and whenever necessary and will be submitted to Managing Director.

Shift In-charge:

Shift Incharge will be responsible for recording the electricity meter readings at project site on daily basis.He will also responsible to take note of net export power to grid, plant shut down times, if any etc. The monthly Joint Meter Reading (JMR) of both main and check meters at line 1 and line 2 in KPTCL Metering Cubicle located in Transformer Yard will be taken in presence of KPTCL representative and representative of PP. The monthly JMRs reports will be submitted to the General Manager for verification and emission reduction calculations.

Schematic diagram of the metering arrangement of the project activity is as below.



SECTION C. Start date, crediting period type and duration

C.1. Start date of project activity

September 2006 (Generation start)

C.2. Expected operational lifetime of project activity

30y-0m

C.3. Crediting period of project activity

C.3.1. Type of crediting period

Renewable crediting period (second crediting period)

C.3.2. Start date of crediting period

24/03/2014
Previous crediting period: 24/03/2007 – 23/03/2014

C.3.3. Duration of crediting period

7 years 00 months

SECTION D. Environmental impacts

D.1. Analysis of environmental impacts

As per the Ministry of Environment and Forests, Govt. of India, Environmental Impact Assessment is not required for small hydro projects involving investment less than INR 100 crore(INR 1 Billion) .. Since, the total project cost is only INR 55.1637 crore (INR 551.637 Million) , the proposed project does not call for an Environmental Impact Assessment. However, the project shall, prior to setting up, shall obtain clearance from Karnataka State Pollution Control Board (KSPCB).

According to the recent amendments of amendments to the notification by the Ministry of Environment, Forest and Climate Change regarding the requirement of EIA on 14/07/2018[23],

"The following projects or activities shall require prior environmental clearance from the concerned regulatory authority, which shall hereinafter referred to be as the Central Government in the Ministry of Environment and Forests for matters falling under Category 'A' in the Schedule and at State level the State Environment Impact Assessment Authority (SEIAA) for matters falling under Category 'B' in the said Schedule, before any construction work, or preparation of land by the project management except for securing the land, is started on the project or activity:

- All new projects or activities listed in the Schedule to this notification;

[23]EIA Notification 2018: http://www.egcipl.com/Doc/Gazzette%20Notification.pdf

- Expansion and modernization of existing projects or activities listed in the Schedule to this notification with addition of capacity beyond the limits specified for the concerned sector, that is, projects or activities which cross the threshold limits given in the Schedule, after expansion or modernization;

Any change in product - mix in an existing manufacturing unit included in Schedule beyond the specified range."

As per this amended notification, hydro power projects of capacity 50 MW or more and the hydro power projects of capacity between 25 MW and 50 MW (river valley projects) falling in more than one state come under the scope of Environmental Impact Assessment.

This project activity has capacity of 6.25 MW, so this project does not need any Environmental Impact Assessment.

Furthermore, the project participants already approached KSPCB and obtained clearance for setting up the project. Further, the proposed project does not result in any negative impacts on the socio-economic environment of the region. Displacement of local populace, disturbance in the local eco systems, deforestation etc. are not involved. Though there is a diesel generator, which is used at the time of construction and the present use of the same, is negligible (since the project is run of river and not canal based) compared to the amount of CO2 displacement of the project activity.

Hence, in conclusion, the project does not cause any impacts on the environment or socio-economic situation in the region.

D.2. Environmental impact assessment

The environmental impacts of the project activity are not considered to be significant by the project participant or the host party.

SECTION E. Local stakeholder consultation

E.1. Modalities for local stakeholder consultation

The local stakeholder comment invitation and compilation process involved is as follows:

The local stakeholders are immediately affected by the activities of the project. The effect is on the local environment, social life and economics. All the individuals and organizations falling in the above effects are perceived as stakeholders. They can be within the boundaries of the village, district, state or nation.

On deciding above criteria for qualification of the stakeholders, the idea was to decide most appropriate representatives who are covering above. During interaction of the corporate headquarter and the plant management, the stakeholders were identified as

- Local Populace represented by the Village Panchayat
- Karnataka Renewable Energy Development Ltd. (KREDL)
- Karnataka Power Transmission Corporation Ltd. (KPTCL)
- Karnataka State Pollution Control Board (KPCB)
- Energy Department, Govt. of Karnataka

All the above identified stakeholders are statutory organizations / governing bodies and need to be consulted and personally approached with necessary documentation to seek their approvals / clearances / licenses before setting up any project. After scrutiny of the documentation, the stakeholders release their consent / licenses / approvals to the project participants.

The local populace is represented by the Village Panchayat, which is an elected body for administration of the village. Clearance from the concerned Village Panchayat in the form of "No Objection Certificate" is mandatory for any project before starting implementation. For this purpose, the project proponent's need to conduct a meeting within the village with the Village Panchayat together with the villagers. If the villagers satisfy the project proponent's submission, the Village Panchayat issues No Objection Certificate.

The project participants already consulted and approached the above stakeholders for implementation of the project. No negative comments are received from them. Necessary clearances / approvals are already released in favour of the project.

Village Panchayat issued No-Objection Certificate to set up the project. In fact, the local populace is welcoming the project due to various benefits like development of infrastructure in the area and improvement in socio-economic standards due to the project activity.

KREDL is the policy implementation body in respect of renewable energy projects in the Karnataka State. KREDL reviewed the project documentation about the legal, financial, economical and environmental feasibility and accorded clearance for utilising renewable energy sources. Energy Department, Govt. of Karnataka also endorsed the project for implementation KSPCB has prescribed standards of environmental compliance and monitors the adherence to the standards and has issued consent to establish the project.

KPTCL will give clearance for evacuation and feeding of power to the grid. This will be through proper Power Purchase Agreement. The company had extensive discussions with KPTCL and signed the Power Purchase Agreement.

Purchase / lease of government and private land:

The local populace is represented by the Village Panchayat, which is an elected body for administration of the village. The local stakeholders have been consulted by calling the meeting of all villagers (known as village panchayat – headed by elected governing council). They were apprised about the project allotment and planned activities for the implementation of the project. Also it was made sure that none of the villagers have become land-less.

E.2. Summary of comments received

No comments are received from the stakeholders

E.3. Consideration of comments received

In view of various direct and indirect benefits (social, economical, environmental), no concerns were raised during the consultation with stakeholders, hence it is not required to take due account of the comments

SECTION F. Approval and authorization

Letter of approval dated 05th February 2010 from the host party (India) which is approved by Ministry of Environment and Forest is submitted to DOE.

Appendix 1. Contact information of project participants

Organization name	M/s Bhoruka Power Corporation Limited
Country	India
Address	#48, Lavelle Road, Hitananda – 2, Bangalore – 560001, Karnataka
Telephone	+91 80 22272271 – 74
Fax	+91 80 22245246
E-mail	sekhar@bhorukapower.com
Website	www.bhorukapower.com
Contact person	Mr. S Chandrasekhar

Appendix 2. Affirmation regarding public funding

No Public Funding is available to the project.

Appendix 3. Applicability of methodologies and standardized baselines

Detailed applicability condition for the selected methodology is provided in section B.2

Appendix 4. Further background information on ex ante calculation of emission reductions

Refer section B.6.3 for details of ex ante calculation of emission reductions

Appendix 5. Further background information on monitoring plan

The detailed monitoring plan is as provided in Section B.7.2.

Appendix 6. Summary report of comments received from local stakeholders

No negative comments were received from the stakeholders. Please refer to section E of the PDD.

Appendix 7. Summary of post-registration changes

The following changes have been made in the registered PDD. The details about where the changes are incorporated in the revised PDD (post registration) with reference to registered PDD is given in the table below. The revised PDD in VVS is being submitted for approval from EB.

Sl No	Changes done	Reference	
		Registered PDD	Revised PDD
01	The date of revision is changed from 10th Jan 2007 to 19/07/2013. Further the version number is incorporated (version 2.0), name of the PP changed from "SLS Power Industries Ltd" to "M/s Bhoruka Power Corporation Limited", corrections done under sectoral scope and methodology selected and annual average GHG emission reduction changed from 11,448 to 18,896 tCO_2e	• NA	• Index Page
02	Capacity of diesel generator has been changed from 80 HP to 63 kVA.	• Section A.2	• Section A.1
03	The following sentence included "However, the diesel consumption will be monitored during the whole crediting period. The monitoring details are placed in the section B.7.1"	• Section A.2	• Section A.1
04	The name of the Private entity has been changed from SLS Power Industries Ltd. to M/s Bhoruka Power Corporation Limited	• Section A.3	• Section A.4
05	The amount of total invest has been changed from 477.2 Million to 551.637 Million	• Section A.2	• Section A.1
06	Estimated annual generation has been changed from 15.33 GWh to 27.47 GWh	• Section A.4	• Section B.6.3
07	Estimated PLF has been changed from 28% to 50.17%	• Section A.4	• Section B.6.3
08	Expected annual generation changed to gross generation and the value revised from 15.3 MU to 28.32 MU	• Section A.4	• NA
09	The name of the Private entity has been changed from SLSPIL to BPCL	• Section A.4.1.4	• Section A.2.4
10	Annual generation changed from 15.33 GWh to 27.47 GWh and also footnote reference included	Section A.4.3 Section A.4.3.1	• Section B.6.3
11	The text "based on the actual PLF of 28% of Sugur Mini Hydel Scheme of SLS Power Industries Ltd is considered in calculating the emission reduction" is deleted	• Section A.4.3.1	• NA
12	Estimated annual emission reduction has been changed from 11,448 to 20,514 and footnote reference included	Section A.4.3 Section A.4.3.1	Section B.6.3 & Section B.6.4
13	The total emission reductions generated by the project activity during the crediting period of 7 years has been changed from 80,136 to 132,270	Section A.4.3.1 Section E.2	• Section B.6.4

14	Total funding required for the project has been changed from 477.2 to 551.637 and the debt portion revised from 70% to 51%	• Section A.4.4	• Section A.5
15	The sentence “though the project participants propose another small scale hydro project at sugur, Karnataka it is about 350 kms from this project” is deleted	• Section A.4.5	• NA
16	Typo-correction done from “does not apply” to “do not apply”	• Section B.2	• Section B.2
17	Assumption of sale price of CER has been changed from 5 Euros to 12 Euros, total CER revenue has changed from 57,240 or 3.15 million per year to 246,154 or 15.507 million per year	• Section B.3	• Section B.5
18	Description to justify why the Project emission is taken as zero throughout the crediting period is incorporated	• Section E.1.2.3	• Section B.6.1
19	Symbolic notation of all data variables monitored have been incorporated	• Section D.3	Section B.6.2 Section B.7.1
20	Source of data for EGy has been changed from “Import Export Meter” to “Monthly Joint Meter Reading report (Form B) of main and check meters of both line 1 and line 2 located at Transformer Yard of the project site”	• Section D.3.1	• Section B.7.1
21	Comment has been revised by incorporating the source document of net energy export to grid as Joint Meter Reading (JMR) of both main and check meters at KPTCL substation. Frequency of data monitoring and monitoring has also been mentioned. It is also mentioned that the JMR will be taken in presence of the representative of KPTCL and representative of the PP	• Section D.3.1	• Section B.7.1
22	Source of data for EF has been changed from “grid emission factor” to “Publicly available CO2 database by Central Electricity Authority (CEA), CO2 database”	• Section D.3.2	• Section B.7.1
23	Comment has been revised by incorporating “This data item is required for calculating the baseline emissions and emission reduction. The emission factor will be monitored ex-post as pre the latest CEA CO2 database available at the time of MR preparation”	• Section D.3.2	• Section B.7.1
24	The parameters “Diesel consumption QC diesel” is included under data to be monitored and “Diesel Emission Factor EF diesel” is fixed ex-ante.	Section D.3.3 Section D.3.4	Section B.7.1 Section B.6.2- Diesel Emission Factor EF diesel
25	The QA/QC procedures for Power generated by the project EG y is revised by mentioning “The data will be recorded by the main and	• Section D.4	• Section B.7.1

	check meters installed in KPTCL Metering Cubicle at the Transformer Yard of the project site, which is under the control of KPTCL". Frequency of calibration of meters has been mentioned as annual		
26	The QA/QC procedure for "Diesel consumption QC $_{diesel}$" and "Diesel Emission Factor EF $_{diesel}$" are included	• Section D.4	Section B.7.1 Section B.6.2- Diesel Emission Factor EF $_{diesel}$
27	The information on internal CDM team of BPCL and roles and responsibility of CDM team has been included	• Section D.5. This is incorporated to give more transparency under monitoring	• Section B.7.3
28	The description and formula used for calculating project emission due to consumption of diesel is included	• Section E.1.2.1	• Section B.6.1
29	The net project emission during the 1st crediting period is revised in the table	• Section E.1.2.3	• Section B.6.3
30	Estimated annual generation, emission reduction and PLF have been changed from 15.33 GWh, 11,448 tCO_2 and 28% to 27.470 GWh, 20,514 and 50.17% respectively	• Section E.1.2.4	• Section B.6.3
31	The baseline emission during 1st crediting period is revised in the table	• Section E.1.2.4	• Section B.6.3
32	The description pertaining to PLF of sugur mini hydel scheme is deleted	• Section E.1.2.4	• NA
33	Estimated baseline emission has been changed from 11,448 tCO_2 to 20,514 respectively for subsequent years after increase in PLF	• Section E.1.2.5	• Section B.6.3
34	Estimated annual generation and baseline emission has been changed from 15,330,000 kWh and 11,448 tCO2 to 27,470,400 kWh and 20514 tCO2 for subsequent years after increase in PLF	• Section E.2	• Section B.6.4
35	The reference source for change in PLF is included as footnote	• Section E.2	• Section B.6.4
36	Total project cost has changed from 47.71 crore Rs. to 55.1637 crore Rs	• Section F.1	• Section D.1

37	Organization name, Telephone number, URL have been changed from SLS Power Industries Ltd, +91 8022272271 to M/s Bhoruka Power Corporation Limited, +91 80 22272271-74, www.bhorukapower.com	• Annex I	• Appendix I
38	Personal E-Mail has been deleted	Annex I	Appendix I
39	Abbreviation for BPCL included	• Appendix A	• NA

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Document information

Version	*Date*	*Description*
11.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the "CDM project standard for project activities" (CDM-EB93-A04-STAN); • Make editorial improvements.
10.1	28 June 2017	Revision to make editorial improvement.
10.0	7 June 2017	Revision to: • Improve consistency with the "CDM project standard for project activities" and with the PoA-DD and CPA-DD forms; • Make editorial improvement.
09.0	24 May 2017	Revision to: • Ensure consistency with the "CDM project standard for project activities" (CDM-EB93-A04-STAN) (version 01.0); • Incorporate the "Project design document form for small-scale CDM project activities" (CDM-SSC-PDD-FORM); • Make editorial improvement.
08.0	22 July 2016	EB 90, Annex 1 Revision to include provisions related to automatically additional project activities.
07.0	15 April 2016	Revision to ensure consistency with the "Standard: Applicability of sectoral scopes" (CDM-EB88-A04-STAN) (version 01.0).

Version	*Date*	*Description*
06.0	9 March 2015	Revision to: • Include provisions related to statement on erroneous inclusion of a CPA; • Include provisions related to delayed submission of a monitoring plan; • Provisions related to local stakeholder consultation; • Provisions related to the Host Party; • Make editorial improvement.
05.0	25 June 2014	Revision to: • Include the Attachment: Instructions for filling out the project design document form for CDM project activities (these instructions supersede the "Guidelines for completing the project design document form" (Version 01.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for the application of the methodology (ies) to the project activity in B.7.4 and Appendix 1; • Change the reference number from F-CDM-PDD to CDM-PDD-FORM; • Make editorial improvement.
04.1	11 April 2012	Editorial revision to change version 02 line in history box from Annex 06 to Annex 06b.
04.0	13 March 2012	Revision required to ensure consistency with the “Guidelines for completing the project design document form for CDM project activities” (EB 66, Annex 8).
03.0	26 July 2006	EB 25, Annex 15
02.0	14 June 2004	EB 14, Annex 06b
01.0	03 August 2002	EB 05, Paragraph 12 Initial adoption.

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