



Monitoring report form for CDM project activity
(Version 07.0)

MONITORING REPORT		
Title of the project activity	Baragran Hydro Electric Project, 3.0 MW (being expanded to 4.9 MW)	
UNFCCC reference number of the project activity	1253	
Version number of the PDD applicable to this monitoring report	9.0	
Version number of this monitoring report	1.0	
Completion date of this monitoring report	24/01/2020	
Monitoring period number	03 of CP 02	
Duration of this monitoring period	01/04/2018 – 31/12/2019 (both dates are included)	
Monitoring report number for this monitoring period	NA	
Project participants	KKK Hydro Power Limited First Climate Markets AG	
Host Party	India	
Applied methodologies and standardized baselines	Scope 1 - Energy industries (renewable/ non-renewable sources).	
Sectoral scopes	AMS-I.D. - Grid connected renewable electricity generation, version 18;	
Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period	Amount achieved before 1 January 2013	Amount achieved from 1 January 2013
	N/A	45,506 tCO ₂ e
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD	45,440 ¹ tCO ₂ e	

¹ The current monitoring period is from 01/04/2018 to 31/12/2019 (i.e. 640 days) hence estimated amount of GHG emission reduction for the current monitoring period in the revised approved PDD V9.0 has been extrapolated for 640 days i.e. = (25,967 tCO₂e/365 days) x 640 days = 45,440 tCO₂e. Detailed calculation has been provided in work sheet "Annual Avg ERReg,PDD" of ER sheet.

SECTION A. Description of project activity

A.1. General description of project activity

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The purpose of the registered project activity is to generate electricity by using the renewable hydraulic resources to meet the ever-increasing demand for energy in the northern region. The development of registered project activity has resulted into reduction of Green House Gas (GHG) emissions produced by the northern regional grid of India, which is mainly dominated by fossil fuel based power plants.

The Technology used for generation of Power in the Baragran Hydro-Power Project is Horizontal Francis Turbine (1500 KW) x 2 Nos and (1900 KW) x 1 No = Total 3 Nos turbines with 4.9 MW. These turbines have been selected based on available head at site and are ideally suited for such project. In the view of better efficiency of the Francis turbine at higher load conditions as compared to pelton turbine and discharge availability, Francis turbine is selected. The Baragran HEP has installed capacity of 4.9 MW.

The technical specifications of equipments are :

Turbine Type : Horizontal Francis Turbine with a directly coupled generator.

No. and Capacity: 2 x 1500 KW & 1 x 1900 KW

Rated Speed : 1000 rpm

Design Head : 170m

Type of Generator: A.C. Synchronous

KKK Hydro Power Limited was incorporated on 22/07/1999 as Special Purpose vehicle after the allotment and techno economic clearance from Himachal Pradesh Government. Financial closure was achieved on 15/12/2001 and the construction was started in 2001. The registered project activity was commissioned in two phases 3.0 MW commissioned on 05/08/2004 whereas 1.9 MW commissioned on 14/07/2008². The project activity has been registered with UNFCCC on 29/10/2008 with renewal crediting period. The duration of the first renewal crediting period is from 29/10/2008 to 28/10/2015. The total amount of issued CERs from this project was 157,205.00 tCO₂ during the first crediting period. The duration of the second renewal-crediting period is from 29/10/2015 to 28/10/2022, which has renewal date of 08/07/2016 as mentioned in UNFCCC project website.

The total emission reductions achieved during the monitoring period is 45,506 tCO₂e.

A.2. Location of project activity

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The project activity is located as follows:

Host Part(ies) : India

State : Himachal Pradesh

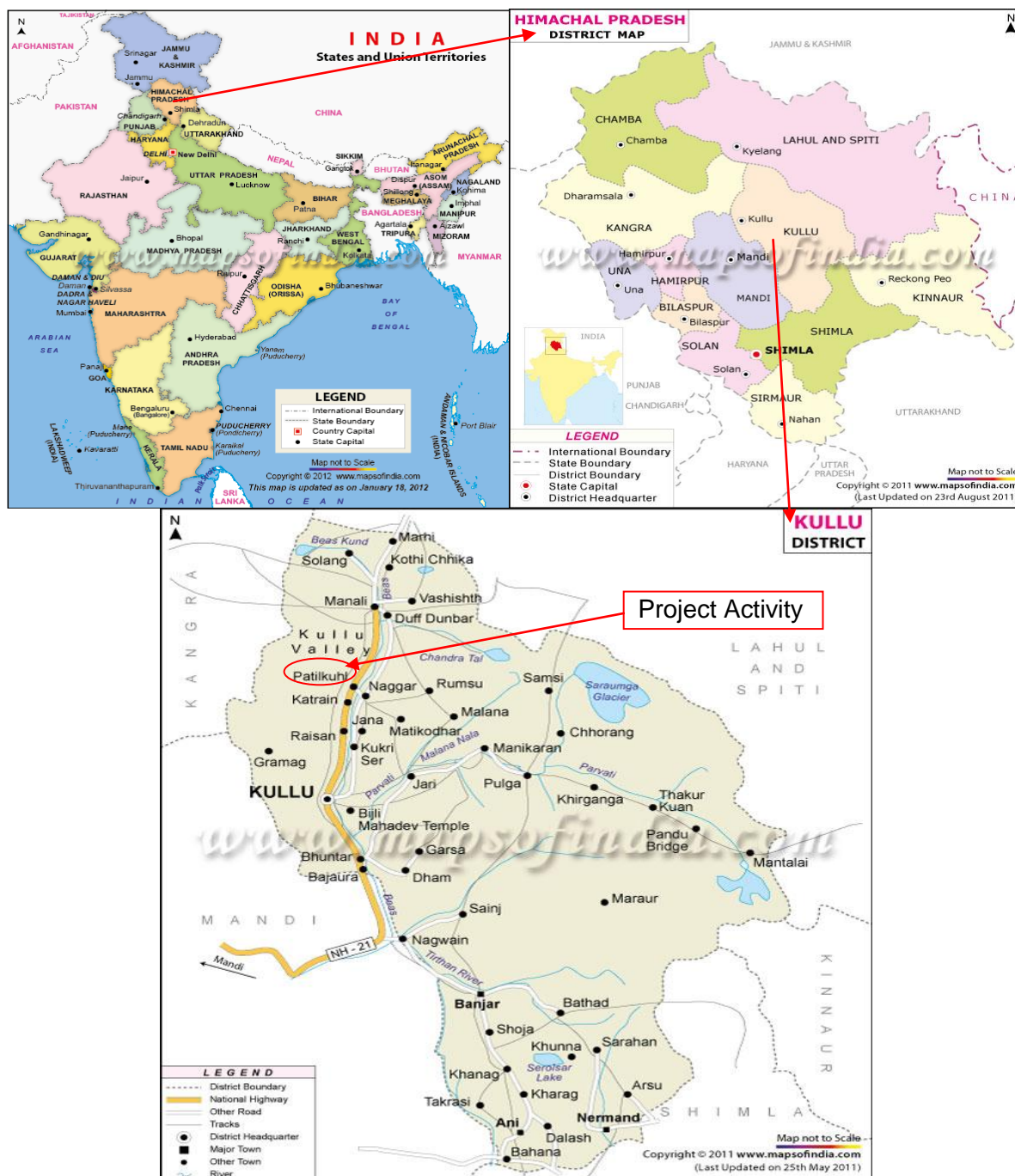
District : Kullu

Village : Patlikuhal

The project is located on Sanjoin nala, a tributary of Beas River near village Patlikuhal in Kullu District, Himachal Pradesh, India. The project lies between Latitudes 31° 07' 01" N to 31° 13' 02" N and Longitudes 77° 04' 01" E to 77° 10' 02" E.

The location of project activity is shown in following figures:

² Commissioning certificate is being submitted to DOE. Also, the project activity is in continuous operation since the commissioning.



A.3. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Party A: India	Private entity : KKK Hydro Power Limited	No
Party B: Germany	Private entity: First Climate Markets AG	No

A.4. References to applied methodologies and standardized baselines

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Title of approved baseline and monitoring methodology:

Renewable electricity generation for a grid in accordance with approved small scale methodology AMS I.D.

Type I : Renewable energy project

Sectoral Scope: 01, Energy Industries

Category I.D : Grid connected renewable electricity generation, version 18³.

Reference : Reference has been taken from the list of the small-scale CDM project activity categories contained in Appendix B of the simplified M&P for small-scale CDM project activities.

Tool reference: "Tool to calculate the emission factor for an electricity system". Version 05.0.0, EB 87 annex 9

Standardized baseline:

Not applicable.

A.5. Crediting period type and duration

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Crediting Period : Renewable crediting period (3*7 years).

Duration of 2nd Crediting Period as

Start date of the 2nd Crediting Period : 29/10/2015

End date of the 2nd Crediting Period : 28/10/2022

Please note: Duration of 1st Crediting Period: 29/10/2008 – 28/10/2015

SECTION B. Implementation of project activity

B.1. Description of implemented project activity

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The registered project activity became operational in two phases 3.0 MW became operational from 05/08/2004. The additional 1.9 MW became operational on 14/07/2008. Before the start date of crediting period, the registered project activity became completely operational.

During current monitoring period, actual operations were normal i.e. no breakdown of operational activity. However, there were events when plant was shut down due to non-availability of water and also there are some planed/forced shut down due to maintenance (civil or mechanical or electrical work or Grid failed / HPSEB). The details were provided in Appendix 1 & Appendix 2 of monitoring report.

No such events or situations occurred during the monitoring period which might have impacted the applicability of methodology. There are no issues needs to be addressed.

The project was registered with UNFCCC on 29/10/2008 with renewal crediting period . The duration of the first renewal crediting period is from 29/10/2008 to 28/10/2015. The duration of the second renewal crediting period is from 29/10/2015 to 28/10/2022, which has renewal date of 08/07/2016 as mentioned in UNFCCC project website.

For the project activity, the project boundary is from the point of water tapping to the point of electricity supply to the grid interconnection point. Thus the project boundary is as follows:

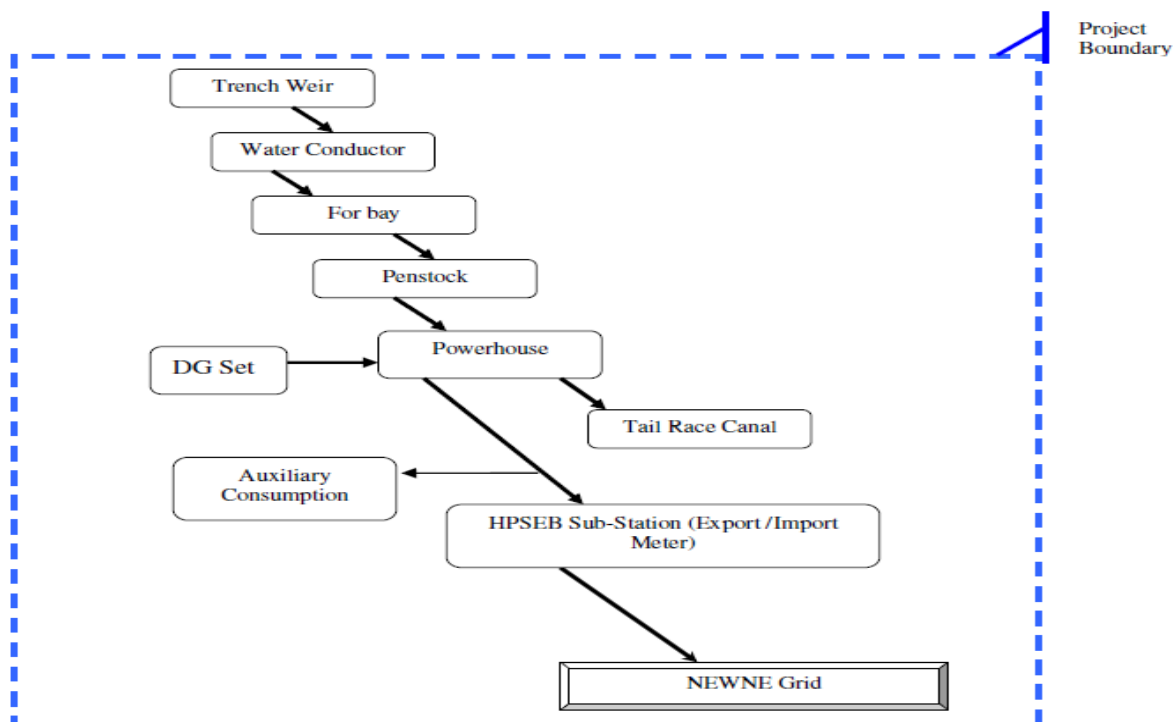
✓ Trench weir

³ <http://cdm.unfccc.int/methodologies/DB/RSCTZ8SKT4F7N1CFDXCSA7BDQ7FU1X/view.html>

- ✓ Fore bay
- ✓ Penstock
- ✓ Powerhouse
- ✓ Tail race canal
- ✓ Transmission line to grid connection
- ✓ Grid interface

The North Eastern (NEWNE) regional grid is included in the project boundary.

Schematic Diagram of the Project Activity:



B.2. Post-registration changes

B.2.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

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Not applicable

B.2.2. Corrections

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Not applicable

B.2.3. Changes to the start date of the crediting period

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Not applicable

B.2.4. Inclusion of monitoring plan

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Not applicable

B.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

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Not applicable

B.2.6. Changes to project design

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Not applicable

B.2.7. Changes specific to afforestation or reforestation project activity

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Not applicable

SECTION C. Description of monitoring system

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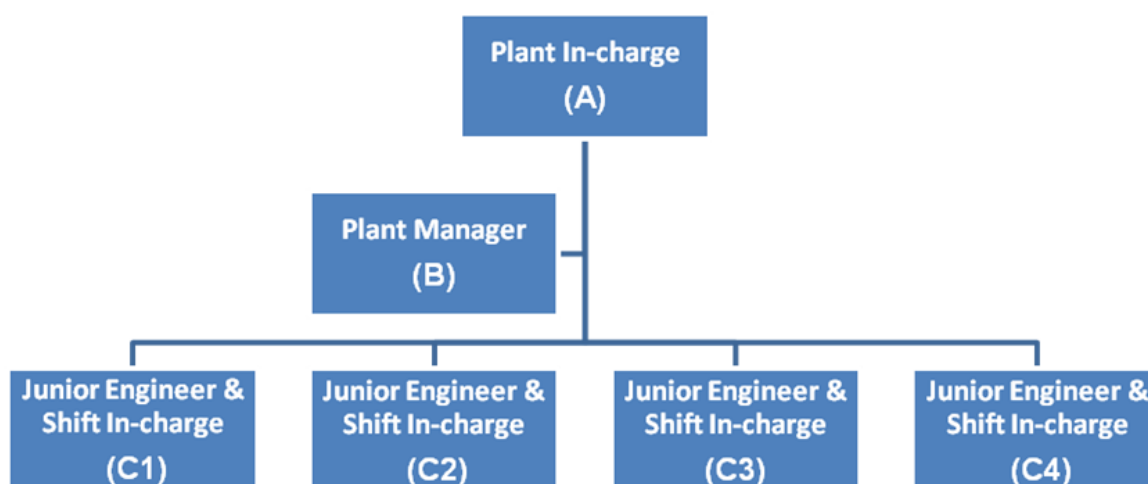
The parameters to be monitored as per the monitoring plan:

Total electrical energy exported by the project activity EG_{export} : The power exported by the registered project activity has been measured to the best accuracy at the Naggar Substation of Himachal Pradesh State Electricity Board.

Total electrical energy imported by the project activity E_{import} : The power imported by the registered project activity has been recorded at interconnection point and has been adjusted against the net saleable energy in corresponding month's bill.

Net electrical energy exported by the project activity EG_y : Net electrical energy has been calculated to the best accuracy at the Naggar Substation of Himachal Pradesh State Electricity Board.

Organizational structure, roles and responsibilities of personnel:



A = Plant In-charge - Responsible for the overall project activities

B = Plant Manager - Responsible for the administration and for the management of the Plant

C1, C2, C3, C4 = Four Junior Engineers were working as the Shift in-charge and were responsible to take corrective action for technical faults occurring in the Plant, if any.

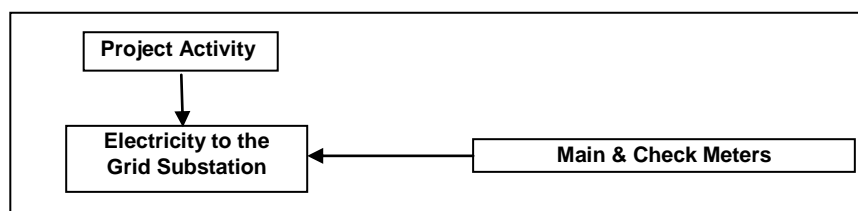
1. The generated electricity from the project has been sold to the state electricity utility (HPSEB) during the monitoring period under Power purchase agreement (PPA) with the state power utility. Thus throughout the current monitoring period the electricity generated from the project activity has been monitored by both the project participant and a third party i.e. HPSEB.
2. The generated electricity, before entering into the grid, at the grid interconnection point has been measured by digital, sealed kilowatt hour (kwh) energy meter on continuously monitoring, hourly measurement and monthly recording basis. The hourly, daily and monthly log sheets of generated electricity are maintained in hard copies as well as in soft also at plant site. The generation records have been signed by the officials of project participant and third party (HPSEB). These generation records have been documented and would be made available on demand throughout the crediting period of the project.
3. The project participant has appointed a full time project in-charge to manage the overall project activities during current monitoring period. The project in-charge is stationed at the project site and was responsible for monitoring the generation of electricity and maintaining statutory minimum discharge between the diversion weir and tailrace of the stream. To ensure that the micro ecosystem of the stream is not disturbed due to the candidate CDM project, the discharge in the stream was measured on fortnightly basis during the lean season of the stream i.e. the months of January, February and March. This data has also been preserved and would be available throughout the crediting period of the project.
4. For duration other than lean season, random measurement of the discharge between diversion weir and tailrace were carried out.
5. The Plant manager was qualified diploma / degree engineer with 5 - 7 year experience in power industry. All the shift in-charges were diploma / degree holders and have undergone related training including data monitoring and report generation, etc at the time of their joining.

Emergency procedures for the monitoring system:

If the data recorded by main or check meter or both is found to be outside permissible limits at the time of taking meter reading, both the energy meters (main and check) would be replaced with calibrated energy meters and fault meters would be sent for testing and re-calibration. If both main and check meters are found to be beyond the permissible limits of error, the energy recorded by main meter for previous billing month and up to date of removal of such meter in current month shall be corrected by applying appropriate correction factor. If on testing, error in main meter is within accuracy limit and check meter is beyond accuracy limit, the main meter reading shall be used for billing as well as emission reduction calculation and check meter would be recalibrated. However, if check meter is found to be within accuracy limit and error in main meter is beyond accuracy limit, then check meter reading would be used for billing as well as emission reduction calculation purposes for previous billing month and till the time main meter is calibrated.

No such emergency procedures were required during current monitoring period. No elaboration needed as this refers to emergency procedures only.

Line diagram showing monitoring points:



The below mentioned table of Monitoring Equipment List reflect the usage periodicity of the meters as Main and Check Meter.

Table: Monitoring Equipment List

S. No	Energy Meter Details	Date of Calibration	Validity of Calibration as per calibration frequency define in the PDD	Date of Installation	Main/Check Meter
1	Sr. No: 11070283 Type: ER300P Accuracy Class: 0.2s Calibration Frequency: Once in Five Year	23/05/2018	22/05/2023	23/07/2018	Main
2	Sr. No: 12092928 Type: ER300P Accuracy Class: 0.2s Calibration Frequency: Once in Five Year	23/05/2018	22/05/2023	23/07/2018	Check
3.	Sr. No: 16192482 Type: ER300P Accuracy Class: 0.2s Calibration Frequency: Once in Five Year	25/09/2019	24/09/2024	05/11/2019	Main
4.	Sr. No: 16195002 Type: ER300P Accuracy Class: 0.2s Calibration Frequency: Once in Five Year	25/09/2019	24/09/2024	05/11/2019	Check

Note for #: New set of meters (main & check) were replaced with old set of meters during the day, therefore for part of the day old set of meters were used in monitoring whereas for the remaining period of the day, new set of meters were used. Hence, the day of change of meters has been mentioned with both set of meters.

All the energy meters are identical in quality parameters and of same make.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante

Data/Parameter	EF _y
Unit	tCO ₂ /MWh
Description	Combined Margin CO ₂ emission factor of the NEWNE regional grid

Source of data	CO2 Baseline Database for the Indian Power Sector Version 10.0, Dated 16 December 2014 (Combined Margin Emission Factor for Northern Regional Grid) published by Central Electric Authority (CEA), India
Value(s) applied	0.9586
Choice of data or measurement methods and procedures	CEA has estimated the simple operating margin and build margin emission factor for the NEWNE regional grid. For calculating the CO ₂ emission factor as per combined margin method for the renewable power generation project activities in the first and subsequent crediting periods, the weights of 0.25 for operating margin and 0.75 for build margin have been considered as 'Tool to calculate the emission factor for an electricity system' (Version 04)
Purpose of data/parameter	Calculation of baseline emission.
Additional comments	The emission factor has been fixed for the second crediting period.

D.2. Data and parameters monitored

Data/parameter:	EG _{export}
Unit	KWh
Description	Total electrical energy exported by the project activity
Measured/calculated/default	Measured
Source of data	Plant Records (Power Export Bills/Joint Meter Reading Report)
Value(s) of monitored parameter	47,489,000.000 (monthly values are available in Appendix-3 to the monitoring report)
Monitoring equipment	Details of monitoring equipment provided in Table "Monitoring Equipment List" discussed under section C.
Measuring/reading/recording frequency:	<p>Monthly joint meter readings of main and check meters installed at interconnection point have been taken and signed by authorized officials of KKKHPL and HPSEB at 9:00 hrs on the first day of every month. During current monitoring period, this reading is measured on the basis of Main Meter installed at Interconnection point. Records of this joint meter reading at interconnection are maintained by KKKHPL. KKKHPL is archiving and preserving all monthly bills raised against net saleable energy. The same would be preserved for at least two years after end of the crediting period.</p> <p>Measuring /Reading Frequency – Continuously monitoring and hourly measurement Recording Frequency – Monthly Recording</p> <p>The hourly, daily & monthly log sheets are maintained in hard copies as well as in soft.</p>
Calculation method (if applicable):	Not Applicable
QA/QC procedures:	The main and check meter have been regularly test checked for accuracy. The main and check meter installed at the interconnection point have five year validity. The main and check meters are installed at the interconnection point in presence of both the parties namely, KKKHPL & HPSEB. These meters are calibrated at the National Accreditation Board for Testing & Calibration Laboratories (NABL) accredited laboratory e.g. RTL Jalandhar.
Purpose of data:	Calculation of baseline emission
Additional comments:	No Comment

Data/parameter:	E_{import}
Unit	KWh
Description	Total electrical energy imported by the project activity
Measured/calculated/default	Measured
Source of data	Plant Records (Power Export Bills/Joint Meter Reading Report)
Value(s) of monitored parameter	16,850.020 (monthly values are available in Appendix-3 to the monitoring report)
Monitoring equipment	Details of monitoring equipment provided in Table "Monitoring Equipment List" discussed under section C.
Measuring/reading/recording frequency:	<p>Monthly joint meter readings of main and check meters installed at interconnection point have been taken and signed by authorized officials of KKKHPL and HPSEB at 9:00 hrs on the first day of every month. During current monitoring period, this reading is measured on the basis of Main Meter installed at Interconnection point. Records of this joint meter reading at interconnection are maintained by KKKHPL. KKKHPL is archiving and preserving all monthly bills raised against net saleable energy. The same would be preserved for at least two years after end of the crediting period.</p> <p>Measuring /Reading Frequency – Continuously monitoring and hourly measurement</p> <p>Recording Frequency – Monthly Recording</p> <p>The hourly, daily & monthly log sheets are maintained in hard copies as well as in soft.</p>
Calculation method (if applicable):	Not Applicable
QA/QC procedures:	The main and check meter have been regularly test checked for accuracy. The main and check meter installed at the interconnection point have five year validity. The main and check meters are installed at the interconnection point in presence of both the parties namely, KKKHPL & HPSEB. These meters are calibrated at the National Accreditation Board for Testing & Calibration Laboratories (NABL) accredited laboratory e.g. RTL Jalandhar.
Purpose of data:	Calculation of baseline emission
Additional comments:	No Comment

Data/parameter:	EG_y
Unit	KWh
Description	Net electrical energy exported by the project activity
Measured/calculated/default	Calculated
Source of data	Plant Records (Power Export Bills/Joint Meter Reading Report)
Value(s) of monitored parameter	47,472,149.980 (monthly values are available in Appendix-3 to the monitoring report)

Monitoring equipment	Not Applicable (as the data has been calculated by Himachal Pradesh State Electricity Board (HPSEB))
Measuring/reading/recording frequency:	This is a calculated parameter based on measured value of EG_{export} and E_{import} . Recording Frequency – Monthly Recording The monthly log sheets are maintained in hard copies as well as in soft.
Calculation method (if applicable):	This parameter is calculated by the difference of EG_{export} and E_{import}
QA/QC procedures:	Records of monthly electricity sales bills can be used to cross check net power exported to HPSEB grid.
Purpose of data:	Calculation of baseline emission
Additional comments:	No Comment

D.3. Implementation of sampling plan

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Not Applicable

SECTION E. Calculation of emission reductions or net anthropogenic removals

E.1. Calculation of baseline emissions or baseline net removals

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The baseline emissions are the product of electrical energy baseline EG_y expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor. Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors.

$$BE_y = EF_y * EG_y$$

Where:

BE_y = are the baseline emission due to displacement of electricity during the year y in tonnes of CO_{2e}

EF_y = is the net quantity of electricity generated by the project activity during the year y in MWh, and

EG_y = is the CO_2 baseline emission factor for the electricity displaced due to the project activity in tones CO_2 /MWh.

The baseline emissions for the project activity for the current monitoring period are as follows.

$BE_y = EF_y * EG_y = 0.9586 * (47,472,149.980 / 1000) = 45,506.803 = 45,506 \text{ tCO}_{2e}$ (Rounded down conservatively)

E.2. Calculation of project emissions or actual net removals

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The registered project activity is a run-of-river hydroelectric project. There are no anthropogenic emissions by sources of GHGs in the project boundary as a result of the project activity.

E.3. Calculation of leakage emissions

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There are no anthropogenic emissions identified by sources outside the project boundary. Further, the project participant confirms that the equipments used by the project activity are not transferred from another project. Hence, there is no leakage calculation required for the project activity.

E.4. Calculation of emission reductions or net anthropogenic removals

	Baseline GHG emissions or baseline net GHG removals (t CO ₂ e)	Project GHG emissions or actual net GHG removals (t CO ₂ e)	Leakage GHG emissions (t CO ₂ e)	GHG emission reductions or net anthropogenic GHG removals (t CO ₂ e)		
				Before 01/01/2013	From 01/01/2013	Total amount
Total	45,506	0	0	0	45,506	45,506

E.5. Comparison of emission reductions or net anthropogenic removals achieved with estimates in the registered PDD

Amount achieved during this monitoring period (t CO ₂ e)	Amount estimated ex ante for this monitoring period in the PDD (t CO ₂ e)
45,506	45,440

E.5.1. Explanation of calculation of “amount estimated ex ante for this monitoring period in the PDD”

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The current monitoring period is from 01/04/2018 to 31/12/2019 (i.e. 640 days) hence estimated amount of GHG emission reduction for the current monitoring period in the revised approved PDD V9.0 has been extrapolated for 640 days i.e. = (25,967 tCO₂e/365 days) x 640 days =45,440 tCO₂e. Detailed calculation has been provided in work sheet "Annual Avg ERReg,PDD" of ER sheet.

E.6. Remarks on increase in achieved emission reductions

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The actually achieved emission reduction in the current monitoring period is 45,506 tCO₂e; while the estimated annual emission reduction as per the approved revised PDD version 8 is 45,440 tCO₂e (as extrapolated for 640 days). Thus, the actual emission reduction is 0.15 % higher than the estimated value which is due to variation of water availability in “Sanjoin nala” (where the project activity is installed). The water availability in “Sanjoin nala” is get affected by rainfall or monsoon season, hence, this factor is beyond the control of the PP. In the Year 2018-2019, was good monsoon year, thus resulting into lesser actual generation as comparative to approved PDD.

E.7. Remarks on scale of small-scale project activity

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Not applicable as this section is applicable only for small-scale project activities, including a registered bundle of small-scale project activities.

Appendix - 1

Details of the Operational Hours of the Reported Period

Machine 1
(1.5 MW)

S. No.	Description	01.04.2018 TO 31.12.2019 (Figures in Hours)
1	Total No. of Hours	15360
2	Shut Down due to Non Availability of Water	4691.49
3	Forced Shut Down Hours	73.44
4	Planned Shut Down Hours	1693.27
5	Total Shut Down Hours	6,458.20
	Total Operational Hours	8,901.80

Machine 2
(1.5 MW)

S. No.	Description	01.04.2018 TO 31.12.2019 (Figures in Hours)
1	Total No. of Hours	15360
2	Shut Down due to Non Availability of Water	4140.12
3	Forced Shut Down Hours	70.36
4	Planned Shut Down Hours	1672.86
5	Total Shut Down Hours	5,883.34
	Total Operational Hours	9,476.66

Machine 3
(1.9 MW)

S. No.	Description	01.04.2018 TO 31.12.2019 (Figures in Hours)
1	Total No. of Hours	15360
2	Shut Down due to Non Availability of Water	5020.39
3	Forced Shut Down Hours	68.44
4	Planned Shut Down Hours	1629.39
5	Total Shut Down Hours	6,718.22
	Total Operational Hours	8,641.78

Appendix - 2

Plant Outage Details for the Reported Period

S. No.	Months	Type of shut down, hrs			Reasons
		Non availability of water	Forced	Planned	
1	Apr-18	879.57	6.43	0.11	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
2	May-18	622.15	12.1	25.48	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
3	Jun-18	821.21	10.52	65.53	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
4	Jul-18	341.07	6.85	176.28	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
5	Aug-18	90.92	14.81	32.36	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
6	Sep-18	318.90	1.29	579.64	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
7	Oct-18	0.00	0	2232	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
8	Nov-18	719.80	3.29	1135.02	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
9	Dec-18	1490.81	13.31	22.29	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
10	Jan-19	1489.42	8.58	19.82	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
11	Feb-19	1192.59	4.59	233.39	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
12	Mar-19	946.12	4.45	31.78	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
13	Apr-19	8.81	9.41	6.17	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
14	May-19	5.82	15.42	33.38	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
15	Jun-19	1.43	19.97	15.51	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
16	Jul-19	3.98	16.28	4.2	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
17	Aug-19	7.20	21.6	361.98	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
18	Sep-19	525.47	23.87	1.93	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
19	Oct-19	1449.42	3.56	0.07	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
20	Nov-19	1440.00	4.44	2.48	Planned shut down due to Civil / Mechanical / Electrical work/Forced shut down due to Grid failed / HPSEB instruction
	Total Hrs.	12354.69	200.77	4979.42	

Appendix - 3

Details of Total electrical energy exported, total electrical energy imported and net electrical energy exported by the project activity during reported period

MONTH	Total electrical energy exported by the project activity (EG _{export}) (kWh)	Total electrical energy imported by the project activity (E _{import}) (kWh)	Net electrical energy exported by the project activity (y = EG _{export} - E _{import}) (kWh) (EG)
Apr-18	2,314,800.000	21.036	2,314,778.964
May-18	2,659,800.000	44.437	2,659,755.563
Jun-18	2,315,200.000	45.831	2,315,154.169
Jul-18	3,057,000.000	820.055	3,056,179.945
Aug-18	4,001,300.000	95.000	4,001,205.000
Sep-18	2,257,200.000	299.613	2,256,900.387
Oct-18	0.000	720.161	(720.161)
Nov-18	657,200.000	9173.864	648,026.136
Dec-18	1,075,700.000	500.933	1,075,199.067
Jan-19	826,900.000	378.321	826,521.679
Feb-19	844,900.000	2054.744	842,845.256
Mar-19	1,933,400.000	124.058	1,933,275.942
Apr-19	3,986,100.000	17.978	3,986,082.022
May-19	4,104,800.000	173.241	4,104,626.759
Jun-19	3,991,100.000	57.607	3,991,042.393
Jul-19	3,969,700.000	31.991	3,969,668.009
Aug-19	3,316,700.000	2143.020	3,314,556.980
Sep-19	2,607,800.000	33.682	2,607,766.318
Oct-19	1,435,900.000	41.304	1,435,858.696
Nov-19	1,085,400.000	30.36	1,085,369.640
Dec-19	1,048,100.000	42.784	1,048,057.216
TOTAL	47,489,000.000	16,850.020	47,472,149.980

Appendix - 4

Emission Reduction Calculation sheet for the reported period

Monitored Period	Total electrical energy exported by the project activity (EG _{export})	Total electrical energy imported by the project activity (E _{import})	Net electrical energy exported by the project activity (EG _y = EG _{export} - E _{import})	CO ₂ emission factor of the grid	Baseline Emissions		Project Emissions	Leakage	Emission reductions due to project activity
				(EF _y)	(BE _y = EF _y x EG _y)		(PE _y)	(L _y)	(ER _y = BE _y - PE _y - L _y)
	kWh	kWh	kWh	tCO ₂ e / MWh	Unit Conversion Factor (1MWh = 1000 kWh)	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e
Apr-18	2,314,800.000	21.036	2,314,778.964	0.9586	0.001	2,218.95	0	0	2,218.95
May-18	2,659,800.000	44.437	2,659,755.563	0.9586	0.001	2,549.64	0	0	2,549.64
Jun-18	2,315,200.000	45.831	2,315,154.169	0.9586	0.001	2,219.31	0	0	2,219.31
Jul-18	3,057,000.000	820.055	3,056,179.945	0.9586	0.001	2,929.65	0	0	2,929.65
Aug-18	4,001,300.000	95.000	4,001,205.000	0.9586	0.001	3,835.56	0	0	3,835.56
Sep-18	2,257,200.000	299.613	2,256,900.387	0.9586	0.001	2,163.46	0	0	2,163.46
Oct-18	-	720.161	(720.161)	0.9586	0.001	(0.69)	0	0	(0.69)
Nov-18	657,200.000	9,173.864	648,026.136	0.9586	0.001	621.20	0	0	621.20
Dec-18	1,075,700.000	500.933	1,075,199.067	0.9586	0.001	1,030.69	0	0	1,030.69
Jan-19	826,900.000	378.321	826,521.679	0.9586	0.001	792.30	0	0	792.30
Feb-19	844,900.000	2,054.744	842,845.256	0.9586	0.001	807.95	0	0	807.95
Mar-19	1,933,400.000	124.058	1,933,275.942	0.9586	0.001	1,853.24	0	0	1,853.24
Apr-19	3,986,100.000	17.978	3,986,082.022	0.9586	0.001	3,821.06	0	0	3,821.06
May-19	4,104,800.000	173.241	4,104,626.759	0.9586	0.001	3,934.70	0	0	3,934.70
Jun-19	3,991,100.000	57.607	3,991,042.393	0.9586	0.001	3,825.81	0	0	3,825.81
Jul-19	3,969,700.000	31.991	3,969,668.009	0.9586	0.001	3,805.32	0	0	3,805.32
Aug-19	3,316,700.000	2,143.020	3,314,556.980	0.9586	0.001	3,177.33	0	0	3,177.33
Sep-19	2,607,800.000	33.682	2,607,766.318	0.9586	0.001	2,499.80	0	0	2,499.80
Oct-19	1,435,900.000	41.304	1,435,858.696	0.9586	0.001	1,376.41	0	0	1,376.41
Nov-19	1,085,400.000	30.360	1,085,369.640	0.9586	0.001	1,040.44	0	0	1,040.44
Dec-19	1,048,100.000	42.784	1,048,057.216	0.9586	0.001	1,004.67	0	0	1,004.67
Reported Period from 01/04/2018 to 31/12/2019	47,489,000.000	16,701.890	41,295,098.110	0.9586	0.001	39,585.48	0	0	45,506.00

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
07.0	31 May 2019	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 02.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Add a section on remarks on the observance of the scale limit of small-scale project activity during the crediting period; • Add "changes specific to afforestation or reforestation project activity" as a possible post-registration changes; • Clarify the reporting of net anthropogenic GHG removals for A/R project activities between two commitment periods; • Make editorial improvements.
06.0	7 June 2017	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 01.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Make editorial improvements.
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: <ul style="list-style-type: none"> • Include provisions related to delayed submission of a monitoring plan; • Provisions related to the Host Party; • Remove reference to programme of activities; • Overall editorial improvement.
04.0	25 June 2014	Revisions to: <ul style="list-style-type: none"> • Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1; • Change the reference number from <i>F-CDM-MR</i> to <i>CDM-MR-FORM</i>; • Editorial improvement.
03.2	5 November 2013	Editorial revision to correct table in page 1.
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB 70, Annex 11).

<i>Version</i>	<i>Date</i>	<i>Description</i>
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01.0	28 May 2010	EB 54, Annex 34. Initial adoption.
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