PROJECT CONCEPT NOTE

CARBON OFFSET UNIT (CoU) PROJECT

Title: 4.5 MW Sechi grid-connected hydroelectric project in Himachal Pradesh

Version: 1.0

Date: 14/04/2025

First CoU Issuance Period: 04 Years

Date: 01/01/2021 to 31/12/2035

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Project Concept Note (PCN)
CARBON OFFSET UNIT (CoU) PROJECT

BASIC INFORMATION	
Title of the project activity	4.5 MW Sechi grid-connected hydroelectric project in Himachal Pradesh
Scale of the project activity	Small Scale
Completion date of the PCN	14/04/2025
Project participants	Creduce Technologies Private Limited (Representator) Ascent Hydro Projects Ltd (AHPPL) (Project Proponent)
Host Party	India
Applied methodologies and standardized baselines	Applied Baseline Methodology: AMS-I.D: "Grid connected renewable electricity generation", version 18 Standardized Methodology: Not Applicable.
Sectoral scopes	01 Energy industries (Renewable/Non-Renewable Sources)
Estimated amount of total GHG emission reductions	14,957 CoUs (14,957 tCO_2e which is an estimated value per year)

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SECTION A. Description of project activity

A.1. Purpose and general description of Carbon offset Unit (CoU) project activity >>

The proposed project tile under UCR is "4.5 MW Sechi grid-connected hydroelectric project in Himachal Pradesh", which is a grid connected Hydro Electric Power project located in Kullu district in the state of Himachal Pradesh (India). The project is an operational activity with continuous reduction of GHG, currently being applied under "Universal Carbon Registry" (UCR).

Purpose of the project activity:
The proposed project activity is promoted by Ascent Hydro Projects Ltd (AHPPL) (herein after called as project proponent 'PP'). The project activity is run of river Small Hydroelectric Project (SHP) of 4.5 MW installed capacity developed at Sechi khad (stream) in Samej village of Himachal Pradesh. The project installs two units of 2.25 MW Horizontal Francis turbine with an annual average generation of 22.885 GWh coupled with synchronous generator. Water from the streams is diverted using a trench weir. The trench shall be below the bed level with a width of 2.0 m and a depth uniformly varying from 1.8 m to 3.3 m at the intake structure. A trash rack grill is provided on top of the trench opening, sloped in flow direction to prevent settling of stones and pebbles and to facilitate them rolling away with the stream flow.

The water from the intake structure flows to a desilting chamber. Desilting chamber is provided to exclude particle sizes exceeding 0.25 mm. The removal of silt is affected through a reduction in flow velocity by increasing the flow area. The settled silt is removed by a flushing arrangement and clear water flows from the top. The water conductor system takes the water to the forebay. The water from the forebay is taken to the power house through a penstock. A single steel penstock aligned on the hill slope shall be provided to lead the flow to the power house. The project activity has been commissioned on 01/02/2012. The project activity has been registered with "UNFCCC with project ID 9167" [1]on 26/12/2012 with renewable crediting period. Thus, the project is an operational activity with continuous reduction of GHG, currently being applied under "Universal Carbon Registry" (UCR).

The generated electricity after auxiliary consumption shall be exported to Himachal Pradesh State Electricity Board (HPSEB) grid for sale. The connection point with the grid for Sechi SHP, is Jhakri Substation, which is at a distance of 4.5 kilometers from the project site. The project activity converts the potential energy available in water flows to mechanical energy using turbines which drives generators to generate electricity. Sechi Khads (streams) is a tributary of Sutlej River and the SHP is located along the streams.

Hence, project activity is displacing the estimated annual net electricity generation i.e., 16,619.06 MWh from the Indian grid system, which otherwise would have been generated by the operation of fossil fuel-based grid-connected power plants. The estimated annual CO2e emission reductions by the project activity are expected to be 14,957 tCO_2e.

The estimated annual average and the total CO_2e emission reductions by the project activity is expected to be 14,957 tCO_2e, whereas actual emission reduction achieved during the first CoU period shall be submitted as a part of first monitoring and verification.

Since the project activity will generate electricity through hydro energy, a clean renewable energy source it will not cause any negative impact on the environment.

[1] https://cdm.unfccc.int/Projects/DB/BVQI1356423933.66/view

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Project's Contribution to Sustainable Development

Indian economy is highly dependent on "Coal" as fuel to generate energy and for production processes. Thermal power plants are the major consumers of coal in India and yet the basicelectricity needs of a large section of population are not being met. This results in excessive demands for electricity and places immense stress on the environment.

Changing coal consumption patterns will require a multi-pronged strategy focusing on demand, reducing wastage of energy and the optimum use of renewable energy (RE) sources. This project is a greenfield activity where grid power is the baseline. The renewable power generation is gradually contributing to the share of clean & green power in the grid; however, grid emission factor is still on higher side which defines grid as distinct baseline.

The Government of India has stipulated following indicators for sustainable development in the interim approval guidelines for such projects which are contributing to GHG mitigations. The Ministry of Environment, Forests & Climate Change, has stipulated economic, social, environment and technological well-being as the four indicators of sustainable development. It has been envisaged that the project shall contribute to sustainable development using the following ways:

Social well-being: The project would help in generating direct and indirect employment benefits accruing out of ancillary units for manufacturing of the hydro turbine generator and for maintenance during operation of the project activity. It will lead to development of infrastructure around the project area in terms of improved road network, etc. and will also directly contribute to thedevelopment of renewable infrastructure in the region. No land acquisition due to the project activity happened as no increase in the reservoir size happened and there are no land submerging issues and hence no resettlement and rehabilitation was involved. Since the project activity is in a rural area, project activity caused the improvement of basic amenities. Thus the project activity has contributed to social well-being.

Economic well-being: The project activity has created direct and indirect job opportunities for the local community during construction and operation. The project activity had invested nearly INR 292.219 million. This investment is quite significant in a rural area. These activities would contribute to the economic well-being of the local community. The project activity would also provide direct and indirect job opportunities to the local community during construction and shall provide permanent job opportunities during operation. During operation of the project activity, about 40 persons would be employed directly, apart from indirect employment, which would augur well for the economic well-being of the community.

Technological well-being: The project activity leads to the promotion of 4.5 MW hydro turbine generators into the region and will promote practice for small scale industries to reduce the dependence on carbon intensive grid supply to meet the captive requirement of electrical energy and also increasing energy availability and improving quality of power under the service area. Hence, the project leads to technological well-being.

Environmental well-being: The project utilizes hydro energy for generating electricity which is a clean source of energy. The project activity will not generate any air pollution, water pollution or solid waste to the environment which otherwise would have been generated through fossil fuels. Also, it will contribute to reduction GHG emissions. Thus, the project causes no negative impact on the surrounding environment contributing to environmental well-being.

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With regards to ESG credentials:

At present specific ESG credentials have not been evaluated, however, the project essentially contributes to various indicators which can be considered under ESG credentials. Some of the examples are as follows:

Under Environment:

The following environmental benefits are derived from the project activity:

- Produces renewable electricity without any GHG emissions.
- Run-of-river hydro power plant with negligible impact on the surrounding ecology.
- No increase in volume of reservoir and no land inundation, hence no disturbance to the natural habitat.

For the PP, energy sale pattern is now based on renewable energy due to the project and it also contributes to GHG emission reduction and conservation of depleting energy sources associated with the project baseline. Hence, project contributes to ESG credentials.

Under Social:

The social well-being is assessed by contribution to improvement in living standards of the local community. The project activity is located in remote villages of industrially backward state of Himachal Pradesh. The implementation of the project activity would provide job opportunities to the local community; contribute in poverty alleviation of the local community and development of basic amenities to community leading to improvement in living standards of the community.

Under Economics:

Economic well-being refers to additional investment consistent with the needs of the local community. The project activity is associated with a significant investment (nearly INR 300.0 million). This investment is quite significant in a rural area. These activities would contribute to the economic well-being of the local community. The project activity has also provided direct and indirect job opportunities to the local community during construction and shall provide permanent job opportunities during operation and also by improving power scenario & tourism potential in Himachal Pradesh. During operation of the project activity, many persons has been employed directly, apart from indirect employment, which would augur well for the economic well-being of the community

A.2 Do no harm or Impact test of the project activity>>

There was no harm identified form the project and hence no mitigations measures are applicable.

Rational: as per 'Central Pollution Control Board (Ministry of Environment & Forests, Govt. of India)'[2], final document on revised classification of Industrial Sectors under Red, Orange, Green and White Categories (11/07/2024), it has been declared that hydro project activity falls under the "White category". White Category projects/industries do not require any Environmental Clearance such as 'Consent to Operate' from PCB as such project does not lead to any negative environmental impacts. Additionally, as per Indian Regulation, Environmental and Social Impact Assessment is notrequired for small Hydro Projects.

[2] https://cpcb.nic.in/openpdffile.php?id=TGF0ZXN0RmlsZS9fMTczNzYxMzk2OV9tZWRpYXBob3RvMTEzODMucGRm

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Nevertheless, stakeholders' consultation meeting was conducted many times at site office of project activity along with local people and Panchayat (village level governance body falling in the project vicinity) of nearby village by the PP to understand, discuss, record all possible concerns related environment and socio-economic aspects of the project so that as per requirements mitigation measures can be taken. Along with public notices were placed in local newspapers in local language to invite people for the consultation meeting with the agenda of inviting public comments on the project activity. The feedback and inputs received from stakeholders confirm that no negative impact is foreseen by the stakeholders.

Additionally, there are social, environmental, economic and technological benefits which contribute to sustainable development. The key details have been discussed in the previous section.

A.3. Location of project activity >>

Country : India
State : Himachal Pradesh
District : Kullu
Village : Samej

The project activity in Kullu district and the nearest big town is Rampur at a distance of 30 kms. The projects are accessible by National Highway (NH)-22 which runs from Shimla to Tibet. The nearest town is Shimla. Kalka is the major railway station and is about 80 Kms from Shimla. Kalka is about 300 kilometers from New Delhi, the capital city of India. Geographical location of the project activity is 31°32'00" N and 76°02'30" E.

The representative location map is included below:

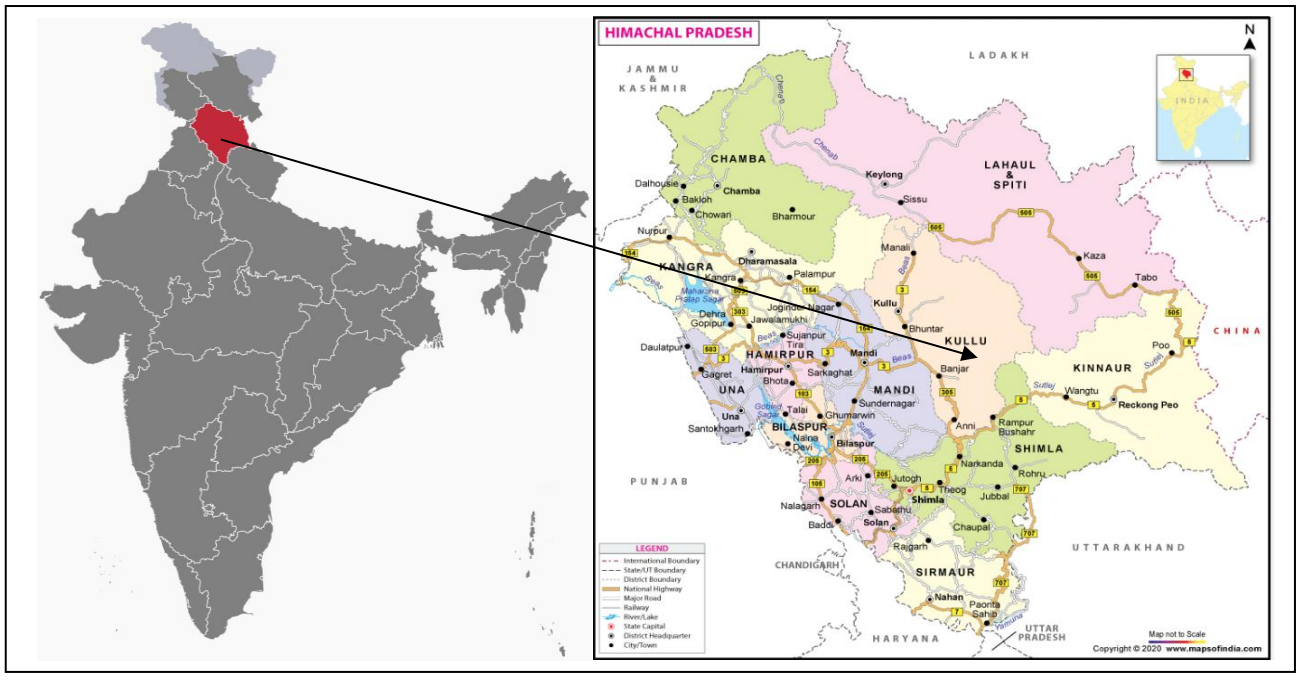

Figure-1: Location of the project activity (courtesy: google images and www.mapofindia.com)

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A.4. Technologies/measures >>

The project activity involves 2 Hydro Horizontal Francis turbine generators of (2250 KW each) with internal electrical lines connecting the project activity. The project activity involves the process of conversion of the potential energy, embodied in the water flowing from a higher point to a lower point, into mechanical energy and then into electrical energy. This flowing water is guided through a head race tunnel and penstock gate and jetted on to a turbine. This action rotates the turbine, which is connected to a synchronous generator. The rotation of turbine causes the rotation of the generator thereby producing electricity. The generated power is stepped up to 132 KV and exported to HPSEB, which is part of regional grid. The other salient features of the technology are:

Specification	Value
Installed capacity	4.5 MW
Trench weir	
Design discharge	5.175 m^3/s
Elevation	1454.8 m
Intake to desilting tank	
Design discharge	5.175 m^3/s
Length	167 m
Desilting tank to forebay	
Design discharge	4.14 m^3/s
Length	1225 m
Forebay	
Capacity of Forebay	750 m^3
Top level of Forebay	1454.34 m
Penstock	
Number	1
Length and size	234 m of 1.3 m diameter
Number of generating units	2
Turbine unit	
Number of Turbine	2
Type of turbine	Horizontal Francis turbine coupled with synchronous generator
Number of Generators	2
Rated Output	2.25MW
Overload capacity	10%
Design discharge	19.25 m^3/s
Type of generating unit	Vertical, Francis, top mounted thrust bearing

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Rated Voltage	6.6 KV ±10%
Frequency	50Hz
Generator floor level	1315.1 m
Gross head	129.4 m
Net head design	125.9 m
Voltage	22 kV
Connection to grid	
Connection point to grid	Jhakri Substation of HPSEB at a distance of 4.5 kilometers away

In the absence of the project activity the equivalent amount of electricity would have otherwise been generated by the operation of fossil fuel-based grid-connected power plants and fed into unified India grid system, hence baseline scenario of the project activity is the grid-based electricity system, which is also the pre-project scenario as discussed in the previous section.

A.3. Parties and project participants >>

Party (Host)	Participants
India	**Creduce Technologies Private Limited (Representator)** Contact person: Shailendra Singh Rao Mobile: +91 9016850742, 9601378723 Address: 2-O-13,14 Housing Board Colony, Banswara, Rajasthan - 327001, India **Ascent Hydro Projects Ltd (AHPPL) (Developer)** Street/P.O. Box -Tejpal Scheme Road 5, Vile Parle, Building - 6, Shiv Vastu, City - Mumbai, State/Region- Maharashtra, 400057

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A.4. Baseline Emissions>>

The baseline scenario identified at the PCN stage of the project activity is:

- Grid

In the absence of the project activity, the equivalent amount of electricity would have been generated by the operation of fossil fuel-based grid-connected power plants and fed into Indian grid system, which is carbon intensive due to use of fossil fuels. Hence, baseline scenario of the project activity is the grid-based electricity system, which is also the pre-project scenario.

Schematic diagram showing the baseline scenario:

Project Scenario:

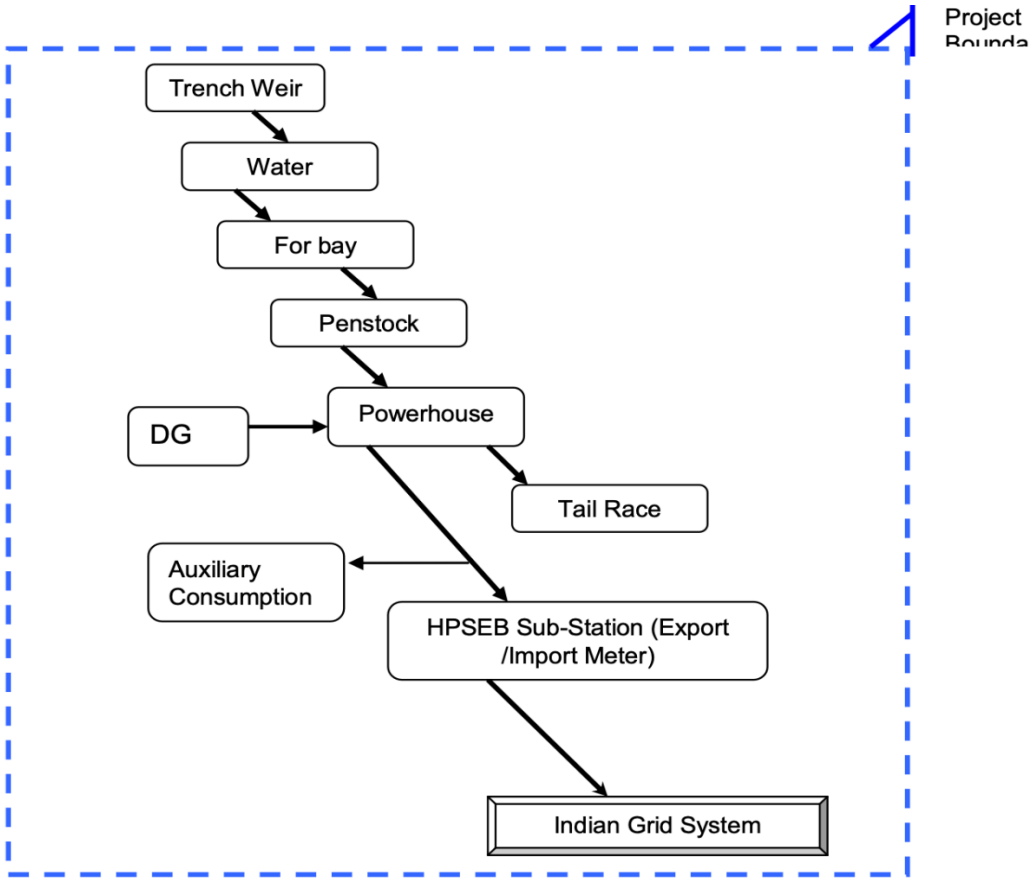

Figure -2: Project Boundary of the project activity

Baseline Scenario:

As per the approved consolidated methodology AMS-I.D. Version 18, if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

"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".

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The project activity involves setting up of a new SHEP plant to harness the green power from Hydrel energy and to supply the produced power to the Indian grid system. In the absence of the project activity, the equivalent amount of power would have been supplied by the Indian grid, which is fed mainly by fossil fuel fired plants. Hence, the baseline for the project activity is the equivalent amount of power produced at the Indian grid.

A.5. Debundling>>

This project activity is not a debundled component of a larger project activity.

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SECTION B. Application of methodologies and standardized baselines

B.1. References to methodologies and standardized baselines >>

SECTORAL SCOPE:
01, Energy industries (Renewable/Non-renewable sources)

TYPE:
I - Renewable Energy Projects

CATEGORY:
AMS. I.D. (Title: "Grid connected renewable electricity generation", version 18)

B.2. Applicability of methodologies and standardized baselines >>

The project activity involves generation of grid connected electricity from the construction and operation of a new hydro power-based power project. The project activity has installed capacity of 4.5 MW which will qualify for a small-scale project activity under Type-I of the Small-Scale methodology. The project status is corresponding to the methodology AMS-I.D., version 18 and applicability of methodology is 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; or (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.	The project activity involves setting up ofa renewable energy (hydro) generation plant that exports (sale) electricity to the fossil fuel dominated electricity grid (Indian Grid system). Thus, the project activity meets this applicability conditions.
2. Illustration of respective situations under which each of the methodology (i.e., AMS-I.D: Grid connected renewable electricity generation", AMS-I.F: Renewable electricity generation for captive use and mini-grid" and AMS-I.A: Electricity generation by the user) applies is included in Table 2	According to the point 1 of the Table 2 in the methodology – "Project supplies electricity to a national/ regional grid" is applicable under AMS I.D. As the project activity supplies the electricity to Indian Grid system grid which is a regional grid, the methodology AMS-I.D. is applicable.
3. This methodology is applicable to project activities that:	The Project activity involves the installation of new power plant at a site

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Applicability Criterion	Project Case
(a) Install a Greenfield plant; (b) Involve a capacity addition in (an) existing plant(s); (c) Involve a retrofit of (an) existing plant(s); (d) Involve a rehabilitation of (an) existing plant(s); or (e) Involve a replacement of (an) existing plant(s).	where there was no renewable energy power plant operating prior to the implementation of the project activity. Thus, Project activity is a Greenfield plant and satisfies this applicability condition (a).
4. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: (a) The project activity is implemented in existing reservoir, with no change in the volume of the reservoir; or (b) The project activity is implemented in existing reservoir, where the volume of the reservoir(s) is increased and the power density as per definitions given in the project emissions section, is greater than 4 W/m^2. (c) The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m2	As the project activity is a run-off river type hydro power plant, this criterion is not relevant for the 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 rated capacity of the project activity is 4.5 MW Hydro power project. i.e. only component is renewable power project below 15 MW, thus this criterion is not applicable to this project activity
6. Combined heat and power (co-generation) systems are not eligible under this category	This is not relevant to the project activity as the project involves only hydro power generating units.
7. In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	There is no other existing renewable energy power generation facility at the project site. Therefore, this criterion isnot applicable.
8. In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement power plant/unit shall not exceed the limit of 15 MW.	The project activity is a new installation, it does not involve any retrofit measures nor any replacement and hence is not applicable for the project activity.
9. In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used	This is not relevant to the project activity as the project involves only hydro power generating units.

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Applicability Criterion	Project Case
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 usedfor 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.	This is not relevant to the project activity as the project involves only hydro power generating units.

B.3. Applicability of double counting emission reductions >>

There is no double accounting of emission reductions in the project activity due to the following reasons:

- Project is uniquely identifiable based on its location coordinates,
- Project has dedicated commissioning certificate and connection point,
- Project is associated with energy meters which are dedicated to the generation/feeding point with the grid interface.

B.4. Project boundary, sources and greenhouse gases (GHGs)>>

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

Thus, the project boundary includes the Hydro Turbine Generators and the Indian grid system.

Source		Gas	Included?	Justification/Explanation
Baseline	Grid connected electricity generation	**CO_2**	**Yes**	**CO2 emissions from electricity generation in fossil fuel fired power plants**
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
		Other	No	No other GHG emissions were emitted from the project
Project	Greenfield Hydro Power Project Activity	CO_2	No	No CO_2 emissions are emitted from the project
		CH_4	No	Project activity does not emit CH_4
		N_2O	No	Project activity does not emit N_2O
		Other	No	No other emissions are emitted from the project

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B.5. Establishment and description of baseline scenario >>

This section provides details of emission displacement rates/coefficients/factors established by the applicable methodology selected for the project.

As per para 19 of the approved consolidated methodology AMS-I.D. Version 18, if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenariois the following:

"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 project activity involves setting up of a new hydro power plant to harness the green power from hydro energy and to use for sale to national grid i.e., India grid system through PPA arrangement. In the absence of the project activity, the equivalent amount of power would have been generated by the operation of grid-connected fossil fuel-based power plants and by the addition of new fossil fuel-based generation sources into the grid. The power produced at grid from the other conventional sources which are predominantly fossil fuel based. Hence, the baseline for the project activity is the equivalent amount of power produced at the Indian grid.

A "grid emission factor" refers to a CO_2 emission factor (tCO_2/MWh) which will be associated with each unit of electricity provided by an electricity system. The UCR recommends an emission factor of 0.9 tCO_2/MWh for the 2014-2023 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Also, for the vintage 2024, the combined margin emission factor calculated from CEA database in India results into higher emission than the default value. Hence, the same emission factor has been considered to calculate the emission reduction under conservative approach.

Net GHG Emission Reductions and Removals

Thus, $ER_y = BE_y - PE_y - LE_y$

Where:

ER_y = Emission reductions in year y (tCO_2/y)

BE_y = Baseline Emissions in year y (tCO_2/y)

PE_y = Project emissions in year y (tCO_2/y)

LE_y = Leakage emissions in year y (tCO_2/y)

Baseline Emissions

Baseline emissions include only CO_2 emissions from electricity generation in 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.

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The baseline emissions are to be calculated as follows:

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

Where:

BE_y	=	Baseline emissions in year y (tCO_2)
$EG_{PJ,y}$	=	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of this project activity in year y (MWh)
$EF_{grid,y}$	=	UCR recommended emission factor of 0.9 tCO_2/MWh has been considered, this is conservative as compared to the combined margin grid emission factor which can be derived from Database of Central Electricity Authority (CEA), India. (Reference: General Project Eligibility Criteria and Guidance, UCR Standard, page 4)

Project Emissions

As per paragraph 39 of AMS-I.D. (version 18, dated 28/11/2014), for most renewable energy project activities emission is zero.

As per applied methodology only emission associated with the fossil fuel combustion, emission from operation of DG Set, would be accounted for the project emission on actuals.

Hence, PEy=0

Leakage

As per paragraph 22 of AMS-I.D. version-18, 'If the energy generating equipment is transferred from another activity, leakage is to be considered.' In the project activity, there is no transfer of energy generating equipment and therefore the leakage from the project activity is considered as zero.

Hence, LEy= 0

The actual emission reduction achieved during the first CoU period shall be submitted as a part of first monitoring and verification. However, for the purpose of an ex-ante estimation, following calculation has been submitted:

Estimated annual baseline emission reductions (BEy)

= 16,619.06 MWh/year × 0.9 tCO_2/MWh

= 14,957 tCO_2/year (i.e., 14,957 CoUs/year)

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B.6. Prior History>>

The project activity is a small-scale hydro project, following are the key details under the prior history of the project:

a) The project activity is a small-scale hydro project which is registered under CDM with project ID 9167 titled "4.5 MW Sechi grid-connected hydroelectric project in Himachal Pradesh". The project has received CERs for one crediting period lasting from 28/12/2012 to 27/12/2019 and for second crediting period from 28/12/2019 to 31/12/2020 only. Apart from CDM; the project has not achieved any registration or issuance under any other GHG mechanism.

b) The project was not applied under any other GHG mechanism; also, for the current period of COUs, the CDM verification has also not been initiated. Hence project will not cause double accounting of carbon credits (i.e., COUs).

B.7. Changes to start date of crediting period >>

There is no change in the start date of crediting period.
The start date of crediting under UCR is considered as 01/01/2021, which is the project commissioning date and no GHG emission reduction has been claimed so far.

B.8. Permanent changes from PCN monitoring plan, applied methodology or applied standardized baseline >>

Not applicable.

B.9. Monitoring period number and duration>>

First Monitoring Period: 04 Years

01/01/2021 to 31/12/2024 (inclusive of both dates)

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B.10. Monitoring plan>>

Data and Parameters available at validation (ex-ante values):

Data / Parameter	UCR recommended emission factor
Data unit	tCO_2 /MWh
Description	A "grid emission factor" refers to a CO_2 emission factor (tCO_2/MWh) which will be associated with each unit of electricity provided by an electricity system. The UCR recommends an emission factor of 0.9 tCO_2/MWh for the 2014 - 2023 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Hence, the same emission factor has been considered to calculate the emission reduction under conservative approach.
Source of data	https://cea.nic.in/wp-content/uploads/2021/03/User_Guide_Version_20.0.pdf https://a23e347601d72166dcd6-16da518ed3035d35cf0439f1cdf449c9.ssl.cf2.rackcdn.com//Documents/UCRStandardAug2024updatedVer7_020824191534797526.pdf
Value applied	0.9
Measurement methods and procedures	-
Monitoring frequency	Ex-ante fixed parameter
Purpose of Data	For the calculation of Emission Factor of the grid
Additional Comment	The combined margin emission factor as per CEA database (current version 19, Year 2023) results into higher emission factor. Hence for 2024 vintage UCR default emission factor remains conservative.

Data and Parameters to be monitored (ex-post monitoring values):

Data / Parameter	$EG_{PJ,y}$
Data unit	MWh/year
Description	Quantity of net electricity supplied to the grid as a result of the implementation of the project activity in year y (MWh)
Source of data	Monthly Joint Meter Readings (JMRs)

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Measurement procedures (if any):	Data Type: Measured Monitoring equipment: Energy Meters are used for monitoring Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters, Summarized Annually Archiving Policy: Paper & Electronic Calibration frequency: 5 years (as per CEA provision) Generally, the calculation is done by the Authority/Discom and the project proponent has no control over the authority for the calculation. Therefore, based on the joint meter reading certificates/credit notes, the project shall raise the invoice for monthly payments. In case the monthly JMR provides net export quantity, the same will be directly considered for calculation. However, if the JMR does not directly provide "net electricity" units, then quantity of net electricity supplied to the grid shall be calculated using the parameters reflected in the JMR. Energy meter calibration details as described in **Appendix-I**
Measurement Frequency:	For example, the difference between the measured quantities of the grid export and the import will be considered as net export: $EG_{PJ,y} = EG_{Export} - EG_{Import}$ Thus, $EG_{PJ,y}$ is the net export which will be either directly sourced from the monthly generation statements (such as JMR) or to be calculated from export and import values reported.
Value applied:	Monthly
QA/QC procedures applied:	To be applied as per actual data (16,619.06 is an annualized average value has been considered here for anex-ante estimation only, whereas this is an ex-post parameter hence actual value shall be applied during monitoring and verification)
Purpose of data:	Calibration of the Main meters will be carried out once in five (5) years as per National Standards (as per the provision of CEA, India) and faulty meters will be duly replaced immediately as per the provision of power purchase agreement. Cross Checking: Quantity of net electricity supplied to the grid will be cross checked from the invoices raised by the project participant to the grid.
Any comment:	The Data/Parameter is required to calculate the baseline emission. All the data will be archived till a period of two years from the end of the crediting period.

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