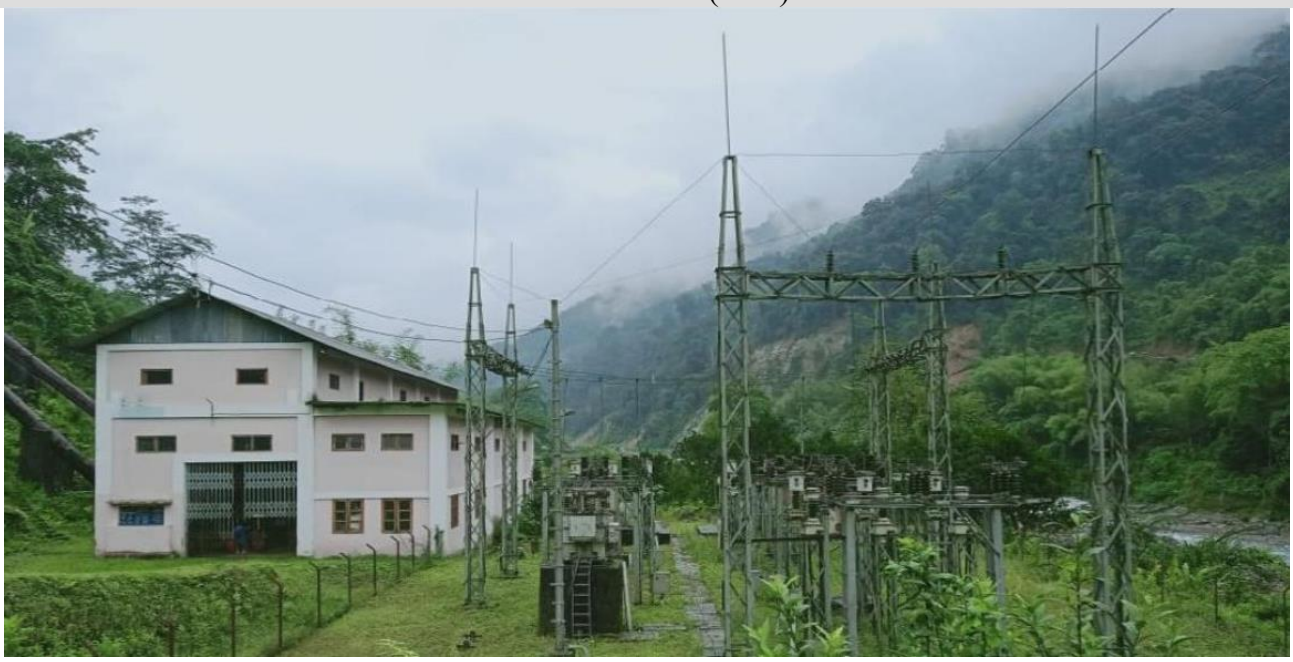
Monitoring Report

CARBON OFFSET UNIT (CoU) PROJECT



Title: 11.925 MW bundle of Small Scale Hydro Power project by Government of Arunachal Pradesh

Version 1.0

Date: 16/10/2023

Second CoU Issuance Period: 1 year

Monitoring Period: 01/01/2022 to 31/12/2022

Monitoring Report (MR)
CARBON OFFSET UNIT (CoU) PROJECT

Monitoring Report	
Title of the project activity	11.925 MW bundle of Small Scale Hydro Power project by Government of Arunachal Pradesh
UCR Project Registration Number	091
Version	1.0
Completion date of the MR	16/10/2023
Monitoring period number and duration of this monitoring period	Monitoring Period Number: 02 Duration of this monitoring Period: 1 year (first and last days included (01/01/2022 to 31/12/2022)
Project participants	Creduce Technologies Private Limited (Representator) Government of Arunachal Pradesh (Project Proponent)
Host Party	India
Applied methodologies and standardized baselines	Applied Baseline Methodology: AMS-I.D.: "Grid connected renewable electricity generation", Version 18
Sectoral scopes	01 Energy industries (Renewable/Non-Renewable Sources)
Estimated amount of GHG emission reductions for this monitoring period in the registered PCN	6,633 CoUs (6,633 tCO_2eq)

SECTION A. Description of project activity

A.1. Purpose and general description of project activity >>

The proposed project activity with title under UCR "11.925 MW bundle of Small Scale Hydro Power project by Government of Arunachal Pradesh", comprises of 16 Micro and Small Scale hydel projects in the state of Arunachal Pradesh in India. The project is an operational activity with continuous reduction of GHG, currently being applied under "Universal Carbon Registry" (UCR). These projects are run-of river projects.

a) Purpose of the project activity and the measures taken for GHG emission reductions >>

The project activity aims to harness kinetic energy of water (renewable source) to generate electricity. The net generated electricity from the project activity is delivered to the villages in the vicinity, through a mix of National and Regional transmission networks and will also supply power to different commercial customers in the region. In pre-project scenario, electricity delivered to the grid by the project activity would have otherwise been generated by the operation of fossil fuel-based grid-connected power plants and by the addition of new fossil fuel-based generation sources in the grid. Currently, NEWNE grid is connected to large numbers of fossil fuel-based power plants. Hence, project activity is displacing the gross electricity generation i.e., 7,370 MWh from the NEWNE grid. The project activity doesn't involve any GHG emission sources. The annual and the total CO_2e emission reduction by the project activity over the defined monitoring period is as per **Annexure I.**

b) Brief description of the installed technology and equipment>>

The project activity involves various technologies of hydro turbine generators with internal electrical lines connecting the project activity with local evacuation facility. The aggregated installed capacity of the bundle of power plants sums up to 11.925 MW (i.e., 11,925 kW).

The Project activity comprises of the following different civil structures, combinedly known as hydro power plant. The kinetic energy of water flowing from river is converted into mechanical energy using hydraulic turbine, which is then converted into electrical energy using generator. The water used in this process is again diverted to the river stream through proper arrangements.
Below is the description of different components of a hydro power plant.

1. **Diversion structure (trench weir):** A diversion structure is required across the Nallah for diverting its water for power generation. The Nallah bed consists of pebbles, gravels and boulders.
2. **Intake/Power Channel:** The water fed from Desilting tank is led to tunnel inlet portal through a Rectangular R.C.C channel also known as Intake or Power Channel.
3. **Desilting Tank:** A Desilting chamber is considered necessary to remove silt particles to minimize the abrasion effects on the turbine runners.
4. **Penstock:** Water from Forebay is being taken to the Powerhouse to run hydraulic turbine through pressurized penstock pipe running from Forebay tank.
5. **Power House Building:** Power house building is a simple structure housing the generating units, auxiliary equipment, control panels and suitable outlet for tail water discharge.
6. **Tail Race Channel:** Turbine discharge shall be disposed to river through the separate tailrace channel.

c) Relevant dates for the project activity (e.g., construction, commissioning, continued operation periods, etc.)>>

The duration of the crediting period corresponding to the monitoring period is covered in this monitoring report.

UCR Project ID	:	091
Start Date of Crediting Period	:	01/01/2022
The project was commissioned on	:	As per Table below

Project Name	Capacity (in kW)	C.O.Y
Silli MHS (1 x 30 kW)	30	2001-02
Echi Ahfra MHS (2 x 200 kW)	400	2005-06
Awapani Phase-II MHS (2 x 250 kW)	500	2005-06
Kopu MHS at Tuting (1 x 250 kW)	250	2007-08
Sillingiri MHS (1 x 50 kW)	50	2008-09
Ngaming MHS (1 x 50 kW)	50	2008-09
Singha MHS (1 x 30 kW)	30	2008-09
Rina MHS (2 x 1000 kW)	2000	2008-09
Mayung MHS (1 x 5 kW)	5	2009-10
Echito Nallah MHS (2 x 20 kW)	40	2010-11
Rupapani MHS (2 x 20 kW)	40	2010-11
Chu Nallah MHS (2 x 15 kW)	30	2011-12
Gossang MHS (2 x 250 kW)	500	2011-12
Awapani MHS at Gepuline (2 x 250 KW)	500	2014-15
Subbung SHS (2 x 1500 kW)	3000	2018-19
Anggong SHS (3 x 1500 kW)	4500	2020-21

d) Total GHG emission reductions achieved or net anthropogenic GHG removals by sinks achieved in this monitoring period>>

The total GHG emission reductions achieved in this monitoring period is as follows:

Summary of the Project Activity and ERs Generated for the Monitoring Period	
Start date of this Monitoring Period	01/01/2022
Carbon credits claimed up to	31/12/2022
Total ERs generated (tCO_2eq)	6,633 tCO_2eq
Leakage	0

e) 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".**

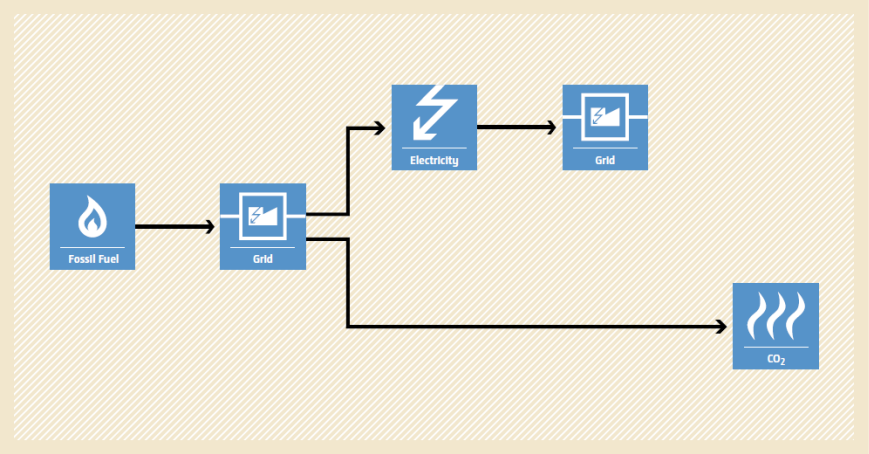


Figure 1 Baseline Scenario

A.2. Location of project activity>>

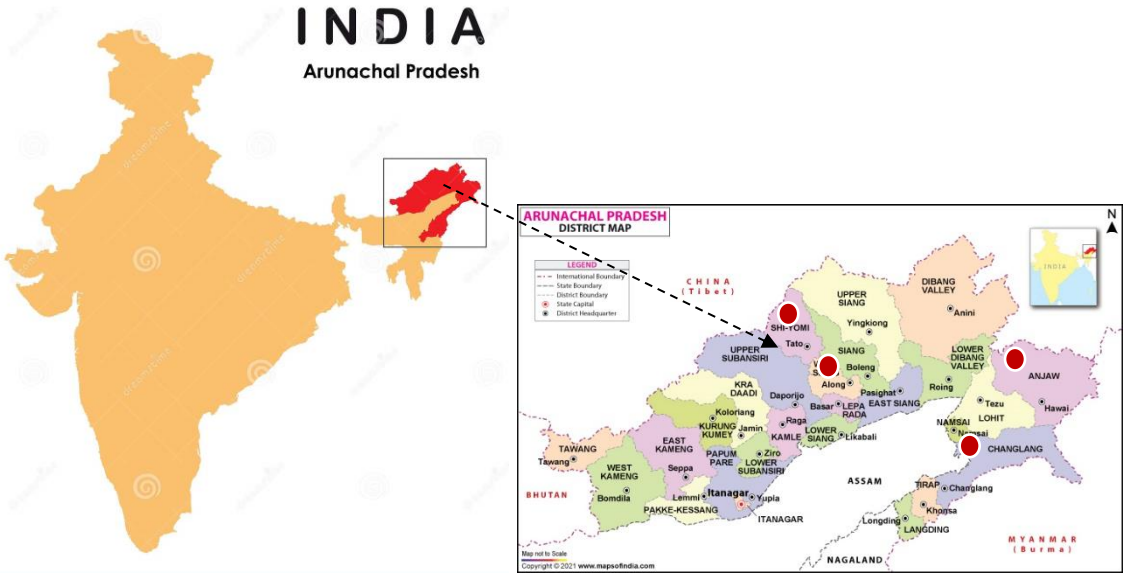
Country : India

State : Arunachal Pradesh

District : Dibang Valley, Siang, Lower Siang, Upper Siang

Below table contains location details of the projects.

Sr. No.	Project Name	Latitude and Longitude	Village	Town/City	District
1	Silli MHS (1 x 30 kW)	28°13'47.4"N, 95°13'30.3"E	Silli	Silli	Upper Siang
2	Echi Ahfra MHS (2 x 200 kW)	28°44'50"N, 95°95'74"E	Anaya	-	Dibang Valley
3	Awapani Phase-II MHS (2 x 250 kW)	28°41'76"N, 95°86'56"E	Aliney (LG)	Anini	Dibang Valley
4	Kopu MHS at Tuting (1 x 250 kW)	29°03'9.5"N, 94°54'24.2"E	Kopu	Tuting	Upper Siang
5	Sillingiri MHS (1 x 50 kW)	29° 7'13.52"N, 94°57'33.90"E	Gelling	Tuting	Upper Siang
6	Ngaming MHS (1 x 50 kW)	28°58'17.3"N, 94°56'28.2"E	Ngaming	Tuting	Upper Siang
7	Singha MHS (1 x 30 kW)	28°58'17.3"N, 94°56'28.2"E	Janbo Singha	Tuting	Upper Siang
8	Rina MHS (2 x 1000 kW)	27°59'41.9"N, 94°55'29.1"E	Rina	Koyu Circle	Lower Siang
9	Mayung MHS (1 x 5 kW)	29° 7'31.52"N, 94°58'10.26"E	Mayung	Tuting	Upper Siang
10	Echito Nallah MHS (2 x 20 kW)	28°92'49"N, 95°97'48" E	Acheso, Dambien Circle	-	Dibang Valley
11	Rupapani MHS (2 x 20 kW)	28°63'92"N, 95°93'42"E	Punli	-	Dibang Valley
12	Chu Nallah MHS (2 x 15 kW)	28°99'01"N, 95°76'06"E	Mipi	-	Dibang Valley
13	Gossang MHS (2 x 250 kW)	28°46'38"N, 94°59'49.3"E	Gossang	Moying	Upper Siang
14	Awapani MHS at Gepuline (2 x 250 KW)	28°87'32"N, 95°93'34"E	Gepuline	-	Dibang Valley
15	Subbung SHS (2 x 1500 kW)	28°27'40"N, 94°54'40"E	Supsing & Yingku	Boleng	Siang
16	Anggong SHS (3 x 1500 kW)	28°46'38"N, 94°48'29.9"E	Janbo	YingKiong	Upper Siang



Project Site

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. **Government of Arunachal Pradesh (Developer)** Address: Vidyut Bhawan, Itanagar, Arunachal Pradesh 791111, India.

A.4. References to methodologies and standardized baselines >>

SECTORAL SCOPE - 01 Energy industries (Renewable/Non-Renewable Sources)

TYPE - Renewable Energy Projects

CATEGORY - AMS-I. D: "Grid connected renewable electricity generation", Version 18

A.5. Crediting period of project activity >>

Start date : 01/01/2022
Crediting period corresponding to this monitoring period : 1 year
01/01/2014 to 31/12/2021 (Both the dates are inclusive)

A.6. Contact information of responsible persons/entities >>

Name : Shailendra Singh Rao
Contact No : +91 9016850742, +91 9601378723
E-Mail : shailendra@creduce.tech

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity >>

a) Provide information on the implementation status of the project activity during this monitoring period in accordance with UCR PCN>>

The technical details of the project activity can be found out in **Annexure-II** attached with the document.

b) For the description of the installed technology, technical process and equipment, include diagrams, where appropriate>>

The technical details of the project activity can be found out in **Annexure-II** attached with the document.

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

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 basic electricity 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 guide lines 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 implementation 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 the development of renewable infrastructure in the region.

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.

Economic well-being: Being a renewable resource, using Hydro energy to generate electricity contributes to conservation precious natural resources. The project contributes to the economic sustainability through promotion of decentralization of economic power, leading to diversification of the national energy supply, which is dominated by conventional fuel based generating units. Locally, improvement in infrastructure will provide new opportunities for industries and economic activities

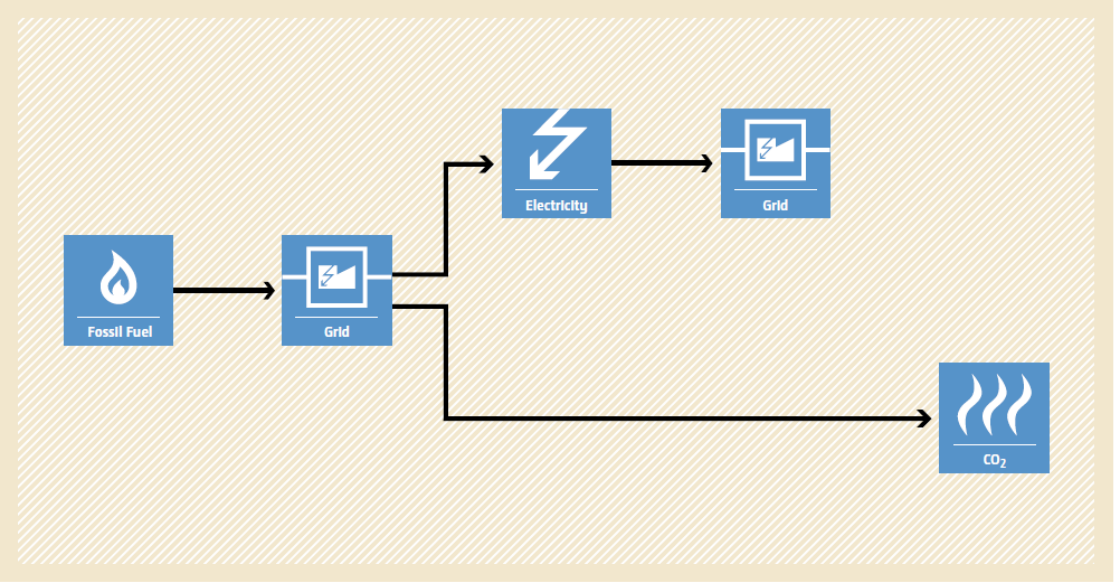
to be setup in the area. Apart from getting better employment opportunities, the local people will get better prices for their land, thereby resulting in overall economic development.

Technological well-being: The project activity leads to the promotion of Hydro Turbine Generator 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.

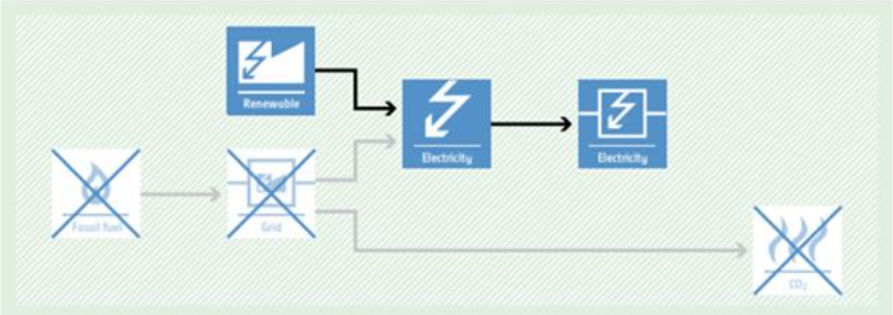
B.3. Baseline Emissions>>

In the absence of the project activity, the equivalent amount of electricity would have been imported from the regional grid (which is connected to the unified Indian Grid system (NEWNE Grid)), which is carbon intensive due to predominantly sourced from fossil fuel-based power plants.

Baseline Scenario:



Project Scenario:



Thus, this project activity was a voluntary investment which replaced equivalent amount of electricity from the Indian grid. The project proponent was not bound to incur this investment as it was not mandatory by national and sectoral policies. Thus, the continued operation of the project activity would continue to replace fossil fuel-based power plants and fight against the impacts of climate

change. The Project Proponent hopes that carbon revenues from 2022 as a result of carbon credits generated will help repay the loans and help in the continued maintenance of this project activity.

B.4. Debundling>>

This project activity is not a de-bundled component of a larger project activity.

SECTION-C: Application of methodologies and standardized baselines

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

Sectoral Scope: 01 Energy industries (Renewable/Non-Renewable Sources).

TYPE I – Renewable Energy Projects.

Applied Baseline Methodology: AMS-I.D**.** "Grid connected renewable electricity generation", Version 18.

C.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 project for selling it to National and Regional grid. The project activity has installed aggregated capacity of 11.925 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 is a Renewable Energy 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. This methodology is applicable to project activities that: (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)/unit(s); or (e) Involve a replacement of (an) existing plant(s).	The option (a) of applicability criteria 2 is applicable as project is a Greenfield plant /unit. Hence the project activity meets the given applicability criterion.

3. 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/m2. (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.	It is run of river type of project; hence, this criterion is not applicable.
4. 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 proposed project is 11.925 MW Hydro Power Projects, i.e., only component is renewable power project below 15MW, thus this criterion is not applicable to this project activity.
5. Combined heat and power (co-generation) systems are not eligible under this category.	The project is Hydro Power Project and thus, the criterion is not applicable to this project activity.
6. 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.	The proposed project is a greenfield 11.925 MW Hydro Power Projects, i.e., no capacity addition was done to any existing power plant. Thus, this criterion is not applicable to this project activity.
7. In the case of retrofit, rehabilitation or replacement, to qualify as a small-scale project, the total output of the retrofitted, rehabilitated or replacement power plant/unit shall not exceed the limit of 15 MW.	The proposed project is a greenfield 11.925 MW Hydro Power Projects, i.e., no retrofit, rehabilitation or replacement was done to any existing power plant. Thus, this criterion is not applicable to this project activity.
8. 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 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	The proposed project is a greenfield 11.925 MW hydro power projects hence, this criterion is not applicable to this project activity.

electricity" shall be explored.	
9. In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.	No biomass is involved, the project is only a Hydro Power Project and thus the criterion is not applicable to this project activity.

C.3 Applicability of double counting emission reductions >>

The project was not applied under any other GHG mechanism. Hence project will not cause double accounting of carbon credits (i.e., CoUs).

C.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."**

Thus, the project boundary includes the Hydro Turbine Generator 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

C.5. Establishment and description of baseline scenario (UCR Protocol) >>

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 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".

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 unit of electricity provided by an electricity system. For the vintage 2022, the combined margin emission factor calculated from CEA database in India results into higher emission factors. The UCR recommends an emission factor of 0.9 tCO_2/MWh for the year 2022 as a fairly conservative estimate.

Net GHG Emission Reductions and Removals

$ER_y = BE_y – PE_y – LE_y$

Where:

ER_y = Emission reductions in year y (tCO_2/y)
BE_y = Baseline emissions in year y (t CO_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.

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)

Hence,

BEy = 7,370 x 0.9 = 6,633 tCO2eq (as per ANNEXURE I (Emission Reduction Calculation))

Project Emissions

As per paragraph 39 of AMS-I.D., for most renewable energy project activities emission is zero. Since the project activity is run of river type Hydro Power Plant Installation, project emission for this plant is nil.

Hence,

PEy = 0

Leakage Emissions

As per paragraph 42 of AMS-I.D. Version-18, all projects other than Biomass projects have zero leakage.

Hence,

LEy = 0

Total Emission reduction by the project for the current monitoring period is calculated as below:

Hence,

ERy = 6,633 – 0 – 0 = 6,633 CoUs

C.6. Prior History>>

The project activity is a small-scale hydro project and was not applied under any other GHG mechanism prior to this registration with UCR. Also, project has not been applied for any other environmental crediting or certification mechanism. Hence project will not cause double accounting of carbon credits (i.e., COUs).

C.7. Monitoring period number and duration>>

First Monitoring Period : 1 year
01/01/2022 to 31/12/2022 (inclusive of both dates)

C.8. Changes to start date of crediting period >>

Crediting period start date is 01/01/2022.

C.9. Permanent changes from PCN monitoring plan, applied methodology or applied standardized baseline >>

There are no permanent changes from registered PCN monitoring plan and applied methodology.

C.10. Monitoring plan>>

The project activity essentially involves generation of electricity from water, the employed Hydro Power Plant can only convert Hydro energy into electrical energy and cannot use any other input fuel for electricity generation, thus no special ways and means are required to monitor leakage from the project activity. The recording of the electricity fed to the state utility grid is carried out jointly at the incoming feeder of the state power utility (DHPD).

Parameter	$EG_{PJ,y}$
Data unit	MWh

Description	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.
Source of data Value(s) applied	Monthly Electricity Logbook maintained at each Power Plant
Procedures	The Net electricity generation by the hydro power plant is recorded at the sub-station. At the end of every month Electricity generation report is generated based on the total monthly electricity exported to the grid or consumed by nearby local community.
Monitoring frequency	Monthly
Purpose of data	To Calculate Baseline Emission

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 unit of electricity provided by an electricity system. The UCR recommends an emission factor of 0.9 tCO_2/MWh for the year 2022 as a fairly conservative estimate Hence, the same emission factor has been considered to calculate the emission reduction under a conservative approach.
Source of data	https://a23e347601d72166dcd6-16da518ed3035d35cf0439f1cdf449c9.ssl.cf2.rackcdn.com//Documents/UCRStandardJan2022updatedVer3_180222035328721166.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 18, Year 2022) results into higher emission factor. Hence for 2022 vintage UCR default emission factor remains conservative.

ANNEXURE I (Emission Reduction Calculation)

11.925 MW bundle of Small Scale Hydro Power project by Government of Arunachal Pradesh																
Month - Wise Energy Delivered to Grid (in kWh)																
Month	Silli MHS (1 x 30 kW)	Echi Ahfra MHS (2 x 200 kW)	Awapani Ph-II MHS (2 x 250 kW)	Kopu MHS at Tuting (1 x 250 kW)	Sillingiri MHS (1 x 50 kW)	Ngaming MHS (1 x 50 kW)	Singha MHS (1 x 30 kW)	Rina MHS (2 x 1000 kW)	Mayung MHS (1 x 5 kW)	Echito Nallah MHS (2 x 20 kW)	Rupapani MHS (2 x 20 kW)	Chu Nallah MHS (2 x 15 kW)	Gossang MHS (2 x 250 kW)	Awapani MHS at Gepuline (2 x 250 kW)	Subbung SHP (2 x 1500 kW)	Anggong SHP (3 x 1500 kW)
Jan-22	2870	4890	88600	24388	14504	720	8432	26090	0	3420	4180	2980	41970	69580	0	261515
Feb-22	2250	8588	92120	38268	11872	0	8064	81090	280	3300	4050	2780	49779	79580	0	267230
Mar-22	1378	4890	92540	42246	11904	0	8432	87090	620	3250	4150	2980	42247	71200	0	246541
Apr-22	410	4890	105590	42000	10080	11040	7920	80090	600	3220	4150	2990	34386	70600	0	214530
May-22	235	4890	92320	18944	13144	12896	6696	69090	263	3230	4150	2989	0	72400	0	183600
Jun-22	1715	4895	105090	71248	14160	15360	6000	89090	0	3320	4120	3090	0	71500	0	153600
Jul-22	2200	5890	99132	59818	12400	13640	8432	65000	0	3235	4100	0	4115	70503	0	259875
Aug-22	1640	13520	108670	29560	11656	16120	8680	110000	0	3230	4150	1970	61065	72200	0	360449
Sep-22	2300	4890	106090	0	12240	12480	7920	128070	0	3750	4350	2990	41636	72600	0	296479
Oct-22	960	0	117790	0	10416	12648	6944	86000	0	3030	4350	1880	42040	87800	0	264948
Nov-22	800	4895	106090	0	13680	14160	8160	37000	0	3750	4350	2990	40846	82600	0	251075
Dec-22	960	17890	0	0	12856	8505	4650	132000	0	3030	4350	1880	46497	138030	0	239920
Total	**17718**	**80128**	**1114032**	**326472**	**148912**	**117569**	**90330**	**990610**	**1763**	**39765**	**50450**	**29519**	**404581**	**958593**	**0**	**2999762**

Year-Wise Emission reduction calculation for the project activity			
Year	Total No. of Electricity delivered in kWh	Recommended emission factor tCO2/MWh	Total CoUs generated
2022	7370204	0.9	6,633
Total CoUs to be issued for the Second monitoring period (Year: 2022)			6,633

ANNEXURE-II (Technical Specification and Commissioning Details of each unit of the projects)

Project Name	ECHI AFRA MHS		AWAPANI PH-II		ECHITO NALLAH		RUPA PANI		CHU NALLAH	
Unit No.	1	2	1	2	1	2	1	2	1	2
Capacity (in kW)	200	200	250	250	20	20	20	20	15	15
Type of Turbine	Turgo Impulse		Horizontal Francis		Cross Flow Turbine		Cross Flow Turbine		Turgo Impulse	
Date of Comission	2006		2006		2011		2011		2012	
Main Meter Serial No.	Genrator In built Panel meter		Genrator In built Panel meter		Genrator In built Panel meter		Genrator In built Panel meter		Genrator In built Panel meter	
Main Meter Make										

Project Name	AWAPANI		ANGGONG SHEP			Gossang MHS		Kopu MHS	Sillingiri MHS	Ngaming MHS
Unit No.	1	2	1	2	3	1	2	1	1	1
Capacity (in kW)	250	250	1500	1500	1500	250	250	250	50	50
Type of Turbine	Horizontal Francis		Francis Turbine			Horizontal Francis		Hor. Kaplan Tur.	Hor. Crossflow Tur.	Hor. Crossflow Tur.
Date of Comission	2015		18-01-2010			18-01-2010		2004	2008	2008
Main Meter Serial No.	Genrator In built Panel meter		ER 300P	ER 300P	ER 300P	-	-	-	-	-
Main Meter Make			L&T	L&T	L&T	Trinity	Trinity	Trinity	Ytek	Trinity

Project Name	Singha MHS	Mayung MHS	Subbung SHEP		Rina SHEP		Silli MHS
Unit No.	1	1	1	2	1	2	1
Capacity (in kW)	30	5	1500	1500	1000	1000	30
Type of Turbine	Hor. Crossflow Tur.	Hor. Crossflow Tur.	Horizontal Francis Turbine		Hydraulic Turbine		Cross-Flow Turbine
Date of Comission	2008	2011	24-12-2018		23-01-2011		11-12-2002
Main Meter Serial No.	-	-	9825130	9825131	790278		307616
Main Meter Make	Trinity	Trinity	L&T	L&T	Maxwell India		BENTEX RK