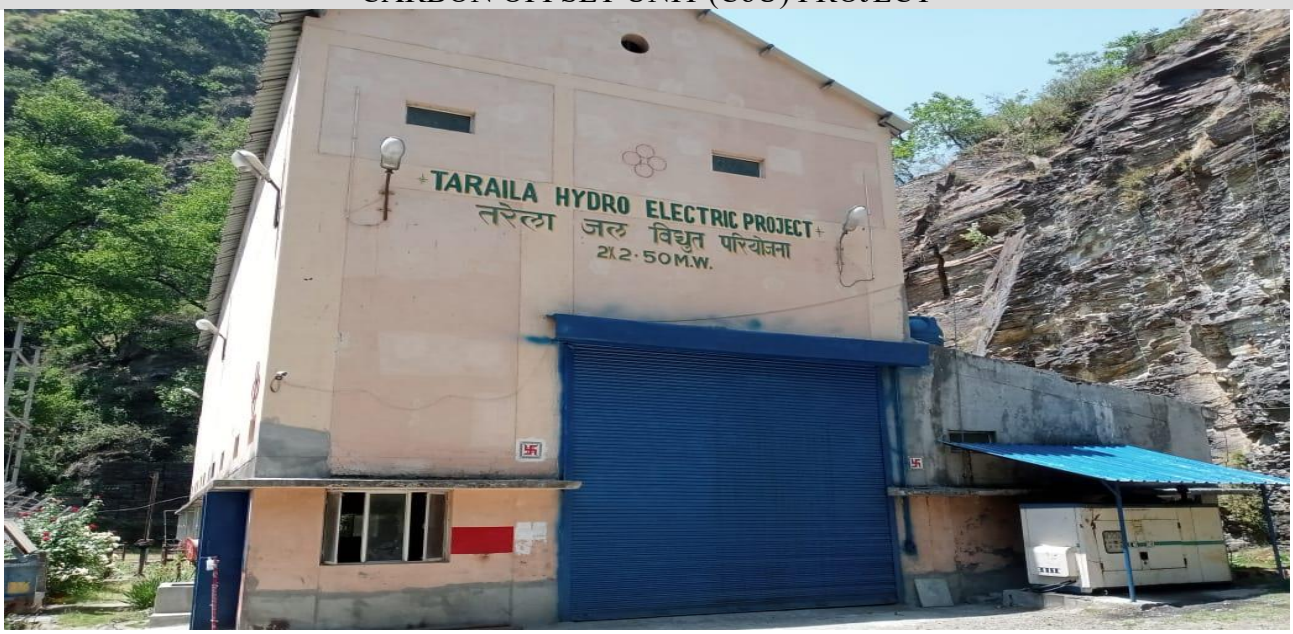
Monitoring Report

CARBON OFFSET UNIT (CoU) PROJECT



5 MW Taraila Hydro Electric Project

Title: 5 MW Small Scale Taraila HydroElectric Project by Ginni Global Ltd

Version 1.0

Date 10/05/2022

First CoU Issuance Period: 04 years 3 months

Monitoring Period: 11/10/2017 to 31/12/2021

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

Monitoring Report	
Title of the project activity	5 MW Small Scale Taraila Hydro Electric Project by Ginni Global Ltd.
UCR Project Registration Number	111
Version	1.0
Completion date of the MR	10/05/2022
Monitoring period number and duration of this monitoring period	Monitoring Period Number: 01 Duration of this monitoring Period: 04 Years and 03 Months (first and last days included (11/10/2017 to 31/12/2021)
Project participants	Creduce Technologies Private Limited (Representator) M/S Ginni Global Ltd. (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	2017: 2,578 CoUs (2,578 tCO2eq)
	2018: 29,636 CoUs (29,636 tCO2eq)
	2019: 28,610 CoUs (28,610 tCO2eq)
	2020: 31,802 CoUs (31,802 tCO2eq)
	2021: 29,953 CoUs (29,953 tCO2eq)
Total:	122,579 CoUs (122,579 tCO2eq)

SECTION A. Description of project activity

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

The proposed project activity with title under UCR "5 MW Small Scale Taraila Hydro Electric Project by Ginni Global Ltd.", is a grid connected Hydro Electric Power project located in Chamba 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). This project is a run-of river project.

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 sold to state electricity board i.e., Himachal Pradesh State Electricity Board (HPSEB) under the Power Purchase Agreement (PPA) signed between the Project Proponent (PP) and the utility. 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., 136,199 MWh from the NEWNE grid. The project activity doesn't involve any GHG emission sources. The annual and the total CO2e 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 2 numbers hydro turbine generators of Francis Horizontal type (2500 kW each) with internal electrical lines connecting the project activity with local evacuation facility.

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	:	111
Start Date of Crediting Period	:	11/10/2017
The project was commissioned on	:	15/11/2007

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	11/10/2017
Carbon credits claimed up to	31/12/2021
Total ERs generated (tCO_{2eq})	122,579 tCO2eq
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".**

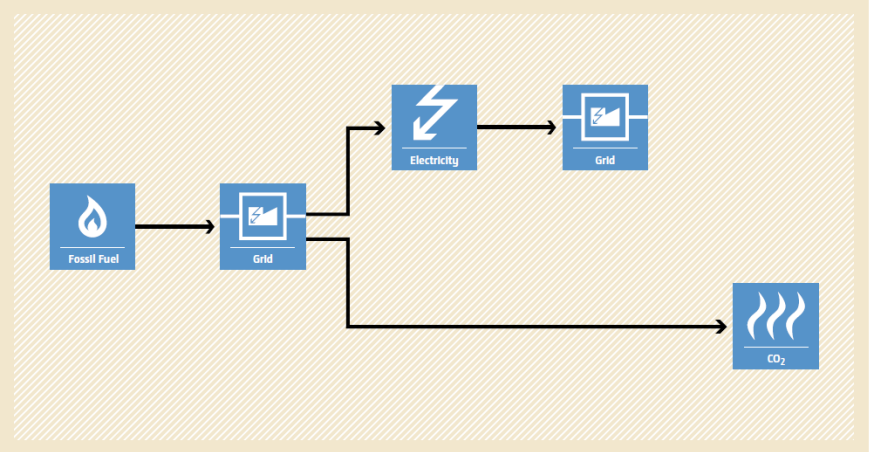


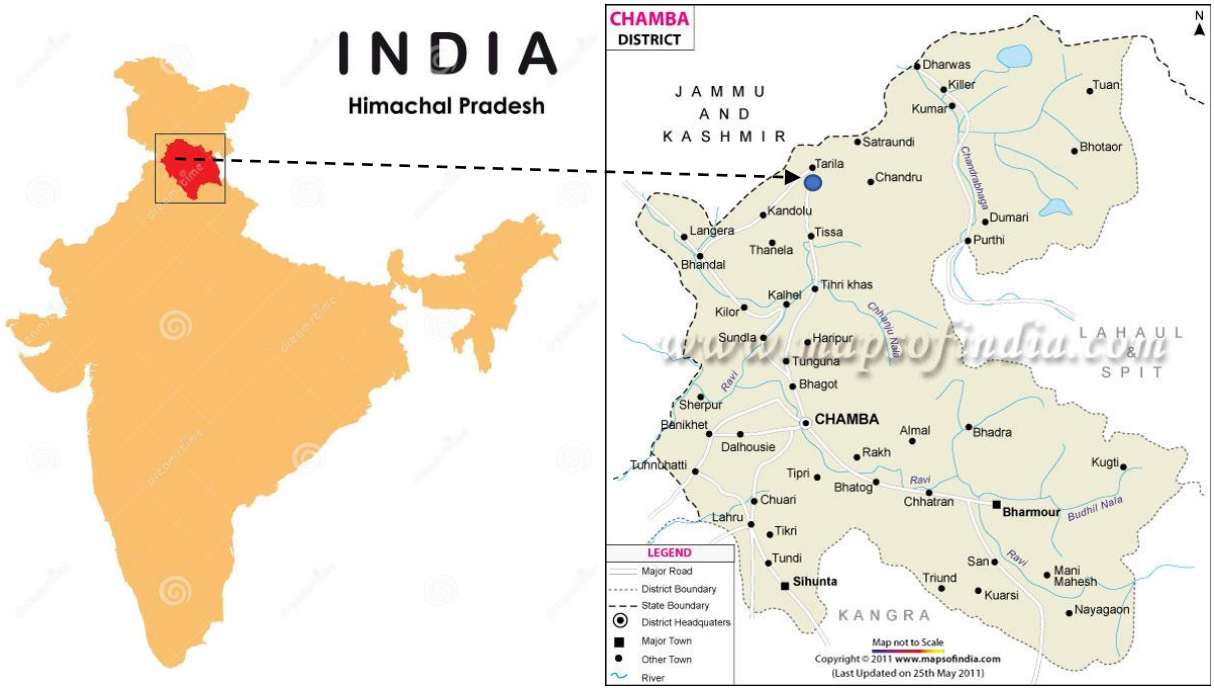
Figure 1 Baseline Scenario

A.2. Location of project activity>>

Country	:	India
State	:	Himachal Pradesh
District	:	Chamba
Village	:	Taraila

The Project is located near Taraila village about 90 kms north of Chamba on Chamba-Tisa-Bairagarh highway in Chamba District. The project area falls in middle Himalayan range. The nearest railway station is at Pathankot which is around 200 km from project site. The site is also accessible by air i.e., Kangra airport which is about 80 km from the project site. The geographic co-ordinate of the project location is 32°55'42.6"N, 76°09'14.7"E.

The representative location map is included below:



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. **M/S Ginni Global Ltd. (Developer)** Address: 2nd Floor, Shanti Chamber, 11/6B, Pusa Road, New Delhi-110005, 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 : 11/10/2017
Crediting period corresponding to this monitoring period : 04 Years and 03 Months
11/10/2017 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 project consists of two hydro turbines having aggregated installed capacity of 5000 kW which were commissioned on 15/11/2007 at Taraila village of Churha-Tehsil, District-Chamba, Himachal Pradesh. M/S Ginni Global Ltd. is the promoter of this project. The Run-of- River project generates clean energy by utilizing the kinetic energy of flowing water from Taraila nallah, a tributary of Baira nallah in district Chamba, Himachal Pradesh.

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

The project activity involves 2 numbers hydro turbine generators of Francis make (2500 kW each) with internal electrical lines connecting the project activity with local evacuation facility. The generators generate power at 3.3 kV, which can further be stepped up to 33 kV. The project activity can operate at rated frequency of 50 Hz and the voltage of 3.3 kV. The average life time of the generator is around 35 years as per the equipment supplier specification. The other salient features of the technology are:

Design Discharge	3.50 cumecs
Gross Head	176.7 m
Diversion Structure & Intake	
Type	Trench type Weir with intake structure made of RCC & stone Masonry
Design discharge	4.60 cumecs
Altitude (Above MSL in meters)	1791.25
Size of Trench weir	2.0 m (width) * depth varies from 1 m to 2.5 m)
Width of weir	20m
Water Conductor intake pipe	
Type	Steel pipe of 1400 mm dia
Length	170 m
Design Discharge	4.375 Cumecs
Velocity	1.33 m/s
Desilting Chamber	
Design Criteria	To remove the particles of size 0.2mm and above
Size	40 m x 5 m x 3.5 m
Discharge Capacity	4.375 cumecs
Flushing Arrangement	Sloping Bed, sluice valve at the bottom
Power channel	
Type	Rcc (Rectangular section)
Size	2.6 m * 1.6 m
Bed slope	1 in 800
Length	1900 m from desilting chamber to fore bay
Discharging capacity	3.50 cumecs

Forebay tank	
Type	Rectangular Rcc
Size	40 m x 6.5 m x 2.95 m
Detention time of storage	3 Min storage
Capacity	765 m^2
No of Gates	1 no of penstock intake & 1 no for sluice valve
Penstock	
Size Description	1200 mm dia bifurcated to 2 no's of 800 mm dia for a required length upto power house. Thikness of plate varies from 8mm to 12mm
Type	Fabricated from Mild Steel
Length	400 m
Design Discharge	3.50 m^3/s
Anchors and saddle support	Anchors block at vertical & horizontal bend and saddle support at every 10m spacing
Power house	
Type	Surface
Size of the power house building	25m * 10.5m * 17m
Altitude	El 1622 m.
Centre line of turbine	EI 1614 m
Installed capacity	2*2.5 MW
Power house crane E&M Equipment	20/5 T EOT
Turbine	
Type	Horizontal Francis
No & Capacity	2 * 2500 kW
Design Head	169.9 m
Speed	1000 rpm
Generators	
Type	Horizontal Synchronous, Brush less excitation system
No. & Capacity	2 * 2500 kW
Transformer	8 MVA
Tail Race	
Shape	Rectangular
Size	Two Channel Size 2m wide * 2m deep converging into one channel of 3m wide * 2m deep
Bed Slope	1 in 6 up to the crest to maintain minimum tail water level of EL.1614.10 and the rest to meet the slope of the river bed
Length	40.0 m
Power	
Installed capacity	5000kW
Gross annual Energy	27.47 MU
Transmission Lines	
Voltage	33KV
Length	25 Kms
Feeding Point into Grid	33 KV HPSEB Substation at Nakrod

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.

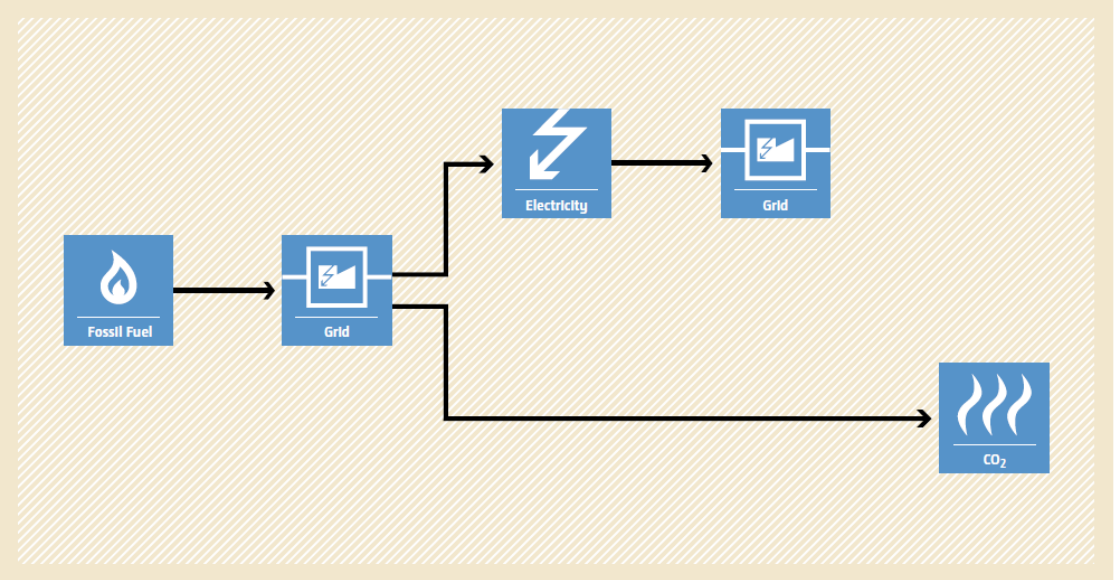
Economic well-being: Being a renewable resource, using Hydro energy to generate electricity contributes to conservation precious natural resources. The project contributes to the economic sustainability through promotion of decentralization of economic power, leading to diversification of the national 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 5 MW 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.

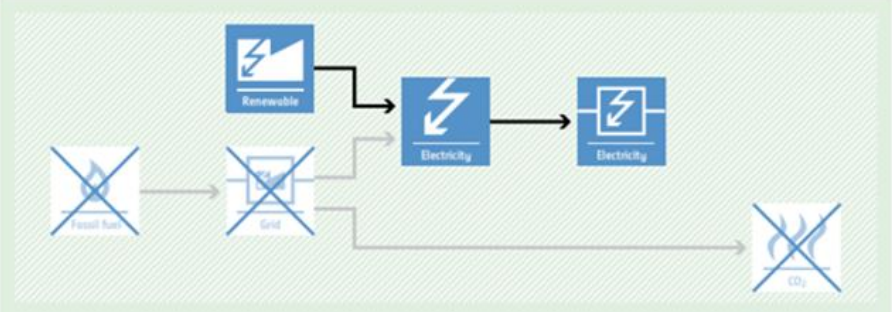
B.3. Baseline Emissions>>

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 2017-2021 accumulated 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 state electricity board i.e., Himachal Pradesh State Electricity Board (HPSEB) under the Power Purchase Agreement (PPA) signed between the Project Proponent (PP) and the utility. The project activity has installed capacity of 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 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 5 MW Taraila Hydro Electric Project, 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 Taraila Hydro Electric 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 5 MW Taraila Hydro Electric Project, 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 5 MW Taraila Hydro Electric Project, 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 5 MW Taraila Hydro Electric Project 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 Taraila Hydro Electric 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 Taraila Hydro Electric 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 sell it 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. The UCR recommends an emission factor of 0.9 tCO_2/MWh for the 2014-2020 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Also, for the vintage 2021, the combined margin emission factor calculated from CEA database in India results into same emission factors as that of the default value. Hence, the same emission factor has been considered to calculate the emission reduction.

Net GHG Emission Reductions and Removals

$ERy = BEy – PEy – LEy$

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,

BE = 136,199 x 0.9 = 122,579 tCO2eq

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,

PE = 0

Leakage Emissions

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

Hence,

LE = 0

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

Hence,

ER = 122,579 – 0 – 0 = 122,579 CoUs

C.6. Prior History>>

The project activity is already registered in CDM with Project ID: 0376, titled "Taraila Small Hydroelectric Project of Ginni Global Ltd.". The latest monitoring and issuance activity can be found on the below mentioned link:

https://cdm.unfccc.int/Projects/DB/TUEV-SUED1145360501.38/view

The last date for the crediting period is 10/10/2017 while the first monitoring period in case of UCR will be from 11/10/2017. Hence project will not cause double accounting of carbon credits (i.e., COUs).

C.7. Monitoring period number and duration>>

First Monitoring Period : 04 Years and 3 Months
11/10/2017 to 31/12/2021 (inclusive of both dates)

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

Crediting period start date is 11/10/2017.

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 (HPSEB).

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	JMR
Procedures	The Net electricity generation by the hydro power plant is recorded at the sub-station. At the end of every month Joint Meter Reading (JMR) is generated based on the total monthly electricity exported to the grid.
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 2014 - 2020 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://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 16, Year 2021) results into higher emission factor. Hence for 2021 vintage UCR default emission factor remains conservative.

ANNEXURE I (Emission Reduction Calculation)

5 MW Small Scale Taraila Small Hydroelectric Project by Ginni Global Ltd.

Month - Wise Energy Delivered to Grid (in kWh)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2017	-	-	-	-	-	-	-	-	-	11,85,199	9,37,124	7,41,900
2018	4,94,941	5,11,435	20,34,631	39,64,923	42,93,448	37,27,830	42,24,083	42,37,855	28,30,749	28,10,380	23,43,871	14,54,833
2019	10,11,959	2,12,642	22,62,511	39,47,010	42,72,322	41,74,507	38,16,393	32,55,332	34,34,238	20,39,931	17,55,480	16,06,421
2020	16,98,327	24,41,292	36,79,325	42,07,881	42,98,168	41,27,580	43,08,654	42,11,211	32,88,195	14,00,765	8,45,376	8,29,239
2021	7,59,496	11,41,950	24,89,251	38,89,111	42,69,804	41,97,483	41,72,215	43,23,331	36,05,698	21,43,120	14,43,034	8,46,929

Year-Wise Emission reduction calculation for the project activity

Year	Total No. of Electricity delivered in MWh	Recommended emission factor tCO2/MWh	Total CoUs generated
2017	2,864	0.9	2,578
2018	32,929	0.9	29,636
2019	31,789	0.9	28,610
2020	35,336	0.9	31,802
2021	33,281	0.9	29,953
Total CoUs to be issued for the first monitoring period (Year: 2018 to 2021)			1,22,579