# PROJECT CONCEPT NOTE

CARBON OFFSET UNIT (CoU) PROJECT

**Title:** 14.2 MW Wind Project in Karnataka

Version 21.0

Date 02/08/2022

First CoU Issuance Period: 8 years, 95 months

Date: 01/01/2014 to 31/09/2022

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

| BASIC INFORMATION | |
|---|---|
| Title of the project activity | 14.2 MW Wind Project in Karnataka |
| Scale of the project activity | Small Scale |
| Completion date of the PCN | 02/08/2022 |
| Project participants | M/S V.S. Lad & Sons |
| Host Party | INDIA |
| Applied methodologies and standardized baselines | AMS-1. D – Grid Connected Renewable Electricity Generation V.18.0 |
| Sectoral scopes | 01 Energy industries (Renewable/NonRenewable Sources) |
| Estimated amount of total GHG emission reductions | 25,746 CoUs (25,746 $tCO_{2eq}$) |
| | |

## SECTION A. Description of project activity

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

The proposed project activity involves construction and operation of 4 small-scale wind turbine generator project by V. S. Lad & Sons (VSL ) in different districts of the state of Karnataka in India. These sites have been identified as ideally suited for wind power generation as per the micro siting studies and data analysis based on annual wind speed and frequency distribution.

The project activity has been essentially conceived to generate clean energy by utilizing the wind energy. It causes total minimum environmental impacts and in turn will lead to 25,746 $tCO_2e$/yr reduction of greenhouse gas (GHG) emissions per year.

Total cumulative installed capacity of the project would be 14.2 MW with an annual gross energy generation of 28,608 MWh. The Small-Scale wind power projects developed by V. S. Lad & Sons, will deliver electricity to the buyer, through National transmission network.

The details of the registered project are as follows:

| Project | IPP | Capacity | Location | Annual Net Generation | Emission Reduction | Commissioned Date | PPA |
|---|---|---|---|---|---|---|---|
| 1.2 MW Wind Power Project in Davangere. | V. S. Lad & Sons | 1.2 MW | Davangere district, Karnataka | 2,417 MWh | 2,175 $tCO_2e$/yr | 31/03/2006 | MESCOM |
| 6.25 MW Wind Power Project in Gadag. | V. S. Lad & Sons | 6.25 MW | Gadag district, Karnataka | 12,592 MWh | 11,333 $tCO_2e$/yr | 10/08/2006 | HESCOM |
| 3.0 MW Wind Power Project in Chitradurg. | V. S. Lad & Sons | 3.0 MW | Chitradurg district, Karnataka | 6,044 MWh | 5,439 $tCO_2e$/yr | 28/03/2008 | BESCOM |
| 3.75 MW Wind Power Project in Bellary. | V. S. Lad & Sons | 3.75 MW | Bellary district, Karnataka | 7,555 MWh | 6,799 $tCO_2e$/yr | 30/09/2005 | MESCOM |

Proposed wind power project has evolved as a result of the policies of Government of India and Government of Karnataka, which encourages energy development form renewable sources. These policies have given fresh impetus to wind power generation.

The electricity produced by the project is directly contributing to climate change mitigation by reducing the anthropogenic emissions of greenhouse gases into the atmosphere by displacing an equivalent amount of power at grid.

Since the project activity will generate electricity through wind energy, a clean renewable energy source, it will not cause any negative impact on the environment and thereby contributes to climate change mitigation efforts.

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

There are social, environmental, economic and technological benefits which contribute to sustainable development.

Rational: As per 'Central Pollution Control Board (Ministry of Environment & Forests, Govt. of India)', final document on revised classification of Industrial Sectors under Red, Orange, Green and White Categories (07/03/2016), it has been declared that wind 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 not required for Wind Projects. There are social, environmental, economic and technological benefits which contribute to sustainable development. The key details have been discussed in the previous section

**Social benefits:**

- Social well-being is assessed by contribution by the project activity towards improvement in living standards of the local community.
- The project activity has resulted in increased job opportunities for the local population on temporary and permanent basis.
- Manpower was required both during erection and operation of the wind farms. This has resulted in poverty alleviation of the local community and development of basic infrastructure leading to improvement in living standards of the local population

**Environmental benefits:**

- The project utilizes wind energy for generating electricity which otherwise would have been generated through alternate fuel (most likely - fossil fuel) based power plants, contributing to reduction in specific emissions (emissions of pollutant/unit of energy generated) including GHG emissions.
- As wind power projects produce no end products in the form of solid waste (ash etc.), they address the problem of solid waste disposal encountered by most other sources of power.
- Being a renewable resource, using wind energy to generate electricity contributes to resource conservation. Thus, the project causes no negative impact on the surrounding environment.

**Economic benefits:**

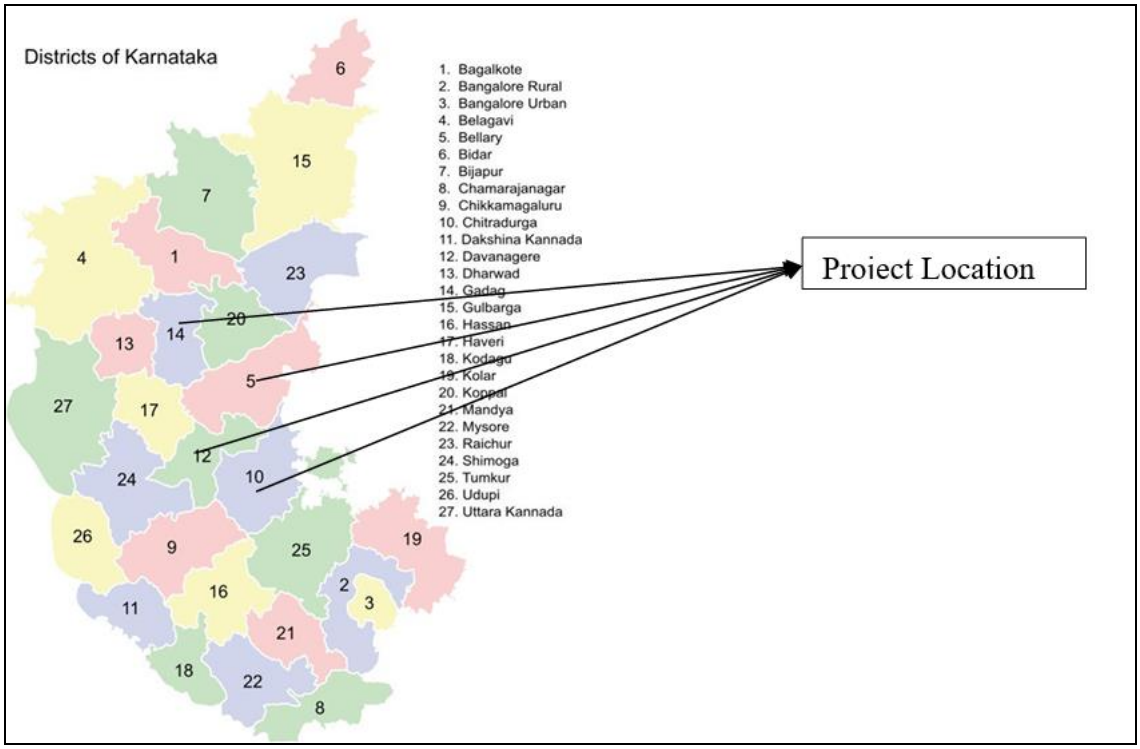
- The project activity has created direct and indirect job opportunities to the local community during installation and operation of the WEGs.
- The investment for the project activity has increased the economic activity of the local area.
- The project activity also contributes in economic well-being of the nation's economy by reducing import of fossil fuel for electricity generation in hard currency

## A.3. Location of project activity >>

The Projects are located in the state of Karnataka, India.

| | 1.2 MW | 6.25 MW | 3 MW | 3.75 MW |
|---|---|---|---|---|
| Country | India | India | India | India |
| District | Davangere | Gadag | Chitradurg | Bellary |
| Village | Kumabaluru | Kalkeri | Kolalu | Nagtibassapur & shivallinganhalli |
| Tehsil | Honnali | Mundaragi | Holalkere | Huvaina Hadagali |
| State | Karnataka | Karnataka | Karnataka | Karnataka |
| Code | 577530 | 586118 | 577533 | 583219 |

| Project | Latitude | Longitude |
|---|---|---|
| 1.2 MW Wind Power Project in Davangere. | 14° 15' 27.3" | 75° 46' 23.7" |
| | 14° 15' 21.1" | 75° 46' 23.4" |
| 6.25 MW Wind Power Project in Gadag. | 15° 08’ 48.3” | 75° 48’ 14.6” |
| | 15° 08’ 18.4” | 75° 48’ 34.0” |
| | 15° 08’ 13.7” | 75° 48’ 38.3” |
| | 15° 08’ 10.3” | 75° 48’ 43.8” |
| | 15° 08’ 04.9” | 75° 48’ 48.4” |
| 3.0 MW Wind Power Project in Chitradurg. | 14° 03’ 14.6” | 76° 26’ 18.9” |
| | 14° 03’ 00.3” | 76° 26’ 19.3” |
| 3.75 MW Wind Power Project in Bellary. | 14° 58’ 12.0” | 75° 54’ 39.3” |
| | 14° 58’ 06.6” | 75° 54’ 43.5” |
| | 14° 58’ 01.4” | 75° 54’ 47.7” |



## A.4. Technologies/measures >>

The project activity will employ state-of-art Horizontal axis wind turbines. The Wind Turbine Generators (WTGs) comprising the project activity will generate clean green power which will be exported to the grid through the receiving station of KPTCL. The project will house the metering, switchgear and other protection equipment within the wind farms.

PPAs are intended to be signed with the Distribution Company (DISCOM) for a term of 10 years, extendable by another term of 10 years if the KERC determined tariff from the eleventh year onwards is acceptable to the DISCOM. The technology provider will provide operational training for the plant personnel, along with operation and maintenance service at least for the first two years of the project activity. WTGs are manufactured as per stringent European quality standards in accordance with Indian climatic conditions. All the WTGs are three bladed active stalls regulated.

**Salient features of WTG to be used in the project activity are**:

- ISO 9001 Certificate for Design and Manufacture; ISO 9001:2000 for Installation & Commissioning and for Operation & Maintenance.
- Approved by Ministry for new and renewable energy (MNRE)
- Suitable for India's harsh climatic conditions prevailing at remote locations.
- Improved Power factor
- Improved power curve for operation under low wind conditions
- Carefully devised electrical system to withstand erratic grid connections.
- Integrated Power transmission mechanism.
- High Performance Rotor blades.
- Dual speed asynchronous generator.
- Microprocessor based fully automatic control system with user friendly operation and central monitoring system.
- Quality, Safety and Health plan for construction, installation, commissioning and Operation & Maintenance.
- Microprocessor controlled high efficiency soft start.
- Active Yaw gear drives incorporating hydraulic yaw brakes.

| Specifications | 1.2 MW | 6.25 MW | 3 MW | 3.75 MW |
|---|---|---|---|---|
| Tower / Rotor Height | 50 m | 56 m | 78.5 | 56m |
| Rotor Diameter | 47 m | 66 m | 82 m | 66m |
| Annual generation of individual WTGs as per the guaranteed generation | 2,417 MW | 12,592 MW | 6,044 MW | 7,555 MW |
| Cut-in wind speed | 4 m/s | 3 m/s | 4 m/s | 3 m/s |
| Rated wind speed | 15 m/s | 14 m/s | 12.5 m/s | 14 m/s |
| Cut-out wind speed | 25 m/s | 25 m/s | 20 m/s | 25 m/s |
| Rotor swept area | 1735.16 $m^2$ | 3421.19 $m^2$ | 5281 $m^2$ | 3421.19 $m^2$ |

| | | | | |
|---|---|---|---|---|
| Rotor material<br>Blades material | High Tensile<br>Angles | GRP | GRP | GRP |
| **Generator** | | | | |
| Rated output | 600 kW | 1250 kW | 1500 kW | 1250 kW |
| Rotational speed at rated power | 1527 rpm | 1515 rpm | 1511RPM | 1515 rpm |
| Operating voltage | 690 V | 690 V | 690 V | 690 V |
| Frequency | 50 Hz | 50 Hz | 50 Hz | 50 Hz |
| Gear ratio | 1:58.2 | 1:75.917 | 1:95.09 | 1:75.917 |

## A.5. Parties and project participants >>

| Party (Host) | Participants |
|---|---|
| India | M/S-V. S. Lad & Sons |

## A.6. Baseline Emissions>>

As per ACM0002, "The project activity is grid-connected electricity generation from renewable energy sources. There are a number of different sizes and sub-types of this project activity (Run-of-river hydro power plants; hydro power projects with existing reservoirs where the volume of the reservoir is not increased, wind, geothermal, solar sources, tidal, wave)."

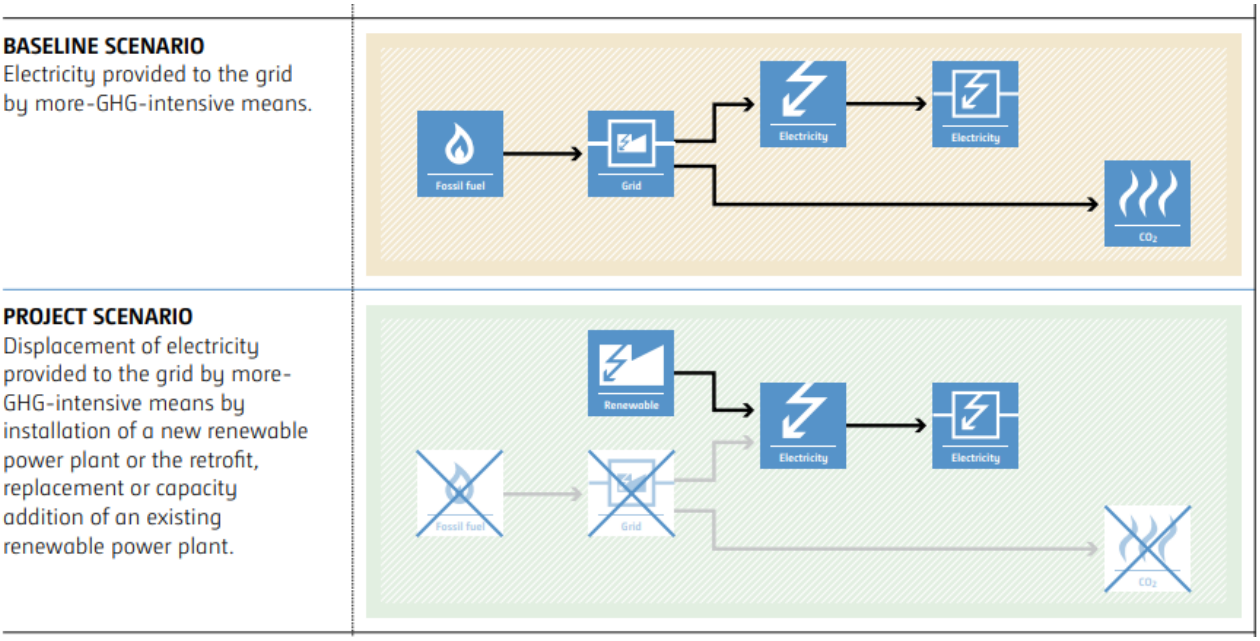
According to the description in the approved baseline methodology ACM0002, for the project activities that do not modify or retrofit an existing electricity generation facility, the baseline scenario is the following:

"Electricity delivered to the grid by the project would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculated described latter."

"Electricity delivered to the grid by the project that would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources within the regional grid, as reflected in the combined margin (CM) calculated described latter."

As prescribed in the methodology ACM0002, for the proposed project, the emission reductions will be the amount of electricity supplied to the grid multiplied by the grid emission co-efficient. Energy (electricity) generated by the wind turbines will be metered by VSL and KPTCL at the high voltage side of the step-up transformers installed at the receiving station. The energy fed in to the grid will be used to calculate the emission reductions and is measured in terms of kWh.

Estimation of the emission reductions due the project activity is equal to the amount of electricity supplied to the grid multiplied by the grid emission co-efficient.




## A.7. Debundling>>

This 14.2 MW Wind Power project in Karnataka, India is not a de-bundled component of a larger

project activity.

## 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 Renewable Energy Projects

CATEGORY- ACM0002 Consolidated methodology for grid-connected electricity generation from renewable sources Version 6

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

Among the methodologies approved by UNFCCC for grid-connected electricity generation from renewable sources based UCR project activities, ACM0002 has been chosen as the most suitable for this project activity.

This baseline methodology shall be used in conjunction with the approved monitoring methodology ACM0002 ("Consolidated monitoring methodology for grid-connected electricity generation from renewable sources")

The project activity meets the applicability conditions of ACM0002, as demonstrated below –

| Sl. No | The Methodology | Justification |
|---|---|---|
| 1 | This methodology is applicable to grid-connected renewable power generation project activities that: (a) install Greenfield power plant; (b) involve a capacity addition to (an) existing plant(s); (c) involve a retrofit of (an) existing plant(s)/unit(s); (d) involve a rehabilitation of (an) existing lant(s)/unit(s); or (e) involve a replacement of (an) existing plant(s)/unit(s) | The proposed project activity is a Green field, Indian grid connected renewable power plant.<br>Therefore, it confirms to the said criteria |
| 2 | The methodology is applicable under the following conditions: The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit | The project activity is the installation of a new grid connected renewable wind power project.<br>Thus, it meets the first applicability condition |
| 3 | In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects the existing plant/unit started commercial operation prior to the | The proposed project activity is the installation of a new wind power plants/units. Therefore, the said criteria is not applicable |

| | | |
|---|---|---|
| | start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion or retrofit or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity | |
| 4 | In case of hydro power plants, one of the following conditions shall apply:<br>(a) The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of reservoirs; or<br>(b) The project activity is implemented in an existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (3) is greater than 4 W/m2; or<br>(c) The project activity results in new single or multiple reservoirs and the power density calculate equation (3), is greater than 4 W/m2.<br>(d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density of any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/m2, all of the following conditions shall apply.<br>(i) The power density calculated using the total installed capacity of the integrated project, as per equation (4) is greater than 4W/m2;<br>(ii) Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity;<br>(iii) Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m2shall be:<br>(a) Lower than or equal to 15 MW; and<br>(b) Less than 10% of the total installed capacity of integrated hydro power project | The proposed project activity is the installation of wind power plants/units. Therefore, the said criteria is not applicable |
| 5 | In the case of integrated hydro power projects, project proponent shall:<br>(a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power | The proposed project activity is the installation of wind power plants/units. Therefore, the said criteria is not applicable |

| | | |
|---|---|---|
| | project; or (b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability indifferent seasons to optimize the water flow at the inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity. | |
| 6 | The methodology is not applicable to:<br>(a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; (b) Biomass fired power plants; | The proposed project activity is the installation of wind power plants/units. Therefore, the said criteria is not applicable |
| 7 | In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance". | The proposed project activity is the installation of wind power plants/units. Therefore, the said criteria is not applicable |

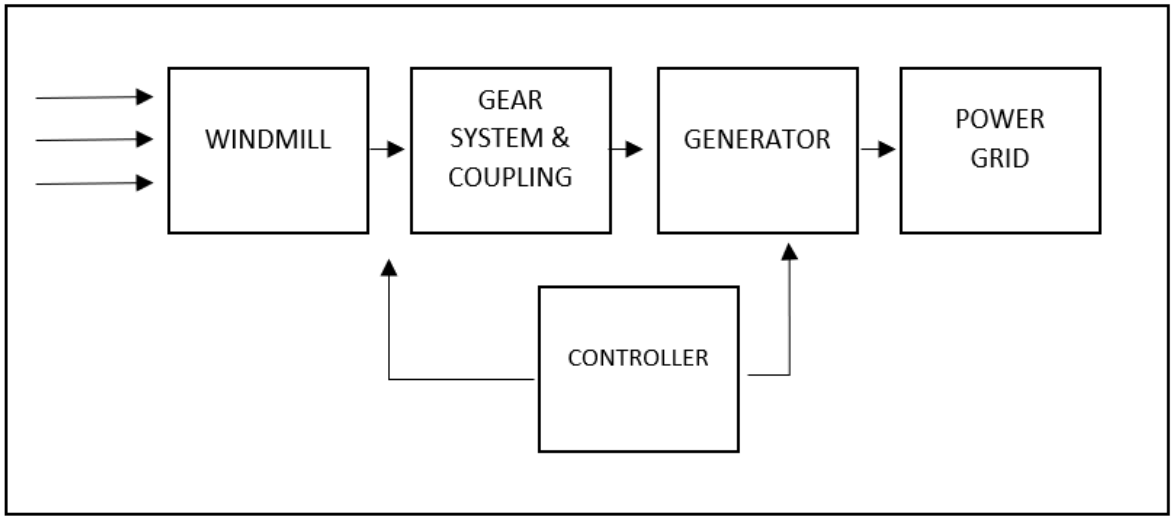
**B.3. Applicability of double counting emission reductions >>**

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 consumption point for project developer.

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

As per applicable methodology ACM0002 version 20.0, the spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the UCR project power plants are connected. Thus, the project boundary includes the Wind Turbine Generators (WTGs) and the Indian grid system.




| Scenario | Source | GHG | Included? | Justification/Explanation |
|---|---|---|---|---|
| Baseline | Electricity generation in fossil fuel fired power that is dispatched due to the project activity | CO2 | Yes | Main emission source |
| | | CH4 | No | Not identified in the baseline methodology |
| | | N2O | No | Not identified in the baseline methodology |
| Project Activity | Electricity generation in the project activity | CO2 | No | Zero-emissions grid connected electricity generation from renewable energy |
| | | CH4 | No | Zero-emissions grid connected electricity generation from renewable energy |
| | | N2O | No | Zero-emissions grid connected electricity generation from renewable energy |

**B.5. Establishment and description of baseline scenario (**UCR Standard or Methodology) >>
**Emission Reductions**

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 wind power plant to harness the green power from wind energy and to use for sale to national grid i.e., India grid. 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 2014-2020 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 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**

$$ERy = BEy – PEy – LEy$$

Where:
ERy = Emission reductions in year y ($tCO_2/y$)
BEy = Baseline Emissions in year y ($t CO_2/y$)
PEy = Project emissions in year y ($tCO_2/y$)
LEy = 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:

BEy = Baseline emissions in year y (t CO2)
$EG_{PJ,y}$ = 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. Since, all the projects are run of river project and does not involve any reservoir, the project emission is zero~~

Section C.5 in MR is updated “As per paragraph 39 of AMS-I.D. version-18, only emission associated with the fossil fuel combustion, emission from operation of geo-thermal power plants due to release of non-condensable gases, emission from water reservoir of Hydro should be accounted for the project emission. Since the project activity is a wind power project, project emission for renewable energy plant is nil.

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:

**1.2 MW Wind Power Project in Davangere**
Estimated annual baseline emission reductions (BEy)

= 2,417 MWh/year × 0.9 $tCO_2$/MWh
= 2,175 $tCO_2$/year (i.e., 2,175 CoUs/year)

**6.25 MW Wind Power Project in Gadag**
Estimated annual baseline emission reductions (Bey)

= 12,592 MWh/year x 0.9 $tCO_2$/MWh
= 11,333 $tCO_2$/year (i.e., 11,333 CoUs/year)

**3.0 MW Wind Power Project in Chitradurg**
Estimated annual baseline emission reductions (BEy)

= 6,044 MWh/year × 0.9 tCO2/MWh
= 5,439 tCO2/year (i.e., 5,439 CoUs/year)

**3.75 MW Wind Power Project in Bellary**
Estimated annual baseline emission reductions (BEy)

= 7,555 MWh/year × 0.9 tCO2/MWh
= 6,799 tCO2/year (i.e., 3,153 CoUs/year)

| **Project** | **Net Generation (MWh~~/year~~)** | **Emission Factor (tCO2/MWh)** | **Emission Reduction (tCO2~~/year~~)** |
|---|---|---|---|
| VAJRA II | 2,417 | 0.9 | 2,175 |
| VAJRA III | 12,592 | 0.9 | 11,333 |
| Hebbakvadi Mini Hydel Scheme Unit 3 | 6,044 | 0.9 | 5,439 |
| Somvathi Mini Hydel Scheme | 7,555 | 0.9 | 6,799 |
| **Total** | **28,608** | | **25,748** |

## B.6. Prior History>>

The project activity has not applied to any other GHG program for generation or issuance of carbon offsets or credits for the said crediting period.

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

There is no change in the start date of crediting period.

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

Not Applicable

## B.9. Monitoring period number and duration>>

First Issuance Period: 8 years, 9 months – 01/01/2014 to 30/09/2022

## B.8. Monitoring plan>>

As per the law applicable and implemented in practice, the delivered energy shall be metered by VSL and KPTCL at the high voltage side of the step-up transformers installed at the receiving station. The energy metering equipment shall be electronic trivector meters, which is required for the project. The energy metering equipment shall be maintained in accordance with electricity standards and have the capability of recording half hourly and monthly readings, which in turn are produced to KPTCL. The energy meters installed would be capable of recording and storing the parameters for a minimum period of 35 days with digital output. The energy meter readings at the project sites and the receiving station will be taken simultaneously and jointly by both the parties. The recorded metering data shall be downloaded through meter recording instrument.

Apart from the joint (KPTCL/DISCOM and VSL) main meter reading undertaken as per the law applicable and implemented in practice to the wind farm in the State of Karnataka, which is duly signed by the KPTCL/DISCOM representative together with a VSL representative, VSL will follow the provisions under the law applicable and implemented in practice to the wind farm in the State of Karnataka and PPA in case the primary measuring fails.

| Data/Parameter | UCR recommended emission factor |
|---|---|
| Data unit | $tCO_2$ /MWh |
| Description | A "grid emission factor" refers to a CO2 emission factor (tCO2/MWh) which will be associated with each unit of electricity provided by an electricity system. The UCR recommends an emission factor of 0.9 tCO2/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/UCRStandardNov2021updatedVer2_301121081557551620.pdf |
| Value(s) 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 |

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

| Data / Parameter: | EG BL, 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) |
| Value(s) applied: | 28,608 MWh |
| Measurement procedures (if any): | Data Type: Measured<br>Monitoring equipment: Energy Meters are used for monitoring<br>Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters, Summarized Annually<br>Archiving Policy: Paper & Electronic<br>Calibration frequency: 5 years (as per CEA provision) |
| Monitoring frequency: | Monthly |
| QA/QC procedures: | 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: | - |