SUZLON 8.40 MW WIND POWER PROJECT

Document Prepared EKI Energy Services Limited

Project Title	Suzlon 8.40 MW Wind Power Project
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Monitoring Period	01-September-2021 to 30-April-2023
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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The project activity is promoted by Kishangarh Hi-tech Textile Park Ltd. The project activity involves supply, erection, commissioning and operation of 4 Wind Turbine Generators (WTGs) of 2100 kW each and the total capacity of the project activity is 8.4 MW (2.1 X 4) at Jaisalmer Districtin Rajasthan all WTGs are supplied and manufactured by Suzlon Energy Limited. The main purpose of the project activity is to generate electrical energy through sustainable means using wind power resources, to utilize the generated output for selling it to the third party and to contribute to climate change mitigation efforts.

Pre-project Scenario:

The project participant was not involved in generation of wind based power and supplying the electricity to the Unified Indian Grid under the pre-project scenario, therefore, in the absence of the project activity the equivalent amount of electricity would have been generated from the connected / new power plants in the Unified Indian Grid, which are predominantly based on fossil fuels. The project proponent was using grid electricity for the operations of its textile park at Kishangarh under pre-project scenario; therefore, in the absence of the project activity the equivalent amount of electricity would have been used from the Unified Indian Grid.

The relevant implementation dates

The project plant was commissioned on 31-December-2010 and run satisfactorily since then. The total GHG emission reductions achieved in the current monitoring period(01-September-2021 to 30-April-2023) is 13,797 tCO_2e.

Audit Type	Period	Program	VVB Name	Number of years
Validation	-	VCS	LGAI Technological Center, S.A. (Applus+ Certification)	-
Verification	(31-December-2010 – 18-October-2012)	VCS	Re-Consult Rüzgar Enerjisi Danışmanlık İç ve Dış Tic. Ltd. Şti.	1 Year 9 Months 19 Days
Verification	(19-October-2012 – 18-October-2018)	VCS	KBS Certification Services Pvt. Ltd.	6 Years

RCP Validation and Verification	(19-October-2018 -- 31-August-2021)	VCS	LGAI Technological Center, S.A. (Applus+ Certification)	2 Years 10 Months 13 Days
Total	(31-December-2010 -- 31-August-2021)	VCS		10 Years 8 Months 1 Day

1.2 Sectoral Scope and Project Type

Sectoral Scope: 01 Energy Industries (renewable-'non-renewable)

Project Type: Type 1 Renewable Energy Projects

Project Category: AMS I. D (Version 18, EB 81)

Tool: Tool to calculate the Emission Factor for an Electricity System, Version 07.0, Annex 04, EB 100

1.3 Project Proponent

Organization name	Kishangarh Hi-tech Textile Park Ltd
Contact person	Vijay Kumar Agrawal
Title	Director
Address	Bhat Mohalla, Madanganj, Agrawal Sadan, Kishangarh, Rajasthan-305801
Telephone	0731 428 9086
Email	registry@enkingint.org

1.4 Other Entities Involved in the Project

Organization name	EKI Energy Services Limited
Role in the Project	Project Consultant
Contact person	Mr. Bibhushita Ghose
Title	Manager - Operations
Address	Plot No 48, Scheme 78, Vijay Nagar Part- II, Indore, 452010,Madhya Pradesh, India
Telephone	0731 428 9086

Email	bibhushita.ghose@enkingint.org registry@enkingint.org

1.5 Project Start Date

The project start date for this project is 31-December-2010. This is the day on which all the four machines were commissioned.

1.6 Project Crediting Period

Project Crediting Period Start date: 31-December-2020

Project Crediting Period End date: 30- December-2030

Total Crediting Period: 10 years(twice renewable)

1.7 Project Location

The project activity is located in District- Jaisalmer, State- Rajasthan in India. The details of project location are given below:

Project WTG Titled	UID	Latitude	Longitude
Kishangarh Hi - tech Textile Park Ltd.	MK 5	N 27° 10' 46.9"	E 70° 38' 12.0"
	MK 6	N 27° 10' 40.3"	E 70° 38' 29.7
	MK 7	N 27° 10' 33.7"	E 70° 38' 47.4"
	MK 8	N 27° 10' 18.2"	E 70° 39' 00.9"
Total Capacity	8.4 MW		

1.8 Title and Reference of Methodology

Title: "Grid connected Renewable Electricity Generation" – AMS-I.D, Version 18.0[1]

Reference: AMS I. D.: Small-scale Consolidated Methodology

Tool: Tool to calculate the Emission Factor for an Electricity System, Version 07.0, Annex 04, EB 100

[1] https://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTXFQQOFQQH4SBK

"Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period." Version 03.0.1[2].

1.9 Participation under other GHG Programs

This is registered in UNFCCC under Clean Development Mechanism. The reference no. for the project is 7804 and it was registered on 19-October-2012.The web link for the same is mentioned below:

https://cdm.unfccc.int/Projects/DB/LRQA%20Ltd1350651308.1/view

1.10 Other Forms of Credit and Supply Chain (Scope 3) Emissions

India is Non-annex1 country and there is no compliance with an emission trading program or to meet binding limits on GHG emissions for this project activity. The project is registered under CDM with registration ID 7804. Project Proponent has submitted undertaking that they will not claim same GHG emission reductions of the project from CDM and VCS. PP would not use net GHG emission reductions by the projects for compliance with emission trading program to meet binding limits on GHG emissions.

Emission reduction generated from the project activity will not be double counted (i.e. issuance of other form of environmental credit/certificate) for a particular crediting period. PP has submitted an undertaking that they shall not claim GHG Emission Reduction credits from another type of credit.

Also, there is no Scope 3 emission in this project activity in current monitoring period since it is a wind power project and there is no distribution of product.

1.11 Sustainable Development Contributions

Contribution to sustainable development:

Ministry of Environment, Forest and Climate Change has stipulated economic, social, environment and technological well-being as the four indicators of sustainable development. The project contributes to sustainable development using the following ways.

- **Social well-being:** The project helped in generating employment opportunities during the construction and operation phases. The project activity leads to development in infrastructure in the region like development of roads, telecommunication and also may promote business with improved power generation.
- **Economic well-being:** The project is a clean technology investment in the region, which would not have been taken place in the absence of the VCS benefits the project activity also helps to reduce the demand supply gap in the state. The project activity creates local employment generation which helps economic well-being of local people.
- **Technological well-being:** The successful operation of project activity is helping in promotion of Wind based power generation and is encouraging other entrepreneurs to participate in similar projects.

[2] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf

- **Environmental well-being:** The project activity being a renewable source of energy, it reduces the dependence on fossil fuels and conserves natural resources which are on the verge of depletion. Due to its zero emission the project activity also helps in avoiding significant amount of GHG emissions.

Table 1: Sustainable Development Contributions

Row number	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current Project Contributions	Contributions Over Project Lifetime
Sequential row number	*SDG Target number*	*Number and text of SDG indicator or, if no official SDG indicator is applicable, user-defined indicator*	*Indicate the project's contribution to the SDG Indicator (implemented activities to increase or decrease)*	*Brief description of the quantifiable impact of the project's activities related to the SDG indicator, during the monitoring period.*	*Brief description of the cumulative quantifiable impact of the project's activities related to the SDG indicator, over the project lifetime.*

This is not applicable upto 2025

2 SAFEGUARDS

2.1 No Net Harm

According to Indian regulation, the implementation of the wind park does not require an environmental impact assessment. The Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India notification[3] dated 14-September-2006 regarding the requirement of Environment Impact Assessment (EIA) studies as per the Environment Protection Rule, 1986 (Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii) MINISTRY OF ENVIRONMENT AND FORESTS) states that any project developer in India needs to file an application to the Ministry of Environment, Forest and Climate Change (including a public hearing and an EIA) in case the industry or project is listed in a predefined list. Wind parks are not included in this list and thus an EIA is not required.

2.2 Local Stakeholder Consultation

The local stakeholder meeting was carried out for the project activity and the details of the same can be referred from the registered VCS PD.

As a part of continuous feedback from stakeholders, the PP also placed a grievance register onsite where-in, the stakeholders can put down their complaint and the same if found genuine are addressed immediately. However, during the current monitoring period, no comments or feedback was received.

2.3 AFOLU-Specific Safeguards

The project activity deals with generation of electricity using wind and not from AFOLU projects. Hence not applicable.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The implementation of the project was completed on 31-December-2010. Wind power technology details – The technology employed, converts wind energy to electrical energy. In wind power generation, energy of wind is converted into mechanical energy and subsequently into electrical energy. The project activity is the installation of an environmentally safe and sound technology since there are no GHG emissions associated with the electricity generation. The technical specifications of the WTGs have been provided as below. There is no transfer of technology involved in the project activity. Technical details of WTG is shown below:

Make: Suzlon Energy Limited

[3] http://www.environmentwb.gov.in/pdf/EIA%20Notification,%202006.pdf

S.NO.	PARTICULARS	DETAILS
1	Rated power	2.1 MW
2	Cut-in wind speed	4 m/s
3	Rated wind Speed	14 m/s
4	Cut-out wind speed	25 m/s
5	Hub height	79 m (Foundation top equal to ground level)
6	Rotational Speed	15 to 17.6 rpm
7	Swept area	6082 m square
8	Type	Tubular Tower (4 sections)
9	Gear box Ratio	1:98.8
10	Rated power	2100 kW

In current monitoring period(01-September-2021 to 30-April-2023) there is no major breakdown happened which could have impact on electricity generation from this project activity.

3.2 Deviations

3.2.1 Methodology Deviations

No deviation is envisaged from the methodology for the project activity.

3.2.2 Project Description Deviations

There is no deviation envisaged for the project activity as described in the registered VCS PDD.

3.3 Grouped Projects

This is not applicable as it is not a grouped project.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	$EF_{grid,CM,y}$
Data unit	tCO_2 /MWh
Description	Combined margin CO_2 emission factor for the project electricity system.
Source of data	CEA CO_2 Baseline Database (Version-16.0,Date-March2021)
Value applied	0.9346
Justification of choice of data or description of measurement methods and procedures applied	The CO_2 Baseline Database is the most authentic data available in India since it has been prepared & published by Central Electricity Authority, Government of India. The $EF_{grid,CM,y}$ calculation is given belowas: $EF_{grid,CM,y}=0.75\times EF_{grid,OM,y}+0.25\times EF_{grid,BM,y}$

Purpose of Data	To calculate baseline emission
Comments	The calculation is done as ex ante.

Data / Parameter	$EF_{grid,OM,y}$
Data unit	tCO_2/MWh
Description	Operating margin CO_2 emission factor for the project electricity system.
Source of data	CEA CO_2 Baseline Database(Version-16.0,Date-March2021)
Value applied	0.9568
Justification of choice of data or description of measurement methods and procedures applied	The CO_2 Baseline Database is the most authentic data available in India since it has been prepared & published by Central Electricity Authority, Government of India. The $EF_{grid,CM,y}$ calculation is based on the guidelines in 'Tool to calculate the emission factor for an electricity system'(Version-07.0)
Purpose of Data	To calculate baseline emission
Comments	The calculation is done as ex ante.

Data / Parameter	$EF_{grid,BM,y}$
Data unit	tCO_2/MWh
Description	Build margin CO_2 emission factor for the project electricity system.
Source of data	CEA CO_2 Baseline Database(Version-16.0,Date-March2021)
Value applied	0.8682
Justification of choice of data or description of measurement methods and procedures applied	The CO_2 Baseline Database is the most authentic data available in India since it has been prepared & published by Central Electricity Authority, Government of India. The $EF_{grid,CM,y}$ calculation is based on the guidelines in 'Tool to calculate the emission factor for an electricity system'(Version-07.0)
Purpose of Data	To calculate baseline emission
Comments	The calculation is done as ex ante.

4.2 Data and Parameters Monitored

Data / Parameter	$EG_{PJ,facility,y}$
Data unit	MWh/year

Description	Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y
Source of data	Breakup of Net Export as per Monthly Generation Report and Joint Meter Reading authorized by R.R.V.P.N.L. The quantity of net electricity supplied to the grid (i.e. Net Export in kWh) by the project activity is taken from the break-up sheet prepared by Suzlon India Limited on the basis of monthly Joint Meter Reading (JMR) certificate certified by Rajasthan Rajya Vidyut Prasaran Nigam Limited (RRVPNL). The value for net electricity supplied to the grid is cross verified from the monthly invoice raised by the project participant.
Description of measurement methods and procedures to be applied	**Net electricity delivered to the Grid:** The net electricity delivered to the Grid by the given WTG for the given month(net export kWh) is obtained by subtracting import from export as below: $EG_{PJ,facility,y} = EG_{Export,Project,y} - EG_{Import,Project,y}$ The values of the net electricity delivered to the Grid are aggregated annually to get $EG_{PJ,facility,y}$. The value of net electricity delivered to the Grid ($EG_{PJ,facility,y}$) by the project activity per annum is converted to MWh before the calculation of emission reductions. The details on the calculation of net electricity exported to grid and the apportioning mechanism adopted are explained in detail under section 4.3.
Frequency of monitoring/recording	Continuously monitoring and monthly recording.
Value monitored	14,763.835
Monitoring equipment	Energy meters are used to measure electricity export and import value.
QA/QC procedures to be applied	The energy meter reading are taken on monthly basis. Annual Testing of all the meters is undertaken and faulty meters will be duly replaced immediately. However the meters are calibrated at-least once in 3 years. The Net Units generated is cross checked against the invoice raised by the PP towards the Discom
Purpose of the data	To calculate baseline emission.
Calculation method	The net electricity delivered to the Grid by the given WTG for the given month (net export kWh) is obtained by subtracting import from export as below: $EG_{PJ,facility,y} = EG_{Export,Project,y} - EG_{Import,Project,y}$

Comments	Data is archived in electronic form for two years after the end of crediting period or of the last issuance of VCUs for this project activity, whichever occurs later.

Data / Parameter	$EG_{Export, Project,y}$
Data unit	MWh/year
Description	Quantity of electricity exported to the grid as a result of the implementation of the CDM project activity in year y
Source of data	Monthly Generation Report and Joint Meter Reading authorized by R.R.V.P.N.L. The value for net electricity supplied to the grid is cross verified from the monthly invoice raised by the project participant.
Description of measurement methods and procedures to be applied	The details on the calculation of electricity exported to grid and the apportioning mechanism adopted are explained in detail under section 4.3.
Frequency of monitoring/recording	Continuously monitoring and monthly recording.
Value monitored	14,915.312
Monitoring equipment	Energy meters are used to measure electricity export and import value.
QA/QC procedures to be applied	The energy meter reading is taken on monthly basis. Annual Testing of all the meters *is* undertaken and faulty meters will be duly replaced immediately. However the meters are calibrated at-least once in 3 years. The Net Units generated is cross checked against the invoice raised by the PP towards the Discom
Purpose of the data	To calculate baseline emission.
Calculation method	-
Comments	Data is archived in electronic form for two years after the end of crediting period or of the last issuance of VCUs for this project activity, whichever occurs later.

Data / Parameter	$EG_{Import, Project,y}$
Data unit	MWh/year

Description	Quantity of electricity imported to the grid as a result of the implementation of the CDM project activity in year y
Source of data	Monthly Generation Report and Joint Meter Reading authorized by R.R.V.P.N.L. The value for net electricity supplied to the grid is cross verified from the monthly invoice raised by the project participant.
Description of measurement methods and procedures to be applied	The details on the calculation of electricity exported to grid and the apportioning mechanism adopted are explained in detail under section 4.3.
Frequency of monitoring/recording	Continuously monitoring and monthly recording.
Value monitored	151.477
Monitoring equipment	Energy meters are used to measure electricity export and import value.
QA/QC procedures to be applied	The energy meter reading is taken on monthly basis. Annual Testing of all the meters is undertaken and faulty meters will be duly replaced immediately. However the meters are calibrated at-least once in 3 years. The Net Units generated is cross checked against the invoice raised by the PP towards the Discom.
Purpose of the data	To calculate baseline emission.
Calculation method	-
Comments	Data is archived in electronic form for two years after the end of crediting period or of the last issuance of VCUs for this project activity, whichever occurs later.

Data / Parameter	$EG_{controller,y}$
Data unit	MWh/year
Description	Electricity generated by installed WTG of PP connected to particular feeder.
Source of data	Record of metering available at Central Monitoring Station for the project activity
Description of measurement methods and procedures to be applied	Each WTG in Wind Farm is equipped with controller meter located inside the WTG. The controller meter provides daily generation report from each WTGs. The controller meter located in each WTG is a microprocessor based intelligent controller which controls

	entire turbine operation and record energy generation with basic signal of CT and PT .The controller meter does not require calibration as it is self-calibration type. Further, controller will stop the turbine if it detects any error in measurement therefore avoids the uncertainty in the generation data.
Frequency of monitoring/recording	Continuously monitoring and recording.
Value monitored	15,241.873
Monitoring equipment	Controller meters
QA/QC procedures to be applied	The monitoring of all these wind turbines is performed from a common monitoring station as a part of central monitoring system. The system consists of a state- of- the- art monitoring station connected via optic cables to individual WTG. CMS managed by well trained staff personnel. The personal are always present on site to monitor various parameters of power generation and deal with any problems related to generation, transmission or maintenance.
Purpose of the data	-
Calculation method	-
Comments	Data is archived in electronic form for two years after the end of crediting period or of the last issuance of VCUs for this project activity, whichever occurs later.

4.3 Monitoring Plan

Monitoring of the project activity:

• The monitoring of the project activity is given as below:

• The electricity generated by the project activity WTG/s is evacuated to the pooling station at 33 kV/220 kV level. The project activity WTG/s along with other WTGs, are connected to the feeder-wise metering point/s, where each metering point consists of both main & check meters. These energy meters are having accuracy class of 0.2s.

• The joint meter reading is taken on monthly basis at these metering point/s at particular feeders by the representatives of PP & State Utility, which records parameters like export, import.

• All these metering points are further connected to the common delivery point at the 220 kV level.

• The common metering point at 220 kV GSS concurrently records total electricity (total export and total import) received from all connected metering points. The common metering point consists of both main & check meters. These energy meters are having accuracy class of 0.2s. The monthly JMR is taken by the representative of PP & State Utility.

• Billing of the energy is done based on the energy break up available at the metering at 220 kV level.

• The monitoring & measurement of electricity is done on continuous basis; while recording is done on monthly basis as Joint Meter Reading by the representatives of State Utility & PP.

• The value of monthly export by the project activity along with import and net export is recorded in the monthly Break up of net export units report.

• The values of monthly export & import by the project activity recorded in the monthly Break up of net export units report is calculated based on the apportioning method by the state utility.

• The meters are approved, tested & sealed by the State Utility. The meters are in the custody of State Utility.

• The calibration of the meters is carried out at least once in three years (as per paragraph 17 (c) of General Guidelines to SSC CDM methodologies, Version 17).

• In the absence or delay in meter calibration - appropriate guideline will be applied to confirm the conservativeness of emission reductions.

• In the absence or delay in meter calibration - appropriate guideline will be applied to confirm the conservativeness of emission reductions.

• The net electricity supplied to the grid is converted to MWh for calculation of emission reductions.

• Data is archived in electronic form for two years after the end of crediting period or of the last issuance of CERs for this project activity, whichever occurs later.

• The PP is responsible for data collection & archiving.

Sample Apportioning Procedure:

The apportioning of the electricity is the responsibility of the State Utility. The sample apportioning procedure adopted for any given WTGs in project activity for any given month is given below:

Generation Ratio at metering point (33 kV/220 kV level GSS):

The generation ratio for project activity is the ratio of electricity generated by installed WTG of PP to the total generation by all the connected WTGs to the applicable metering point

$$G_{R,y} = EG_{Controller,y}/EG_{AllController,y} \quad (a)$$

Where,

$G_{R,y}$: Generation Ratio at WTG for the project activity

$EG_{Controller,y}$: Electricity generated by installed WTGs of PP connected to particular feeder EG

$All_{Controller,y}$: Total generation by all the connected WTGs to the particular feeder. This parameter is not in the control of the PP.

Calculation of net electricity exported at applicable metering point:

The Main and Check meters at the particular feeder measure a number of parameters including export and import for all the connected WTGs.

The import, kWh by the WTG at the metering point is calculated in the following manner:

$$EG_{Import,y} = G_{R,y} \times EG_{Import\ feeder} \quad (b)$$

Where,

$EG_{Import,y}$: Import, kWh by the project WTG apportioned at metering point at particular feeder.

$G_{R,y}$: Generation Ratio at WTG for the project activity

$EG_{Import\ feeder,y}$: Total Import, kWh by all the WTGs at the metering point at particular feeder. This parameter is not within the control of the PP. The export, kWh by the WTG at the metering point is calculated in the following manner:

$$EG_{Export,y} = G_{R,y} \times EG_{Export\ feeder,y} \quad (c)$$

Where,

$EG_{Export,y}$: Export, kWh by the project WTG apportioned at metering point at particular feeder

$GR_{,y}$: Generation Ratio at WTG for the project activity

$EG_{Export\ feeder,y}$: Total Export, kWh by all the WTGs at the metering point at particular feeder. This parameter is not within the control of the PP. The net electricity exported by the WTG at the 33 kV/220 kV level metering point is calculated by subtracting equation (b) from (c).

Thus, the net electricity exported at 33 kV/220 kV level metering point:

$$= EG_{Export,y} - EG_{Import,y} \quad (d)$$

Transmission Loss Calculation:

The total transmission loss occurred during export/import of the electricity between the 33/220 kV level pooling station & 220 kV level common delivery point is calculated as per the guidelines under the Power Purchase Agreement and considered while calculating the net electricity supplied to the grid.

Calculation of net electricity delivered to the Grid ($EG_{PJ,facility,y}$):

The values of transmission loss during export & import for the given WTG are applied to getth values of Export, m Project and Import, Project respectively for the given month.

The net electricity delivered to the Grid (EG_{Bly}) by the project activity for the given month (net export kWh) is then obtained by subtracting import from export. Thus,

$$EG_{PJ,facility,y} = EG_{Export,Project,y} - EG_{Import,Project,y} \text{ (f)}$$

The quantity of net electricity supplied to the grid (Net Export in kWh) i.e. EG_{Bly} by the project activity is taken from the break-up sheet prepared by Suzlon India Limited on the basis of monthly Joint Meter Reading (JMR) certificate certified by Rajasthan Rajya Vidyut Prasaran Nigam Limited (RRVPNL) and this is used for emission reduction calculations.

Operation & Maintenance of the Project:

Suzlon Infrastructure Services Ltd. is providing O&M services to the project promoter. Following services are provided by Suzlon Infrastructure Services Ltd.:

Routine Maintenance Services: Routine maintenance labour work involves making available suitable manpower for operation and maintenance of the equipment and covers periodic preventive maintenance, cleaning and upkeep of the equipment

Security Services: This service includes watch and ward and security of the wind turbines and the equipment.

Management Services:

Data logging for power generation, grid availability, machine availability.

Preparation and submission of monthly performance report.

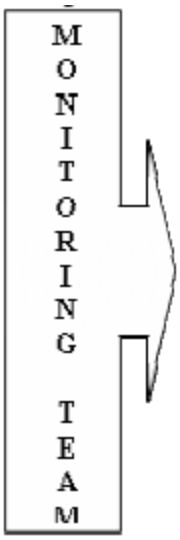
Taking monthly meter reading jointly with utility of power generated at promoter's wind turbines and supplied to grid from the meter/s maintained by utility for the purpose and coordinate to obtain necessary power credit report/ certificate.

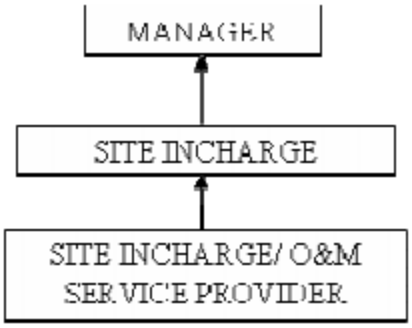
Technical Services:

Visual inspection of the WTGs and all parts thereof.

Technical assistance including checking of various technical, safety and operational parameters of the equipment, trouble shooting and relevant technical services.

Operational & Management Structure:





Designation	Responsibilities
MANAGER	Holds complete control over monitoring aspects pertaining to the project
SITEINCHARGE	• Recording • Verification • Storage of Data
SITEINCHARGE/O&MSERVICEPROVIDER	• Operation and Maintenance • Storage of data • Data Recording

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

For 2021(01-September-2021 to 31-December-2021)

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

= 1,895.896 MWh × 0.9346 tCO_2/MWh

=1,771 tCO_2e (Round Down Value)

For 2022(01-January -2022 to 31-December-2022)

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

= 10,699.816 MWh × 0.9346 tCO_2/MWh

=10,000 tCO_2e (Round Down Value)

For 2023(01-January -2023 to 30-April-2023)

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

= 2,168.123 MWh × 0.9346 tCO_2/MWh

=2,026 tCO_2e (Round Down Value)

Baseline emission in current monitoring period

= 1,771 tCO_2e + 10,000 tCO_2e + 2,026 tCO_2e

= 13,797 tCO_2e.

5.2 Project Emissions

The project activity is based on renewable wind energy, therefore, project emissions should not be considered as per methodology, $PE_y = 0$

5.3 Leakage

No other leakage emissions are considered. $LE_y = 0$.

5.4 Net GHG Emission Reductions and Removals

$ER_y = BE_y - PE_y - LE_y$

Where,
ER_y=Emission reductions in year y (t CO_{2e})

BE_y = Baseline emissions in year y (t CO_{2e})

PE_y = Project emissions in year y (t CO_{2e})

LE_y=Leakage emissions in year y (t CO_{2e})

The net GHG emission reduction for this project activity for current monitoring period is shown table below:

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
2021(01-September-2021 – 31-December-2021)	1,771	0	0	1,771

2022(01-January-2022 – 31-December-2022)	10,000	0	0	10,000
2023(01-January-2023 – 30-April-2023)	2,026	0	0	2,026
Total	**13,797**	**0**	**0**	**13,797**

The total emission reduction from this project activity in current monitoring period(01-September-2021 to 30-April-2023) is 13,797 tCO_2e. The estimated emission reduction is calculated in following way:

The annual estimated emission reduction of this project activity is 12,887 tCO_2e. The monitoring period is of 607 days, estimated emission reduction for this project activity is calculated as follows:

For 2021, the Monitoring Period vintage is from 01-September-2021 to 31-December-2021(122 days). Hence estimated emission reduction for 2021 is

= (12,887 tCO_2e /365) × 122

= 4,307 tCO_2e (Rounddown value)

For 2022, the Monitoring Period vintage is from 01-January-2022 to 31-December-2022(365 days). Hence estimated emission reduction for 2022 is

= (12,887 tCO_2e /365) × 365

= 12,887 tCO_2e (Rounddown value)

For 2023, the Monitoring Period vintage is from 01-January-2023 to 30-April-2023(120 days). Hence estimated emission reduction for 2023 is

= (12,887 tCO_2e /365) × 120

= 4,236 tCO_2e (Rounddown value)

The vintage wise summary is shown below:

Year	Number of Days	Estimated Emission Reduction (tCO_2e)	Actual Emission Reduction (tCO_2e)	% Variation between Actual and Estimated Emission Reduction	Justification for the difference
2021 (01-September-2021 – 31-December-2021)	122	4307	1771	-58.88%	Being a wind project, the electricity generation is nature dependent and

					out of control of PP.
2022(01-January-2022 – 31-December-2022)	365	12887	10000	-22.40%	Being a wind project, the electricity generation is nature dependent and out of control of PP.
2023(01-January-2023 – 30-April-2023)	120	4236	2026	-52.17%	Being a wind project, the electricity generation is nature dependent and out of control of PP.
Total	**607**	**21430**	**13797**	**-35.62%**	Being a wind project, the electricity generation is nature dependent and out of control of PP.

The summary of total Monitoring Period(01-September-2021 to 30-April-2023) is shown below:

Ex-ante emissions reductions /removals	Achieved emissions reductions /removals	Percent difference	Justification for the difference
21, 430 tCO_2e	13,797 tCO_2e.	-35.62%	The generation in wind power plant is dependent on weather conditions which is out of control of Project Participant. So, this variation is justified.

APPENDIX I: < METER CALIBRATION DETAILS >

Meter No.	Type of Meter	Make	Accuracy Class	Phase	Calibration Date	Validity of Calibration	Delay in Calibration
13195548	Main Meter	L&T	0.2s	SEL-73	23-January-2020	22-January-2023	No Delay
RJB81784[4]	Main Meter	Secure	0.2s	SEL-73	21-January-2022	20-January-2025	No Delay
13195549	Back Up Meter	L&T	0.2s	SEL-73	23-January-2020	22-January-2023	No Delay
RJB81785[5]	Back up Meter	Secure	0.2s	SEL-73	21-January-2022	20-January-2025	No Delay
RJB90206	Main Meter	Secure	0.2s	SEL-112 (2nd Line)	23-January-2020, 21-January-2022	22-January-2023, 20-January-2025	No delay.
RJB90207	Back up Meter	Secure	0.2s	SEL-112 (2nd Line)	23-January-2020, 21-January-2022	22-January-2023, 20-January-2025	No delay.

[4] Meter Number 13195548 was replaced by new meter RJB81784 on 25-January-2021.

[5] Meter Number 13195549 was replaced by new meter RJB81785 on 25-January-2021.

APPENDIX II: < BREAKDOWN DETAILS >

Date	Location	Breakdown Hours
01-September-2021	MK008	19.7
06-October-2021	MK006	21.2
22-January-2022	MK007	192[6]
02-April-2022	MK008	24
09-January-2023	MK007	24
29-March-2023	MK008	21.1

[6] From 22-January-2022 to 29-January-2022, MK007 was shut down due to maintenance work.