



Monitoring report form for CDM project activity
(Version 08.0)

MONITORING REPORT

Title of the project activity	8.40MW Bundled Wind Power Project in Rajasthan by Friends Salt Works & Allied Ind. & Gautam Freight Pvt. Ltd.		
UNFCCC reference number of the project activity	9868 ¹		
Version number of the PDD applicable to this monitoring report	3.2		
Version number of this monitoring report	01		
Completion date of this monitoring report	24/09/2021		
Monitoring period number	01		
Duration of this monitoring period	17/01/2014 - 31/12/2020 (First and last dates included)		
Monitoring report number for this monitoring period	NA		
Project participants	M/s Friends Salt Works & Allied Industries		
Host Party	India		
Applied methodologies and standardized baselines	Applied Methodology: AMS I.D (grid connected renewable electricity generation), Version 17 (EB61) ² Standardized baselines : Not Applicable		
Sectoral scopes	Sectoral Scope: 01, Energy industries (renewable - / non-renewable sources)		
Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period	Amount achieved before 1 January 2013	Amount achieved from 1 January 2013 until 31 December 2020	Amount achieved from 1 January 2021
	Not Applicable	100,468 tCO ₂ e	Not Applicable
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD	100,888 tCO ₂ e		

¹ <https://cdm.unfccc.int/Projects/DB/LRQA%20Ltd1389958809.37/view>

² <https://cdm.unfccc.int/UserManagement/FileStorage/V9LRSXKP24Q7YT6HZDUBO3C0ING8AJ>

SECTION A. Description of project activity

A.1. General description of project activity

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The project activity is a bundled wind power project, implemented by M/s Friends Salt & Allied Industries and M/s Gautam Freight Pvt. Ltd. in Jodhpur district of the state of Rajasthan, India. The project would generate electricity from renewable resource like wind using wind power generation technology on a commercial basis and deliver the electricity to the Northern Regional Grid, which is a part of the Integrated Grid i.e. NEWNE Grid of India.

The project activity is the installation and operation of three numbers of Wind Energy Generators (WEGs) of 2.1 MW each by M/s Friends Salt & Allied Industries and one number of WEGs of 2.1 MW each by M/s Gautam Freight Pvt. Ltd. with a total capacity of 8.4 MW.

Purpose of the Project activity:

The purpose of the project activity is to generate electricity using wind energy and to supply the net electricity generated to the NEWNE grid. This would reduce the dependency on fossil fuels for electricity generation and reduce the Green House Gas (GHG) emissions that would have happened in a baseline scenario.

A.2. Location of project activity

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Host Party : India
Region/state/province : Region: Northern India/ State: Rajasthan/ District: Jodhpur
City/town/community : Taluka: Shergarh/ Villages: Kui inda & Khirja Fatehsingh

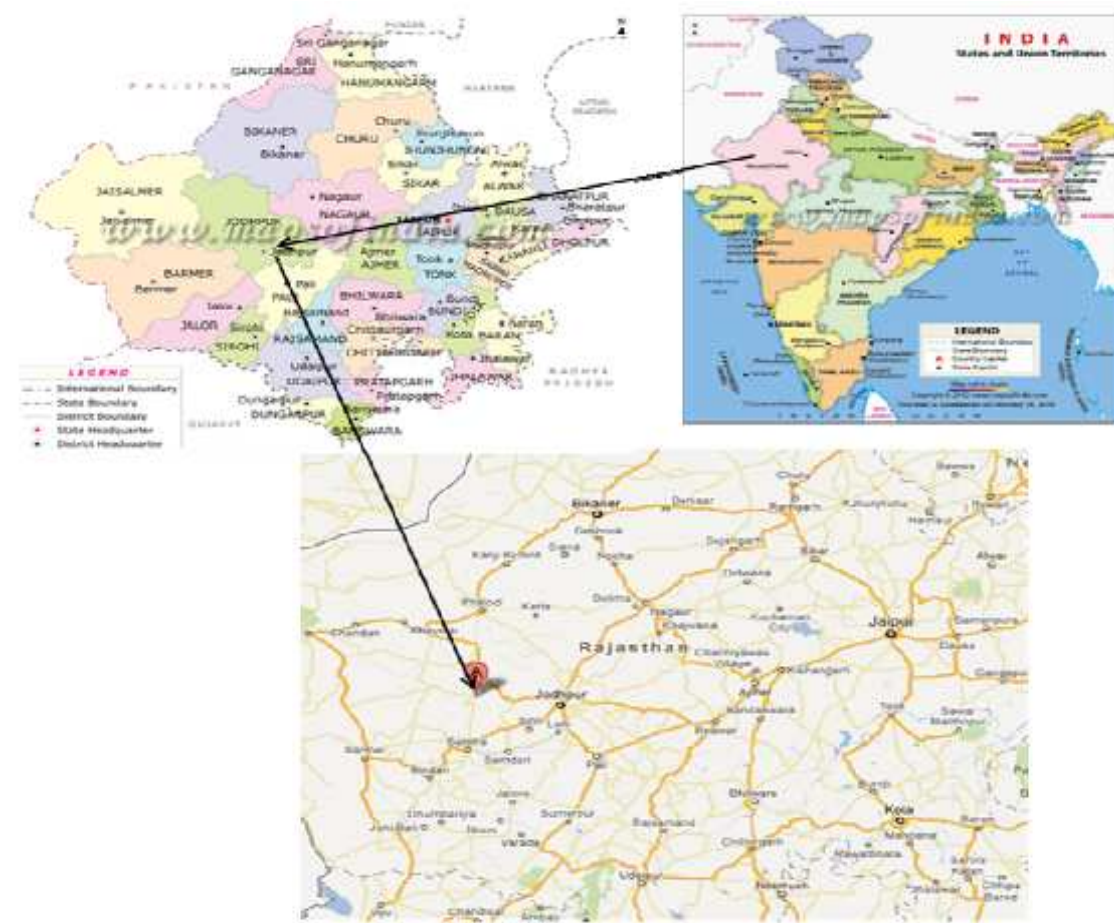
The project activity is located at Kui inda & Khirja Fatehsingh villages, Shergarh taluka of Jodhpur District of Rajasthan, India. The nearest railway station and airport from the project site are located at Jodhpur. The details of the location have been provided below:

Friends Salt Works & Allied Industries

Location No.	Latitude	Longitude	Village
RS 01	N 26° 26' 19.4"	E 72° 29' 16.5"	Kui inda
RS 02	N 26° 26' 07.7"	E 72° 29' 39.5"	Kui inda
RS 03	N 26° 25' 59.1"	E 72° 29' 50.4"	Kui inda

Gautam Freight Pvt. Ltd.

Location No.	Latitude	Longitude	Village
BSR 12	N 26° 24' 41.5"	E 72° 26' 03.8"	Khirja Fatehsingh



A.3. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
India (Host Party)	M/s Friends Salt Works & Allied Industries (Private Entity)	No

A.4. References to applied methodologies and standardized baselines

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Methodology: AMS I. D (Version 17)

Type I: Renewable Energy Project (Small Scale)

Category: "D", Grid-connected Renewable Electricity Generation

Other tools used in the project activity are:

Tool: Tool to calculate the emissions factor of an electricity system³ **Version:** 04

A.5. Crediting period type and duration

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Type of crediting period : Fixed Crediting Period

Crediting period : 17/01/2014 - 16/01/2024

³ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v4.0.pdf>

SECTION B. Implementation of project activity

B.1. Description of implemented project activity

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Technology/Measure:

The project activity comprises of S-97 & S-95 model WTG of Suzlon make. M/s Friends Salt & Allied Industries has installed 3 x 2.1MW WTGs of S-97 model; while M/s Gautam Freight Pvt. Ltd. has installed 1 x 2.1MW WTG of S-95 model. The technology used is well known in the wind power industry and have proven themselves. Generation of power is through the rotation of the WTG blades due to the wind power and no other fossil fuel is used. Therefore, the technology of electricity generation from wind power is environment friendly. Suzlon manufacturing facility for WTG and generator is located in India. The WTG thus manufactured by Suzlon has a technical lifetime of 20 years and there is no technology transfer from other country or other sources.

Technical Specification of Suzlon make S-95 & S-97 WTG:

Description	Information	
	S-95	S-97
Rotor Diameter	95.0 m	97
Estimated service life	20 years	20 years
Annual average wind speed	8.5 m/s	8.46 m/s
Automatic stop limit	25 m/s	20 m/s
Rated power	2.1 MW	2.1 MW
Rotor speed	12.1 to 17.6 rpm	11.8 to 17.2 rpm
Power regulation	Active pitch regulated	Active pitch regulated
Rated wind speed	11 m/s	11 m/s
Cut in wind speed	4.0 m/s	4.0 m/s
Cut out wind speed	25 m/s	20 m/s
Restart wind speed	23 m/s	18 m/s
Generator Type	Asynchronous 3-phase induction generator	Asynchronous 3-phase induction generator
Generator – Rated power	2.1 MW	2.1 MW
Generator – Voltage stator (phase to phase)	690 V	690 V
Generator – Frequency	50 Hz	50 Hz
Generator – Operation speed range	1200 to 1800 rpm	1200 to 1800 rpm
Hub type	Cast spherical hub	Cast spherical hub

Relevant dates for the project activity:

WTG ID No.	Name of Companies	Commissioning Date
RS 01, RS 02, RS 03	Friend Salt Works & Allied Industries	31/07/2012
BSR 12	Gautam Freight Private Limied	30/03/2012

The project has been under operation since commissioning, without any major breakdowns. The WTGs are running smoothly since commissioning with scheduled maintenance. No events or situations happened expect the normal breakdowns for the reported monitoring period that can alter the applicability of the applied methodology.

B.2. Post-registration changes**B.2.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents**

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There are no temporary deviations from the registered monitoring plan, the applied methodologies, the applied standardized baselines or the other applied methodological regulatory documents during this monitoring period. Hence, Not Applicable

B.2.2. Corrections

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There are no corrections to project information or parameters fixed at the registration or renewal of crediting period of the project activity. Hence, Not Applicable

B.2.3. Changes to the start date of the crediting period

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There is no request for the change the start of the crediting period. Hence, Not Applicable

B.2.4. Inclusion of monitoring plan

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There are no post-registration changes to include a monitoring plan into the PDD. Hence, Not Applicable

B.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

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There are no permanent changes to the registered monitoring plan, or permanent deviation of monitoring from applied methodologies, applied standardized baseline, or other methodological regulatory documents. Hence, Not Applicable.

B.2.6. Changes to project design

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There are no any changes to the project design of the project activity. Hence, Not Applicable.

B.2.7. Changes specific to afforestation or reforestation project activity

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As the project activity is not an afforestation or reforestation project activity. Hence, Not Applicable.

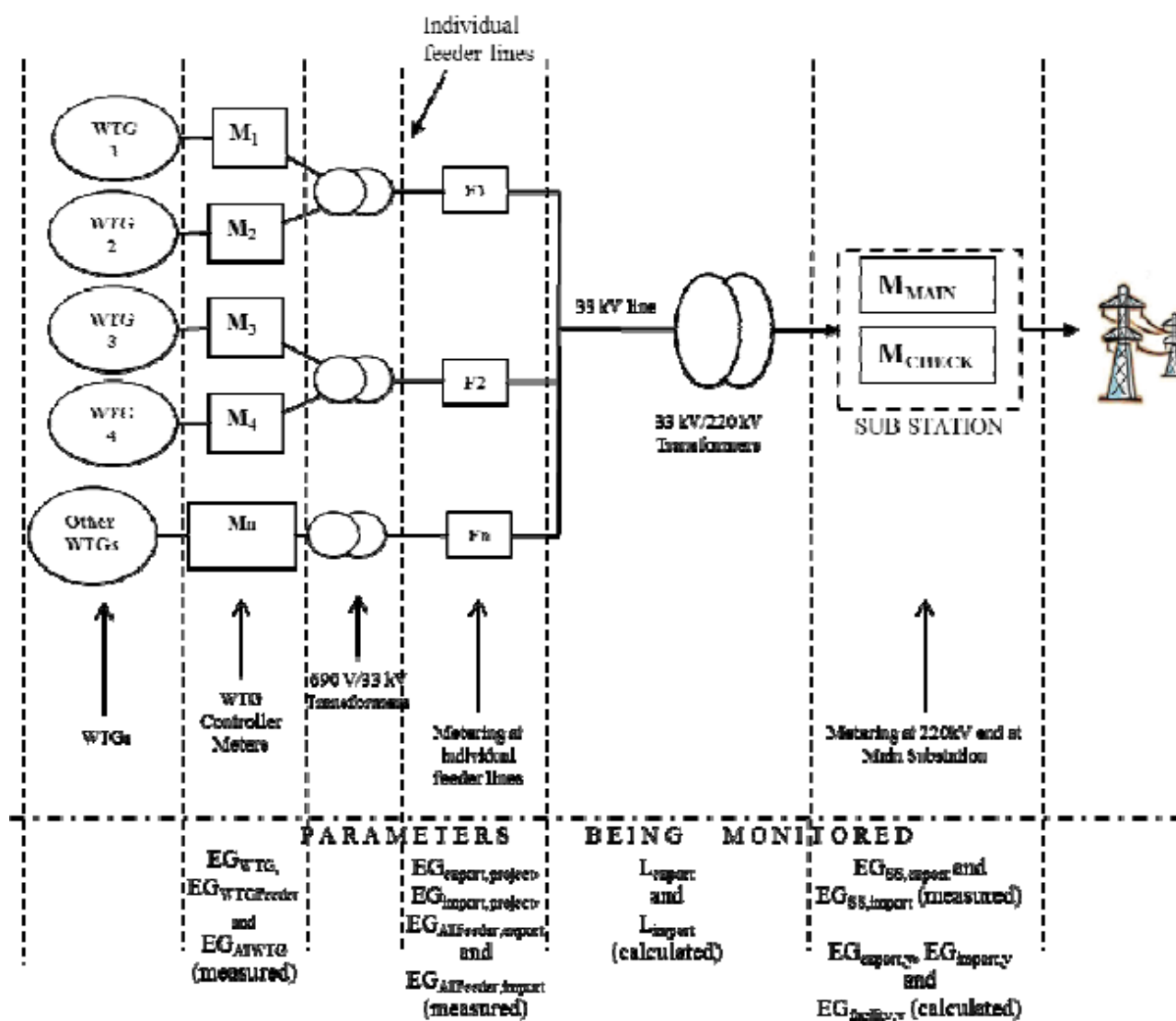
SECTION C. Description of monitoring system

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The apportioning of electricity generated and consumed from the various wind turbines is done by the State Electricity Utility in coordination with the O&M service provider, based on the power generation and consumption from the individual wind turbines connected to the substation. The generation break-up sheet contains details of power exported/imported to/from the grid by the wind turbines connected for each PP. This apportioned value is then used by the project proponent to raise invoice from State Electricity Utility.

For the purpose of transparency, the apportioning methodology for arriving at the net electricity exported to the grid is provided below. However, the Joint Meter Reading taken at the delivery point on monthly basis & the report of Break - up of Net Export units (kWh) is approved by the State Utility, based on which the sales invoice is raised to the respective Distribution Company (DISCOM). This generation break sheet would be used for emission reduction calculations which can be then cross checked with the invoice raised by the PP for sale of electricity.

The schematic diagram of the monitoring arrangements for the project activity is as below:



Metering System	
M1, M2, M3, M4, M5, Mn	Controller panels at the individual WTGs
F1, F2, Fn	Meters located at individual feeder lines
M_{MAIN}	Main Meter located at Substation (Main Meter)
M_{CHECK}	Check Meter located at Substation (Check Meter)

$EG_{\text{facility},y}$ is calculated as the difference between $EG_{\text{export},y}$ and $EG_{\text{import},y}$

Where:

EG_{Export} = Electricity exported by the project activity (kWh)

$$EG_{\text{Import}} = \text{Electricity Imported from the grid (kWh)}$$

EG_{Export} is calculated from measured values as below:

$$EG_{\text{export}} = \left[\frac{EG_{\text{WTG}}}{EG_{\text{WTG, Feeder}}} \times EG_{\text{export, project}} \right] - \left[\frac{EG_{\text{WTG}}}{EG_{\text{ALL WTG}}} \times (EG_{\text{AllFeeder, export}} - EG_{\text{SS, export}}) \right]$$

Where,

EG_{WTG} electricity generation recorded at project WTG controller

EG_{WTG, Feeder} electricity generation at controller for all WTGs connected to particular feeder lines connected with the project WTGs

$EG_{\text{export,project}}$	electricity export recorded at the meter located at particular feeder lines connected with the project WTGs
EG_{ALLWTG}	is the electricity generation at controller for all WTGs connected to the substation.
$EG_{\text{SS,export}}$	is the electricity export recorded at the Substation Meter.

Similarly, EG_{import} is calculated as below:

$$EG_{\text{import}} = \left[\frac{EG_{\text{WTG}}}{EG_{\text{WTG,Feeder}}} \times EG_{\text{import,project}} \right] - \left[\frac{EG_{\text{WTG}}}{EG_{\text{ALLWTG}}} \times (EG_{\text{AllFeeder,import}} - EG_{\text{SS,import}}) \right]$$

Where,

EG_{WTG}	is the electricity generation recorded at WTG controller
$EG_{\text{WTG,Feeder}}$	is the electricity generation at controller for all WTGs connected to particular feeder lines connected with the project WTGs.
$EG_{\text{import,project}}$	is the electricity import recorded at the meter located at particular feeder lines connected with the project WTGs.
EG_{ALLWTG}	is the electricity generation at controller for all WTGs connected to the substation.
$EG_{\text{AllFeeder,import}}$	is the electricity import recorded at meter located on all feeder lines connected to the substation.
$EG_{\text{SS,import}}$	is the electricity import recorded at the Substation Meter

Of the above data/parameters, the PP would have access to the below parameters:

EG_{WTG} : Electricity generation recorded at project WTG controller, as the data is made available by the O&M agency on daily basis.

$EG_{\text{facility,y}}$: Quantity of net electricity generation supplied by the project activity to the grid in year y. The data is calculated based on joint meter readings of the electricity meters at substation, feeder and the WTG controller. The value for $EG_{\text{facility,y}}$ would be taken from the credit notes/JMR made available by the Distribution licensee.

$EG_{\text{export,y}}$: The quantity of electricity exported by the project to the grid in year y. The data is calculated based on joint meter readings of the electricity meters at substation, feeder and the WTG controller. The value for $EG_{\text{export,y}}$ would be taken from the credit notes/JMR made available by the Distribution licensee. $EG_{\text{import,y}}$: The quantity of electricity imported by the project to the grid in year y. The data is calculated based on joint meter readings of the electricity meters at substation, feeder and the WTG controller. The value for $EG_{\text{import,y}}$ would be taken from the credit notes/JMR made available by the Distribution licensee.

The parameter $EG_{\text{facility,y}}$ can be cross checked from the invoices raised by the PP for sale of electricity.

The remaining parameters, $EG_{\text{WTG,Feeder}}$, EG_{ALLWTG} , $EG_{\text{AllFeeder,export}}$, $EG_{\text{AllFeeder,import}}$, $EG_{\text{SS,export}}$, $EG_{\text{SS,import}}$, $EG_{\text{export,project}}$ and $EG_{\text{import,project}}$ are not available with the PP and hence not listed.

$EG_{\text{WTG,Feeder}}$: This parameter includes all the WTGs connected to particular feeder line connected with the project WTGs. As the parameter also includes data related to non project WTGs, the data is not available with the PP. The parameter would be monitored using controller meters as in case of parameter EG_{WTG} .

$EG_{\text{ALL,WTG}}$: This parameter includes all the WTGs connected to the substation. As the parameter also includes data related to non project WTGs, the data is not available with the PP. The parameter would be monitored using controller meters as in case of parameter EG_{WTG} .

EG_{AllFeeder,export}: This parameter is measured continuously using energy meters located at each of the feeder line. The joint meter reading would be conducted once every month in presence of representative of State Utility and O&M supplier. As the parameter also includes data related to non project WTGs, the data is not available with the PP. The parameter would be monitored using energy meters of accuracy class 0.2s, calibrated once every five years.

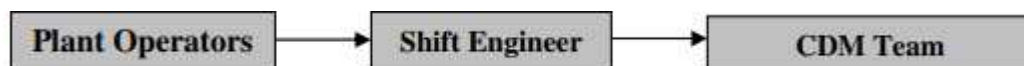
EG_{SS,export}: This parameter is measured continuously using energy meters (main and check) located at the substation. The joint meter reading would be conducted once every month in presence of representative of State Utility and O&M supplier. As the parameter also includes data related to non project WTGs, the data is not available with the PP. The parameter would be monitored using energy meters of accuracy class 0.2s, calibrated once every five years.

EG_{SS,import}: This parameter is measured continuously using energy meters (main and check) located at the substation. The joint meter reading would be conducted once every month in presence of representative of State Utility and O&M supplier. As the parameter also includes data related to non project WTGs, the data is not available with the PP. The parameter would be monitored using energy meters of accuracy class 0.2s, calibrated once every five years.

EG_{export,project}: This parameter is measured continuously using energy meters located at each of the feeder line which also includes project WTGs. The joint meter reading would be conducted once every month in presence of representative of State Utility and O&M supplier. As the parameter also includes data related to non project WTGs, the data is not available with the PP. The parameter would be monitored using energy meters of accuracy class 0.2s, calibrated once every five years.

EG_{import,project}: This parameter is measured continuously using energy meters located at each of the feeder line which also includes project WTGs. The joint meter reading would be conducted once every month in presence of representative of State Utility and O&M supplier. As the parameter also includes data related to non project WTGs, the data is not available with the PP. The parameter would be monitored using energy meters of accuracy class 0.2s, calibrated once every five years.

The operation and management structure for the project monitoring is as under:



Roles & Responsibilities:

Plant Operators	Operating and maintenance of the WTGs.
Shift Engineer	The monthly Joint Meter reading data on net electricity supplied to the grid would be taken by the designated officials of the project proponents and Distribution Company (DISCOM) on every month at the delivery point and would be signed by the authorised representatives. The Shift engineer would maintain all the data as recorded in line with the monitoring plan.
CDM Team	The CDM Team would use the data for the estimation of emission reduction as well as for the preparation of the yearly Monitoring Report. The total data would be archived both electronically and on paper for two years after the end of the crediting period or at least till the issuance of CERs for the project, whichever occurs later.

The proponent would keep complete and accurate records and all other data required by them for the purpose of proper administration and operation of the power plant. The proponent would also maintain an accurate and up-to-date operating log at the power plant. The data would be electronically archived for at least 2 years after the end of the crediting period or the last issuance of CERs for the project activity, which ever occurs later.

SECTION D. Data and parameters**D.1. Data and parameters fixed ex ante**

Data/Parameter	EF_{grid,BM,y}
Unit	tCO ₂ e/MWh
Description	Build margin for NEWNE grid
Source of data	CO ₂ baseline database (Version 7.0)
Value(s) applied	0.8588
Choice of data or measurement methods and procedures	Default values used as per the "Tool to calculate the emission factor for an electricity system" Version 04
Purpose of data/parameter	Calculation of combined margin emission factor of NEWNE grid
Additional comments	The value is ex-ante and would remain same throughout the crediting period of the project activity.

Data/Parameter	EF_{grid,OM,y}
Unit	tCO ₂ e/MWh
Description	Simple Operating margin for NEWNE grid
Source of data	CO ₂ baseline database (Version 7.0)
Value(s) applied	0.9842
Choice of data or measurement methods and procedures	This value is calculated by taking weighted average of 3 years values for Simple Operating Margin of NEWNE grid viz. 2008-09, 2009-10 and 2010-11.
Purpose of data/parameter	Calculation of combined margin emission factor of NEWNE grid
Additional comments	The value is ex-ante and would remain same throughout the crediting period of the project activity.

Data/Parameter	EF_{grid,CM,y}
Unit	tCO ₂ e/MWh
Description	Emission factor for NEWNE grid
Source of data	Calculated as per the procedure described in PDD section B.6.1
Value(s) applied	0.9529
Choice of data or measurement methods and procedures	This value is calculated using EF _{grid,OM,y} and EF _{grid,BM,y} values as per Version 04 of methodological tool to calculate the emission factor for an electricity system.
Purpose of data/parameter	Calculation of Baseline emission of the project activity.
Additional comments	The value is ex-ante and would remain same throughout the crediting period of the project activity.

D.2. Data and parameters monitored

Data/Parameter	EG_{facility,y}
Unit	MWh/year
Description	Quantity of net electricity generation supplied by the project activity to the grid in year y
Measured/calculated/default	Measured
Source of data	Distribution Licensee report on energy delivered to grid (Credit Note/JMR)
Value(s) of monitored parameter	105,435.28

Monitoring equipment	Energy Meters
Measuring/reading/recording frequency	<p>The electricity generated and fed into the grid would be continuously monitored using energy meters. For measuring the net electricity supplied by the project activity, the state electricity board has installed a set of energy meters (main and check) at the main substation where the project activity is eventually connected. Monthly readings are taken jointly by the representative of utility and site in charge of Project Proponent and a statement is prepared and signed by the representatives of both parties for total electricity exported to grid, total electricity imported from the grid and the net electricity supplied. The net electricity supplied at the point of main substation metering is calculated as the difference of the total electricity exported to grid and total electricity imported from the grid by the project activity.</p> <p>The meters have an accuracy class of 0.2s</p> <p>The net electricity supplied to grid ($EG_{\text{facility},y}$) is a calculated value and would be determined as the difference between the electricity exported to the grid and the electricity imported from the grid by the project activity. The emission reduction would be computed on the basis of $EG_{\text{facility},y}$.</p> $EG_{\text{facility},y} = EG_{\text{export},y} - EG_{\text{import},y}$ <p>Monitoring: Continuous measurement and monthly recording. Recording: Electronic/ Paper Recording Frequency: Continuous monitoring and monthly recording Responsibility: The plant management would be responsible for the regular recording of data. Archiving: Crediting Period + 2 years Calibration Frequency: Once in 5 years.</p>
Calculation method (if applicable)	-
QA/QC procedures	The main meter readings can be cross checked with the invoices for sale of power to ensure correctness. The meter(s) would be calibrated and maintained by the state utility as per their own schedule, and this frequency of meter calibration is not within the control of the Project Proponent.
Purpose of data/parameter	The data would be used for calculation of emission reductions.
Additional comments	The data would be kept electronically as well as on paper, for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.

Data/Parameter	$EG_{\text{export},y}$
Unit	MWh/year
Description	Quantity of electricity exported by the project activity to the grid in year y
Measured/calculated/default	Measured
Source of data	Distribution Licensee report on energy delivered to grid (Credit Note/JMR)
Value(s) of monitored parameter	106,050.04
Monitoring equipment	Energy Meters
Measuring/reading/recording frequency	<p>The electricity generated and fed into the grid would be continuously monitored using energy meters. For measuring the electricity exported by the project activity, the state electricity board has installed a set of energy meters (main and check) at the individual feeder lines and the main substation where the project activity is eventually connected. Monthly readings are taken jointly by the representative of utility and site in charge of Project Proponent and a statement is prepared and signed by the representatives of both parties. The $EG_{\text{export},y}$ also accounts for the losses between the metering point at the feeder lines and the main sub-station metering point.</p>

	<p>The meters have an accuracy class of 0.2S</p> <p>Monitoring: Continuous measurement and monthly recording.</p> <p>Recording: Electronic/ Paper</p> <p>Recording Frequency: Continuous monitoring and monthly recording</p> <p>Responsibility: The plant management would be responsible for the regular recording of data.</p> <p>Archiving: Crediting Period + 2 years</p> <p>Calibration Frequency: Once in 5 years.</p>
Calculation method (if applicable)	-
QA/QC procedures	The main meter readings can be cross checked with the invoices for sale of power to ensure correctness. The meter(s) would be calibrated and maintained by the state utility as per their own schedule, and this frequency of meter calibration is not within the control of the Project Proponent.
Purpose of data/parameter	The data would be used for calculation of emission reductions.
Additional comments	The data would be kept electronically as well as on paper, for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.

Data/Parameter	EG _{import,y}
Unit	MWh/year
Description	Quantity of electricity imported by the project activity to the grid in year y
Measured/calculated/default	Measured
Source of data	Distribution Licensee report on energy delivered to grid (Credit Note/JMR)
Value(s) of monitored parameter	614.768
Monitoring equipment	Energy Meters
Measuring/reading/recording frequency	<p>The electricity imported from the grid would be continuously monitored using energy meters. For measuring the electricity imported by the project activity, the state electricity board has installed a set of energy meters (main and check) at the individual feeder lines and the main substation where the project activity is eventually connected. Monthly readings are taken jointly by the representative of utility and site in charge of Project Proponent and a statement is prepared and signed by the representatives of both parties. The EG_{import,y} also accounts for the losses between the metering point at the feeder lines and the main sub-station metering point.</p> <p>The meters have an accuracy class of 0.2S</p> <p>Monitoring: Continuous measurement and monthly recording.</p> <p>Recording: Electronic/ Paper</p> <p>Recording Frequency: Continuous monitoring and monthly recording</p> <p>Responsibility: The plant management would be responsible for the regular recording of data.</p> <p>Archiving: Crediting Period + 2 years</p> <p>Calibration Frequency: Once in 5 years.</p>
Calculation method (if applicable)	-
QA/QC procedures	The main meter readings can be cross checked with the invoices for sale of power to ensure correctness. The meter(s) would be calibrated and maintained by the state utility as per their own schedule, and this frequency of meter calibration is not within the control of the Project Proponent.
Purpose of data/parameter	The data would be used for calculation of emission reductions.
Additional comments	The data would be kept electronically as well as on paper, for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.

Data/Parameter	EG_{WTG}
Unit	MWh
Description	Electricity generation at the controller of project WTGs
Measured/calculated/default	Measured
Source of data	Power Generation Reports from O&M Contractor
Value(s) of monitored parameter	115,184.11
Monitoring equipment	Energy Meters
Measuring/reading/recording frequency	Monitoring: Continuous measurement. Recording: Electronic/ Paper Recording Frequency: Continuous monitoring and monthly recording Responsibility: The O&M agency shall be responsible for the regular recording of data. Archiving: Crediting Period + 2 years
Calculation method (if applicable)	-
QA/QC procedures	The Controllers are microprocessor based intelligent systems using Woodward multifunctional relay. These controllers reads, display and store instantaneous values of various parameters such as voltage, current, power factor, kVAh, kVArh and kWh. Woodward relay is communicating digital signal through special communication protocol. Hence it is not possible to calibrate. Moreover, wind turbine cannot run without this relay and hence it cannot be removed for calibration during operation. These controllers have interlock with the operation of WTGs i.e. the wind turbine cannot generate electricity if there is any sort of error within the controller. Hence there would not be any instance where the controllers are faulty and generation of electricity is going on. In case of any fault with the WTG Controller, the same would be immediately identified through an interlocking mechanism. In such a scenario the WTG Controller would be automatically shut down. The WTG Controller would then be replaced. In such a case, emission reductions are not accounted for the period a particular WTG controller is nonoperational.
Purpose of data/parameter	The data are used for calculation of emission reductions.
Additional comments	The data are kept electronically as well as on paper, for two years after the end of the crediting period or the last issuance of CERs for this project activity, whichever occurs later.

D.3. Implementation of sampling plan

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Sampling is not required for the given project activity

SECTION E. Calculation of emission reductions or net anthropogenic removals

E.1. Calculation of baseline emissions or baseline net removals

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As per the methodology, the baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired 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. Therefore, the baseline emissions are calculated as follows:

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

Where:

BE_y	=	Baseline emissions in year y (tCO_2/yr)
$EG_{PJ,y}$	=	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)
$EF_{grid, CM, y}$	=	Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the "Tool to calculate the emission factor for an electricity system" (tCO_2/ MWh)

The project activity is the installation of a new grid-connected renewable power plant at a site where no renewable power plant was operated prior to the implementation of the project activity,

Therefore, $EG_{PJ,y} = EG_{facility,y}$

Friends Salt & Allied Industries:

$$\begin{aligned}
 BE_{fsy} &= EG_{fs, PJ,y} \times EF_{grid,CM,y} \\
 &= 80,633.84 \text{ MWh} \times 0.9529 \text{ tCO}_2/\text{MWh} \\
 &= 76,835 \text{ tCO}_2 \text{ (round down to nearest integer)}
 \end{aligned}$$

Where:

BE_{fsy}	=	Baseline emissions in year y (tCO_2/yr) of Friends Salt & Allied Industries
$EG_{fs,PJ,y}$	=	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr) of Friends Salt & Allied Industries
$EF_{grid, CM, y}$	=	Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the "Tool to calculate the emission factor for an electricity system" (tCO_2/ MWh)

Gautam Freight Pvt. Ltd.:

$$\begin{aligned}
 BE_{gf_y} &= EG_{gf, PJ, y} \times EF_{grid,CM,y} \\
 &= 24,801.44 \text{ MWh} \times 0.9529 \text{ tCO}_2/\text{MWh} \\
 &= 23,633 \text{ tCO}_2 \text{ (round down to nearest integer)}
 \end{aligned}$$

Where:

BE_{gf_y}	=	Baseline emissions in year y (tCO_2/yr) of Gautam Freight Pvt. Ltd.
$EG_{gf, PJ,y}$	=	Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr) of Gautam Freight Pvt. Ltd.
$EF_{grid, CM, y}$	=	Combined margin CO_2 emission factor for grid connected power generation in year y calculated using the "Tool to calculate the emission factor for an electricity system" (tCO_2/ MWh)

$$\begin{aligned}
 \text{Baseline Emission (BE}_y) &= BE_{gf_y} + BE_{fsy} \\
 &= 76,835 \text{ tCO}_2/\text{year} + 23,633 \text{ tCO}_2/\text{year} \\
 &= 100,468 \text{ tCO}_2/\text{year}
 \end{aligned}$$

$$EG_{PJ,y} = EG_{facility,y}$$

Where: $EG_{facility,y}$ = Quantity of net electricity supplied by the project activity to the grid in year y (MWh/yr) = 105,435.28 MWh/year

E.2. Calculation of project emissions or actual net removals

>>

The project emission has been considered as zero as per the methodology applied for the project activity.

E.3. Calculation of leakage emissions

>>

As per the methodology used, no leakage emissions have been considered.

E.4. Calculation of emission reductions or net anthropogenic removals

	Baseline GHG emissions or baseline net GHG removals (t CO ₂ e)	Project GHG emissions or actual net GHG removals (t CO ₂ e)	Leakage GHG emissions (t CO ₂ e)	GHG emission reductions or net anthropogenic GHG removals (t CO ₂ e)			
				Before 01/01/2013	From 01/01/2013 until 31/12/2020	From 01/01/2021	Total amount
Total	100,468	0	0	0	100,468	0	100,468

E.5. Comparison of emission reductions or net anthropogenic removals achieved with estimates in the registered PDD

Amount achieved during this monitoring period (t CO ₂ e)	Amount estimated ex ante for this monitoring period in the PDD (t CO ₂ e)
100,468	100,888

E.5.1. Explanation of calculation of “amount estimated ex ante for this monitoring period in the PDD”

>>

Estimated Emission Reduction according to PDD = 14,492 tCO₂e per annum

Total number of days in this monitoring period = 2541 days

The ex-ante estimated ER for the current monitoring period has been calculated by factorizing the annualized projected ER value for the equivalent days of the current monitoring period.

$$= (14,492 * 2541) / 365 = 100,888 \text{ tCO}_2\text{e}$$

E.6. Remarks on increase in achieved emission reductions

>>

During the present monitoring period, actual emission reductions achieved are 100,468 tCO₂e whereas estimated emission reductions was 100,888 tCO₂e.

The actual emission reduction achieved is 0.42% lower than the estimated in the registered PDD.

E.7. Remarks on scale of small-scale project activity

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The installed capacity of the plant is still 8.40 MW which is less than 15 MW. The project activity is still a small-scale project activity.

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
08.0	6 April 2021	Revision to: <ul style="list-style-type: none"> • Reflect the “Clarification: Regulatory requirements under temporary measures for post-2020 cases” (CDM-EB109-A01-CLAR).
07.0	31 May 2019	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 02.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Add a section on remarks on the observance of the scale limit of small-scale project activity during the crediting period; • Add "changes specific to afforestation or reforestation project activity" as a possible post-registration changes; • Clarify the reporting of net anthropogenic GHG removals for A/R project activities between two commitment periods; • Make editorial improvements.
06.0	7 June 2017	Revision to: <ul style="list-style-type: none"> • Ensure consistency with version 01.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Make editorial improvements.
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: <ul style="list-style-type: none"> • Include provisions related to delayed submission of a monitoring plan; • Provisions related to the Host Party; • Remove reference to programme of activities; • Overall editorial improvement.
04.0	25 June 2014	Revisions to: <ul style="list-style-type: none"> • Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1; • Change the reference number from <i>F-CDM-MR</i> to <i>CDM-MR-FORM</i>; • Editorial improvement.
03.2	5 November 2013	Editorial revision to correct table in page 1.
03.1	2 January 2013	Editorial revision to correct table in section E.5.

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB 70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01.0	28 May 2010	EB 54, Annex 34. Initial adoption.
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