Monitoring report form for CDM project activity
(Version 07.0)

MONITORING REPORT		
Title of the project activity	50.4 MW wind power project by EN Renewable Energy Pvt. Ltd	
UNFCCC reference number of the project activity	4364	
Version number of the PDD applicable to this monitoring report	07	
Version number of this monitoring report	02	
Completion date of this monitoring report	23/03/2021	
Monitoring period number	04	
Duration of this monitoring period	01/04/2018 to 31/12/2020 (Inclusive of both days)	
Monitoring report number for this monitoring period	NA	
Project participants	EN Renewable Energy Limited (India, Private Entity)	
Host Party	INDIA	
Applied methodologies and standardized baselines	**Methodology:** "Grid-connected electricity generation from renewable sources", Version 20.0 **Standard baselines:** NA	
Sectoral scopes	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
	0	216,375 tCO_2e
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD	290,056 tCO_2e	

SECTION A. Description of project activity

A.1. General description of project activity

EN Renewable Energy Limited ("ENRE") has installed 50.4 MW wind farm in the state of Karnataka in India. The purpose of the project activity is to utilize renewable wind energy for generation of electricity. The project activity replaces anthropogenic emissions of greenhouse gases (GHG's) into the atmosphere by displacing the equivalent amount of electricity generation through the operation of existing fuel mix in the grid comprising mainly fossil fuel based power plants and future capacity expansions connected to the grid.

The project activity consists of 63-wind energy converters (WECs) of Enercon make (E-53) 800 kW each totaling to the capacity of 50.4 MW.with internal electrical lines connecting the project activity with local evacuation facility. The average life time of the WEC is around 20 years as per the industry standards. The project activity replaces anthropogenic emissions of greenhouse gases (GHG's) into the atmosphere, which is estimated to be approximately 105,239 tCO_2e per year, by displacing the equivalent amount of electricity generation through the operation of existing fuel mix in the grid comprising mainly fossil fuel based power plants and future capacity expansions connected to the grid. In the absence of the project activity the equivalent amount of electricity would have been generated from the connected/ new power plants in the Indian grid, which are/ will be predominantly based on fossil fuels. Whereas the operation of Wind Energy Convertors (WEC's) is emission free and no emissions occur during the lifetime of the project activity

The first machine under the project activity was commissioned on 16/02/2011 and the last machine under the project activity was commissioned on 31/03/2011. The expected operational lifetime of the project is for 20 years. The total emission reductions achieved under the monitoring period 01/04/2018 to 31/12/2020 (including first and last day) is 216,375 tCO_2e.

A.2. Location of project activity

The Project is spread across Sunahatti, Ganginahal, Kakti, Kanabargi, Baramanhatti, Nandi and Deshnur villages in Bailhongal and Belgaum Taluk of Belgaum District of Karnataka state in India. Nearest airport and railway station are at Belgaum.

The details of physical location is being mentioned at *Appendix 1 Details of Physical Location of Project Activity*.

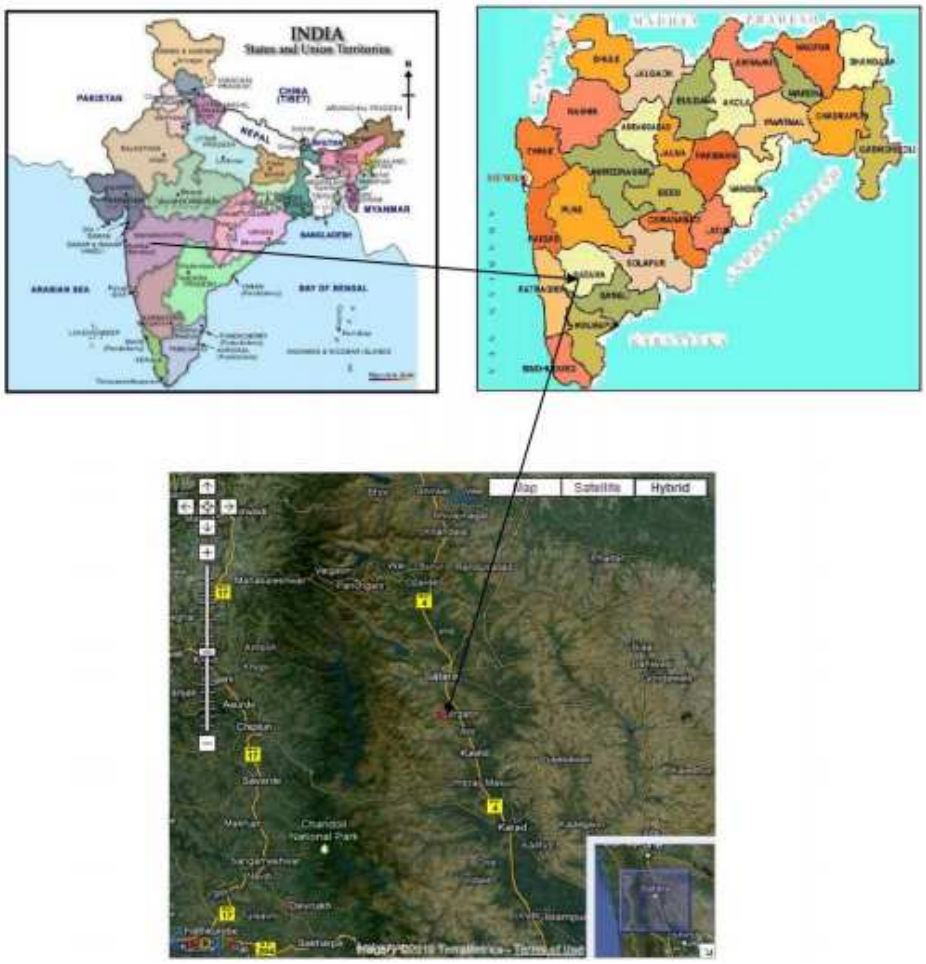

Figure 1. Project Location

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)	EN Renewable Energy Limited (Private entity)	No

A.4. References to applied methodologies and standardized baselines

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Title: Grid-connected electricity generation from renewable sources ACM0002
Reference: Approved consolidated baseline methodology ACM0002 (Version 20.0[1])

- Tool to calculate the emission factor for an electricity system – Version 07 (EB 100, Annex 4)[2]
- Tool for the demonstration and assessment of additionality – Version 7[3]

A.5. Crediting period type and duration

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The length of the Crediting period of the project activity as per registered PDD is 7 years (Renewable) starting from 01/04/2018 to 31/03/2025.
This is second crediting period.

[1] https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG

[2] http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf

[3] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf

SECTION B. Implementation of project activity

B.1. Description of implemented project activity

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Enercon (India) Limited ("Enercon") is equipment supplier and the operations and maintenance contractor for the project activity. The project activity is owned by ENRE and Enercon is having the responsibility of operation and maintenance of the wind farm. The generated electricity will be supplied to Electricity Distribution Company (DISCOM) under a long-term power purchase agreement (PPA). The power generation from wind is a clean technology as there are no GHG emissions associated with it, the power generation from wind turbines depends upon the wind speed and it does not require any fuel combustion for generating power, which is the major source of GHG emissions.

The project activity consists of 63-wind energy converters (WECs) of Enercon make (E-53) 800 kW each totaling to the capacity of 50.4 MW with internal electrical lines connecting the project activity with local evacuation facility. The WECs generates 3-phase power at 400V, which is stepped up to 33 KV. The project activity can operate in the frequency range of 47.5–51.5 Hz and in the voltage range of 400 V ± 12.5%. The average life time of the WEC is around 20 years as per the industry standards.

The first machine under the project activity was commissioned on 16/02/2011 and the last machine under the project activity was commissioned on 31/03/2011. During the monitoring period the project activity was operated and monitored in accordance with the applicable baseline and monitoring methodology ACM0002 (Version 20.0) and registered PDD.

The other salient features of the state-of-art-technology are:

Turbine model	**Enercon E- 53**
Rated power	800 KW
Rotor diameter	53 m
Hub height	75 m
Turbine Type	Gearless horizontal axis wind turbine with variable rotor speed
Power regulation	Independent electromechanical pitch system for each blade.
Cutin windspeed	2.5 m/s
Rated wind speed	12 m/s
Cutout Windspeed	28-34 m/s
Extreme Wind Speed	59.5 m/s
Rated rotational speed	32 rpm
Operating range rot. speed	12-29 rpm
Orientation	Upwind
No of Blades	3
Blade Material	Glass Fibre reinforced Epoxy
Gear box type	Gear less
Generator type	Synchronous generator
Braking	Aerodynamic
Output Voltage	400 V
Yaw System	Active yawing with 4 electric yaw drives with brake motor and friction bearing
Tower	74 m concrete

Enercon (India) Ltd has secured and facilitated the technology transfer for wind based renewable energy generation from Enercon GmbH, has established a manufacturing plant at Daman in India, where along with other components the "Synchronous Generators" using "Vacuum Impregnation" technology are manufactured.

There are no changes that have happened in project activity which may impact the applicability of the methodology or ability of the project to deliver emission reductions. Enercon operation and maintenance activities are ISO certified and all the events are recorded in the log book available at the project site. Referring to the data available it can be inferred that there have not been any major special events for any of the machines that are included in the project activity. As a part of regular maintenance the machines are stopped for mechanical and electrical maintenance for 16 to 18 hours annually and for visual inspection for 6 to 7 hours quarterly.

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 is no temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents.

B.2.2. Corrections

>>
There is no correction from the registered PDD during this monitoring period.

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

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There is no changes to the start date during this monitoring period.

B.2.4. Inclusion of monitoring plan

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

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 from registered monitoring plan or applied methodology.

B.2.6. Changes to project design

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There is no changes to the project design.

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

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This is not an afforestation or reforestation project activity.

SECTION C. Description of monitoring system

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As per approved monitoring methodology ACM0002 Version 20 Sectoral Scope: 1, “Large-scale Consolidated Methodology for Grid-connected electricity generation from renewable sources”, by CDM - Meth Panel is proposed to be used to monitor the emission reductions.

The reading will be taken by the representatives of Enercon (now Wind World (India) Limited) and the State utility at the meter(s) for the project activity connecting 63 turbines at the project site and feeding the pooling substation. This reading is recorded in the form of JMR (Form B) and is signed by the representatives of Enercon and State Utility. The electricity export and import will be metered at this metering point. Transmission loss between metering point feeding the pooling substation and the metering point at the EB Substation/Switching Station is applied to the meter reading taken at the feeder connecting 63 turbines of the project activity and feeding the pooling substation.

Transmission loss given in the JMR will be directly applied to the meter readings taken at the metering point of the project activity and feeding to pooling substation of Enercon. Net Electricity exported to the grid is calculated by applying transmission loss to the meter reading taken at the metering point of the project activity connecting 63 turbines and feeding to pooling substation of Enercon.

The Joint meter reading contains the following data:-

1. Electricity Export
2. Electricity Import
3. Transmission Loss (Between the metering point feeding the pooling substation and the EB/Switching substation)
4. Net Electricity exported to the Grid [Electricity Export-115%*Electricity Import-Transmission Loss]

Joint Meter reading is signed by the representatives of Enercon and the state utility. The meter readings (both export and import), transmission loss and net electricity exported to the grid are noted in the JMR.

Metering:
Electricity supplied to the grid is metered at the metering point connecting 63 machines of the project activity. The meter reading is taken in the presence of representatives of Enercon (O&M Contractor for the project activity) and KPTCL.

Metering Equipment:
Metering system for the project activity consists of main and check meter. Both the meters are twoway trivector meters capable of recording import and export of electricity. The metering equipment is calibrated annually.

Meter Readings:
The electricity supplied to the grid is recorded by taking a Joint Meter Reading (JMR) in the presence of Officials from the Utility and Enercon, O&M contractor, on behalf of project owner. The Joint meter reading contains the value of energy imported and exported. These certified readings are then used by the DISCOM officials to prepare the tariff invoices. Thus, the monitoring parameters for the project activity are the electricity import and electricity export to the grid as mentioned in the JMR. The readings are then adjusted for the transmission loss in the JMR, which can be crosschecked with the value mentioned in the invoices.

Inspection of Energy Meters:
All main and check energy meters (export and import) and all associated instruments, transformers installed at the project are of 0.2% accuracy class. Each meter is jointly inspected and sealed on behalf of the parties and is not to be interfered with by either party except in the presence of the other party or its accredited representatives.

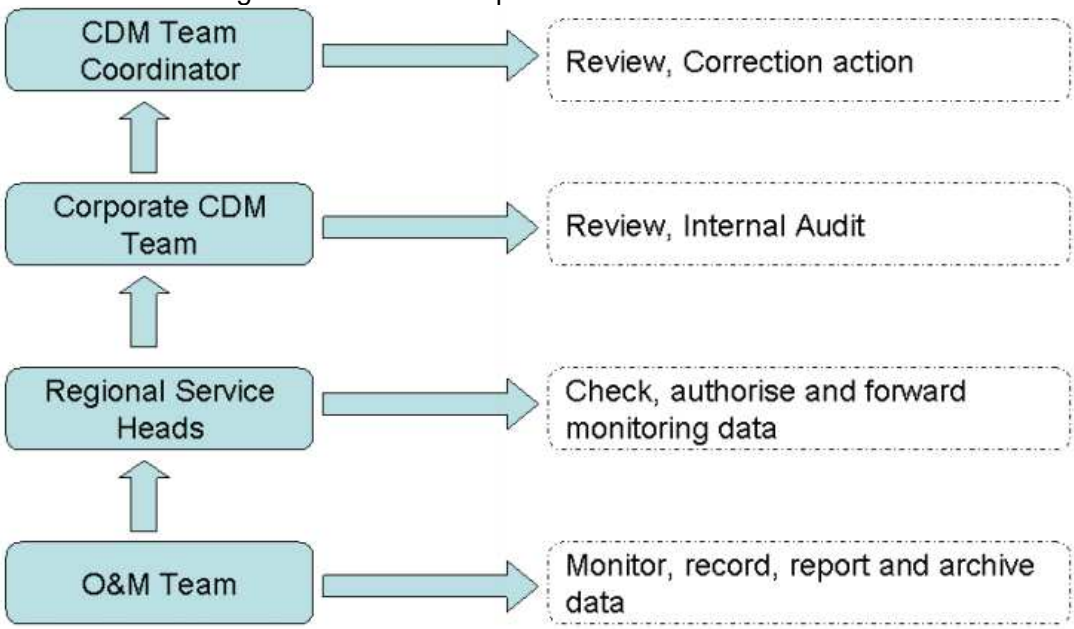
Meter Test Checking:
There is a separate check and main meter. The Main and Check Meters are close to each other and are tested for accuracy, with a standard meter, by the KPTCL's testing Division. The KPTCL carry out the calibration, periodical testing, sealing and maintenance of meters. The KPTCL provides a copy of the test reports.

Training and maintenance requirements:

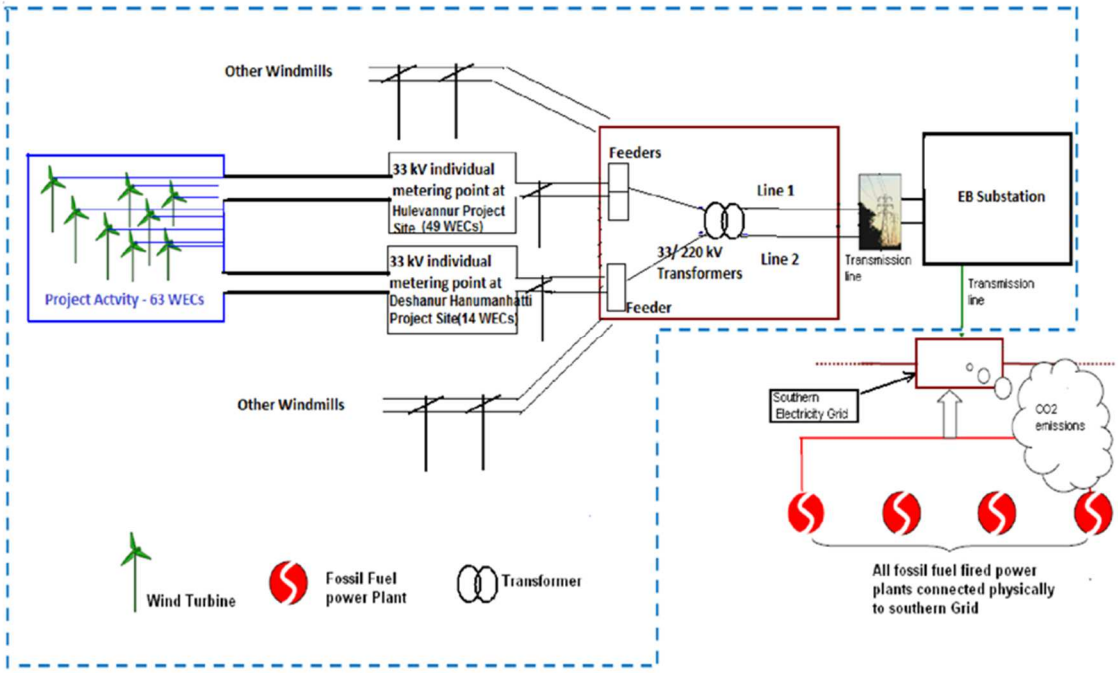
Training on the machine is an essential pre-requisite, to ensure necessary safety of man and machine. Further, in order to maximize the output from the Wind Energy Converters (WECs), it is extremely essential, that the engineers and technicians understand the machines and keep them in good health. In order to ensure, that Enercon's service staff is deft at handling technical snags on top of the turbine, the necessity of ensuring that they are capable of climbing the tower with absolute

ease and comfort has been established. The Enercon Training Academy provides need-based training to meet the training requirements of Enercon projects. The training is contemporary, which results in imparting focused knowledge leading to value addition to the attitude and skills of all trainees. This ultimately leads to creativity in problem solving.

The operational and management structure implemented is as follows:



A detailed line diagram of project activity is shown in below picture. From the below picture it is clear that the electricity supplied to the grid will be metered at two 33 kV metering point, where billing is to be done by Electricity Board officials on monthly basis. Output of feeder lines at both 33 kV metering points is step up to 220 kV using step up transformer. Output of transformer is connected to 220 kV Electricity Board substation. From 220 kV Electricity Board sub-station electricity is supplied to southern electricity grid.



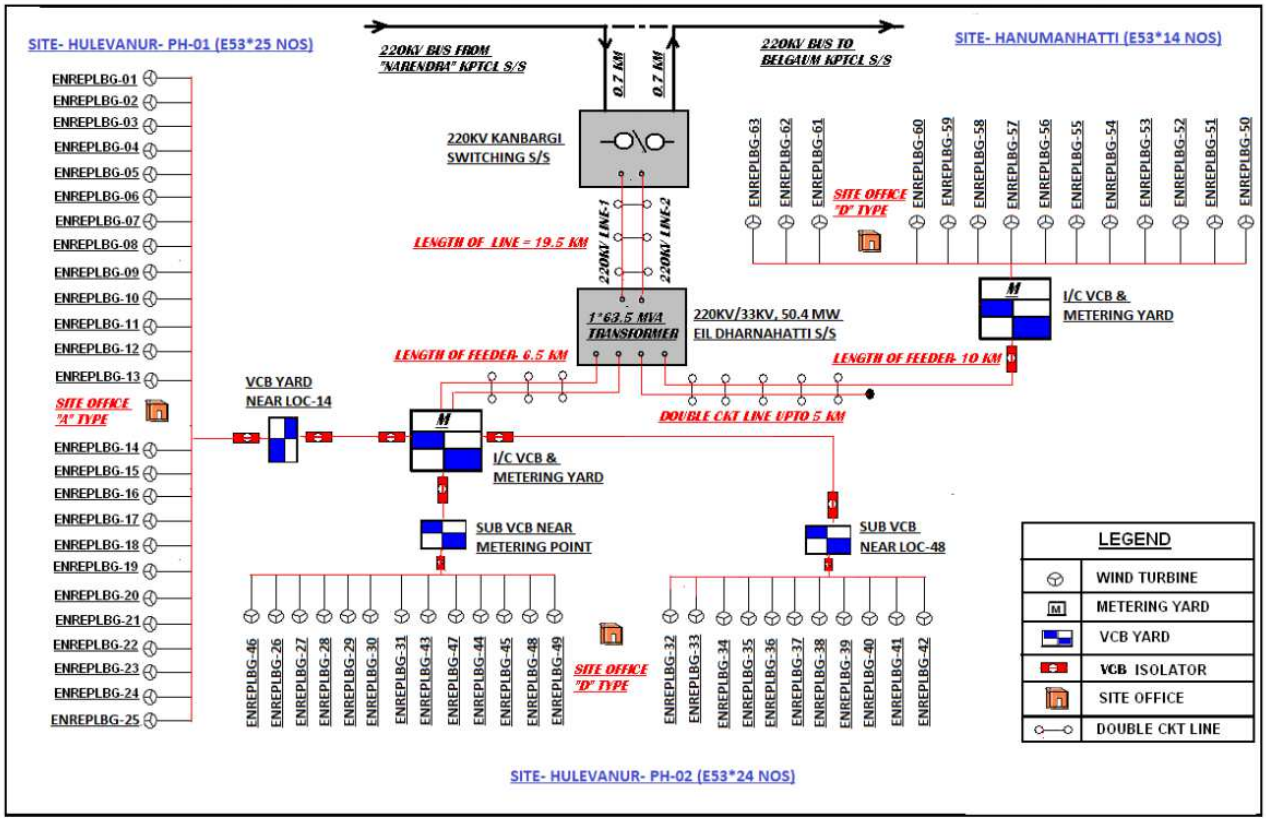


FIG:- SINGLE LINE DIAGRAM OF WEC LAYOUT AT PROJECT-H, BELGAUM

Calibration Frequency:

The metering equipments were inspected & calibrated by state utility. The metering equipments are of Trivector Meter type having annual frequency of calibration. There is no delay in calibration occurred during the current monitoring period. Calibration details for the main and check meters are as follows:-

Capacity (MW)	11.2		39.2	
No. of M/C	14		49	
Site	Deshanur Hanumanhatti		Hulevannur	
District	Belgaum		Belgaum	
Meter Type	Main Meter	Check Meter	Main Meter	Check Meter
Meter Sr. no.	9142441	9142578	9142435	9142603
Accuracy class	0.2s	0.2s	0.2s	0.2s
Calibration Frequency	One Year			
Calibration date	5-Feb-2018	5-Feb-2018	5-Feb-2018	5-Feb-2018
Calibration date	13-Feb-2019	13-Feb-2019	13-Feb-2019	13-Feb-2019
Calibration date	21-Oct-2019	21-Oct-2019	21-Oct-2019	21-Oct-2019
Calibration date	08-Jul-2020	08-Jul-2020	08-Jul-2020	08-Jul-2020
Due date of Calibration	07-Jul-2021	07-Jul-2021	07-Jul-2021	07-Jul-2021

During the current monitoring period, energy meters calibrated annually and delay in calibration occurred during the month of Feb-2019, therefore error factor equivalent to accuracy class has been applied to the Feb-2019 month.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante

Data/Parameter	$EF_{Grid, OM,y}$
Unit	tCO_2e/MWh
Description	Operating Margin CO_2 emission factor in year y
Source of data	Calculated from CEA database, Version 15, Dec 2019
Value(s) applied	0.9622
Choice of data or measurement methods and procedures	Calculated as the last 3 year (2016-17, 2017-18, 2018-19) generation-weighted average, sourced from Baseline CO2 Emission Database, Version 15.0, Dec 2019 published by Central Electricity Authority (CEA), Government of India
Purpose of data/parameter	For the calculation of baseline emissions
Additional comments	The calculation of baseline emission has been done ex ante its value will remain fixed for the entire crediting period.

Data/Parameter	$EF_{Grid\ BM,y}$
Unit	tCO_2e/MWh
Description	Build Margin CO_2 emission factor in year y
Source of data	Calculated from CEA database, Version 15, Dec 2019
Value(s) applied	0.8811
Choice of data or measurement methods and procedures	Calculated as per "Tool to calculate the emission factor for an electricity system, version 07" as per the latest data available for the most recent year 2017-18. The data is obtained from "CO_2 Baseline Database for Indian Power Sector" version 15, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data/parameter	For the calculation of the baseline emissions
Additional comments	This parameter is fixed ex-ante for the entire crediting period.

Data/Parameter	EF_y or $EF_{Grid, CM, y}$
Unit	tCO_2e/MWh
Description	Combined Margin CO_2 emission factor in year y
Source of data	Calculated from CEA database, Version 15, Dec 2019
Value(s) applied	0.9419
Choice of data or measurement methods and procedures	The combined margin emissions factor is calculated as follows: $EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}$ Where: $EF_{grid,BM,y}$= Build margin CO_2 emission factor in year y (tCO_2/MWh) $EF_{grid,OM,y}$= Operating margin CO_2 emission factor in year y (tCO_2/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 75% W_{BM}= Weighting of build margin emissions factor (%) = 25%
Purpose of data/parameter	For the calculation of the baseline emissions
Additional comments	This parameter is fixed ex-ante for the entire crediting period.

D.2. Data and parameters monitored

Data/Parameter	EG_y
Unit	MWh (Mega-Watt hour)
Description	Net electricity supplied to the grid by the Project Activity

Measured/calculated/ default	Net Electricity exported to the Grid [Electricity Export-115%*Electricity Import-Transmission Loss]
Source of data	Electricity supplied to the grid as per the joint meter report.
Value(s) of monitored parameter	229,722.66 MWh
Monitoring equipment	Bidirectional Energy Meter. Meter details are described in section C.
Measuring/reading/recording frequency	Continuous recording and monthly reporting
Calculation method (if applicable)	$EG_y = G_p - L_i$ Where G_p : [export (G_{pe}) –115%* Import (G_{pi})] L_i : G_{pe} *($L/\sum G_j$)
QA/QC procedures	QA/QC procedures are being implemented by state utility (Discom) pursuant to the provisions of the power purchase agreement and there will be no additional QA/QC procedures. Please refer Section C for an illustration of the provisions for QA/QC procedures. The value of net electricity supplied to grid is calculated by continuous measurement of export, import parameter and can be cross checked from the invoices raised to the state utility.
Purpose of data/parameter	Baseline Emissions Calculations
Additional comments	None

Data/Parameter	**G_{pe}**
Unit	MWh (Mega-Watt hour)
Description	Electricity Export recorded at the meter(s) connected 63 machines of the project activity.
Measured/calculated/ default	Measured : The export reading ins jointly noted from the meter(s) installed at pooling substation of Enercon
Source of data	Electricity export to the grid as per the joint meter report.
Value(s) of monitored parameter	233,767.205
Monitoring equipment	Meters with accuracy class of 0.2 s at the metering point (Main Meter) is installed. Check meter with separate CT/PT of class 0.2s also installed. Quantity of electricity exported by the Project to the grid would be calculated using the sum of readings taken at the main/check meter installed at the Interconnection points.
Measuring/reading/recording frequency	Continuous monitoring and monthly recording
Calculation method (if applicable)	Data monitoring would take place at the substation on a continuous basis and is being recorded on monthly basis. On the basis of these readings taken, a generation report would also be issued by MSEDCL.
QA/QC procedures	The meters will be calibrated once each year by the state utility. Refer Section C for an illustration of the provisions for QA/QC procedures.
Purpose of data/parameter	For calculation of baseline emissions
Additional comments	The data will be stored in hard formula and values will be taken from JMR.

Data/Parameter	G_{pi}
Unit	MWh
Description	Electricity Import recorded at the meter(s) connected 63 machines of the project activity.
Measured/calculated/ default	Measured: Electricity import from the grid has been recorded by the meter(s) connected to the 63 machines of the project activity feeding the pooling substation of Enercon.
Source of data	Electricity import from the grid as per the joint meter report.

Value(s) of monitored parameter	123.606
Monitoring equipment	The metering equipment details such as type, accuracy class, serial numbers and validity of test are better described under section C.
Measuring/reading/recording frequency	Continuous measurement, monthly recording.
Calculation method (if applicable)	Electricity import from the grid is recorded by the meter(s) connected to the 63 machines of the project activity feeding the pooling substation of Enercon.
QA/QC procedures	The meters will be calibrated once each year by the state utility. Refer Section C for an illustration of the provisions for QA/QC procedures.
Purpose of data/parameter	To determine baseline Emission calculation
Additional comments	The data will be stored in hard formula and values will be taken from JMR.

Data/Parameter	Li
Unit	MWh
Description	Transmission loss between the metering point for the project activity feeding the pooling substation of Enercon and the metering point at EB Substation/Switching Station.
Measured/calculated/ default	Measured
Source of data	Transmission Loss has directly applied from the joint meter report (Form B) for the project activity.
Value(s) of monitored parameter	3902.400
Monitoring equipment	The metering equipment details such as type, accuracy class, serial numbers and validity of test are better described under section C.
Measuring/reading/recording frequency	Continuous measurement, monthly recording.
Calculation method (if applicable)	Transmission loss between metering point feeding the pooling substation of Enercon and the metering point at the EB Substation/Switching Station is applied to the meter reading taken at the feeder connecting 63 turbines of the project activity and feeding the pooling substation of Enercon. Switching station/EB Substation is connected to the machines of the project activity and the machines commissioned by the other project developers. The project proponent does not have control over the data of the other project developers. Therefore, the project developer has to rely upon the transmission loss applied to the project activity by the state utility as reflected in the JMR (Form B). The JMR is signed by the representatives of Enercon and the state utility.
QA/QC procedures	QA/QC procedures will be as implemented by state utility and the PP.
Purpose of data/parameter	To determine baseline Emission calculation
Additional comments	The data will be stored in hard formula and values will be taken from JMR.

D.3. Implementation of sampling plan

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Not applicable to the 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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According to the approved methodology ACM0002 (Version 20.0) Baseline emissions are calculated as:-

$BE_y = EG_y * EF_{grid, CM, y}$

Where:

BE_y = Baseline emissions in year y (tCO_2e/yr)
EG_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_2e emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO_2e/MWh)

Baseline emissions (BE_y) = 229,722.66 (MWh) * 0.9419 (tCO_2e/MWh)
= 216,375 tCO_2e

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

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Since the project activity is a renewable energy project which generates electricity using wind power and hence does not result in project emissions as per ACM0002, i.e. $PE_y = 0$ tCO_2e.

E.3. Calculation of leakage emissions

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According to ACM0002, the leakage of the Project is considered as zero, i.e. $L_y=0$ tCO_2e

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

	Baseline GHG emissions or baseline net GHG removals (t CO_2e)	Project GHG emissions or actual net GHG removals (t CO_2e)	Leakage GHG emissions (t CO_2e)	GHG emission reductions or net anthropogenic GHG removals (t CO_2e)		
				Before 01/01/2013	From 01/01/2013	Total amount
Total	216,375	0	0	0	216,375	216,375

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_2e)	Amount estimated ex ante for this monitoring period in the PDD (t CO_2e)
216,375	290,056

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

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Considering the annual average emission reductions as per the registered PDD which is 105,239 tCO_2e per year, the number of days covered during the current monitoring period comes out to be 1006 days, based upon which the estimated emission reductions attributed to this monitoring period comes out to be 290,056 tCO_2e. The detailed calculation can be referred from the emission reduction sheet.

E.6. Remarks on increase in achieved emission reductions

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The estimated annual emission reductions as per the registered PDD corresponding to the current monitoring period are 290,056 tCO_2e. The actual emission reductions are 216,375 which is 25.40% less than the estimated emission reduction. The difference in the total CERs is due to low wind availability during the period leading to low plant load factor. The lower generation is acceptable.

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

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This is not a small scale project activity.

Appendix 1. Details of Physical Location of Project Activity

Sr. No.	Location Number	Village	Taluka	District	Latitude (N)	Longitude (E)
1	HH01	Deshnur	Bailhongal	Belgaum	15°55'50.9"	74°42'2.9"
2	HH02	Deshnur	Bailhongal	Belgaum	15°55'56.6"	74°42'1.3"
3	HH03	Deshnur	Bailhongal	Belgaum	15°56'5.8"	74°42'2.3"
4	HH04	Deshnur	Bailhongal	Belgaum	15°56'10.9"	74°42'0.3"
5	HH06	Deshnur	Bailhongal	Belgaum	15°56'15"	74°42'31.4"
6	HH07	Deshnur	Bailhongal	Belgaum	15°56'21"	74°42'31.2"
7	HH08	Deshnur	Bailhongal	Belgaum	15°56'27.6"	74°42'26.6"
8	HH11	Deshnur	Bailhongal	Belgaum	15°56'35.4"	74°42'36.8"
9	HH12	Deshnur	Bailhongal	Belgaum	15°56'41.3"	74°42'35.5"
10	HH13	Deshnur	Bailhongal	Belgaum	15°56'47.7"	74°42'35.5"
11	HH14	Deshnur	Bailhongal	Belgaum	15°56'53.9"	74°42'36.2"
12	HH15	Deshnur	Bailhongal	Belgaum	15°56'58.2"	74°42'18.8"
13	HH16	Deshnur	Bailhongal	Belgaum	15°57'2.8"	74°42'13.7"
14	HH17	Deshnur	Bailhongal	Belgaum	15°57'15.6"	74°43'5.0"
15	H1	Ganginahal	Belgaum	Belgaum	15°57'26.4"	74°32'44.3"
16	H2	Kakti	Belgaum	Belgaum	15°57'20.1"	74°32'44.2"
17	H3	Kakti	Belgaum	Belgaum	15°57'13.6"	74°32'42.7"
18	H4	Kakti	Belgaum	Belgaum	15°57'4.5"	74°32'39.6"
19	H5	Sunahatti	Belgaum	Belgaum	15°56'57.6"	74°32'42.7"
20	H6	Sunahatti	Belgaum	Belgaum	15°56'51.5"	74°32'44.3"
21	H7	Sunahatti	Belgaum	Belgaum	15°56'44.6"	74°32'43.3"
22	H8	Kakti	Belgaum	Belgaum	15°56'38"	74°32'38.1"
23	H9	Kakti	Belgaum	Belgaum	15°56'30.9"	74°32'38.3"
24	H10	Kakti	Belgaum	Belgaum	15°56'58.1"	74°31'55.5"
25	H11	Kakti	Belgaum	Belgaum	15°56'37.4"	74°32'2.5"
26	H12	Kakti	Belgaum	Belgaum	15°56'31.9"	74°32'7.4"
27	H13	Kakti	Belgaum	Belgaum	15°56'24.2"	74°32'30.9"
28	H14	Kakti	Belgaum	Belgaum	15°56'17.8"	74°32'30.4"
29	H15	Kakti	Belgaum	Belgaum	15°56'12.2"	74°32'33.7"
30	H16	Kakti	Belgaum	Belgaum	15°56'14.5"	74°32'1.4"
31	H17	Kakti	Belgaum	Belgaum	15°56'4.1"	74°32'19.1"
32	H18	Kakti	Belgaum	Belgaum	15°55'58.2"	74°32'20.9"
33	H19	Kakti	Belgaum	Belgaum	15°55'53"	74°32'24.4"
34	H20	Kakti	Belgaum	Belgaum	15°55'47.5"	74°32'29.4"
35	H21	Kakti	Belgaum	Belgaum	15°55'38.3"	74°32'32.7"
36	H22	Kakti	Belgaum	Belgaum	15°55'36.7"	74°32'15.8"
37	H23	Kakti	Belgaum	Belgaum	15°55'41.9"	74°32'10.9"
38	H24	Kakti	Belgaum	Belgaum	15°55'40"	74°33'20.6"
39	H27	Kanabargi	Belgaum	Belgaum	15°55'24.7"	74°33'47.1"
40	H28	Kanabargi	Belgaum	Belgaum	15°55'57.2"	74°34'39.6"
41	H41	Baramanahatti	Belgaum	Belgaum	15°56'20"	74°35'6.3"
42	H42	Baramanahatti	Belgaum	Belgaum	15°56'26.6"	74°34'54.8"
43	H43	Baramanahatti	Belgaum	Belgaum	15°56'32.7"	74°34'46.1"
44	H44	Baramanahatti	Belgaum	Belgaum	15°56'38.2"	74°34'42.1"
45	H45	Baramanahatti	Belgaum	Belgaum	15°56'46.1"	74°34'40.5"
46	H46	Baramanahatti	Belgaum	Belgaum	15°56'53.4"	74°34'38.4"
47	H47	Baramanahatti	Belgaum	Belgaum	15°56'46.9"	74°34'19.4"
48	H48	Baramanahatti	Belgaum	Belgaum	15°56'52.8"	74°34'17.7"

49	H49	Nandi	Belgaum	Belgaum	15°56'60"	74°34'19.3"
50	H50	Nandi	Belgaum	Belgaum	15°57'6.6"	74°34'21"
51	H51	Nandi	Belgaum	Belgaum	15°57'12.8"	74°34'21.1"
52	H52	Nandi	Belgaum	Belgaum	15°57'19.9"	74°34'22.8"
53	H53	Nandi	Belgaum	Belgaum	15°57'26.3"	74°34'23.6"
54	H54	Nandi	Belgaum	Belgaum	15°57'33.3"	74°34'25.2"
55	H55	Nandi	Belgaum	Belgaum	15°57'41.3"	74°34'28.5"
56	H56	Nandi	Belgaum	Belgaum	15°57'48.1"	74°34'30.1"
57	H57	Nandi	Belgaum	Belgaum	15°57'54.5"	74°34'30.4"
58	H58	Nandi	Belgaum	Belgaum	15°57'34.2"	74°35'8"
59	H59	Nandi	Belgaum	Belgaum	15°57'27.7"	74°35'7.3"
60	H60	Baramanahatti	Belgaum	Belgaum	15°57'21.9"	74°35'9.5"
61	H61	Baramanahatti	Belgaum	Belgaum	15°57'11.8"	74°35'21"
62	H62	Baramanahatti	Belgaum	Belgaum	15°57'24.5"	74°35'25.6"
63	H63	Nandi	Belgaum	Belgaum	15°57'31.3"	74°35'26.5"

Appendix 2. Commissioning Schedule of the Project Activity

SN	Name	Capacity	Village	Taluka	District	Location Number	Commissioning Date
1	EN Renewable Energy Limited	800 kW	Deshnur	Bailhongal	Belgaum	HH01	31.03.2011
2		800 kW	Deshnur	Bailhongal	Belgaum	HH02	31.03.2011
3		800 kW	Deshnur	Bailhongal	Belgaum	HH03	31.03.2011
4		800 kW	Deshnur	Bailhongal	Belgaum	HH04	31.03.2011
5		800 kW	Deshnur	Bailhongal	Belgaum	HH06	31.03.2011
6		800 kW	Deshnur	Bailhongal	Belgaum	HH07	31.03.2011
7		800 kW	Deshnur	Bailhongal	Belgaum	HH08	31.03.2011
8		800 kW	Deshnur	Bailhongal	Belgaum	HH11	31.03.2011
9		800 kW	Deshnur	Bailhongal	Belgaum	HH12	31.03.2011
10		800 kW	Deshnur	Bailhongal	Belgaum	HH13	31.03.2011
11		800 kW	Deshnur	Bailhongal	Belgaum	HH14	31.03.2011
12		800 kW	Deshnur	Bailhongal	Belgaum	HH15	31.03.2011
13		800 kW	Deshnur	Bailhongal	Belgaum	HH16	31.03.2011
14		800 kW	Deshnur	Bailhongal	Belgaum	HH17	31.03.2011
15		800 kW	Ganginahal	Belgaum	Belgaum	H1	16.02.2011
16		800 kW	Kakti	Belgaum	Belgaum	H2	16.02.2011
17		800 kW	Kakti	Belgaum	Belgaum	H3	16.02.2011
18		800 kW	Kakti	Belgaum	Belgaum	H4	16.02.2011
19		800 kW	Sunahatti	Belgaum	Belgaum	H5	16.02.2011
20		800 kW	Sunahatti	Belgaum	Belgaum	H6	16.02.2011
21		800 kW	Sunahatti	Belgaum	Belgaum	H7	16.02.2011
22		800 kW	Kakti	Belgaum	Belgaum	H8	16.02.2011
23		800 kW	Kakti	Belgaum	Belgaum	H9	16.02.2011
24		800 kW	Kakti	Belgaum	Belgaum	H10	16.02.2011
25		800 kW	Kakti	Belgaum	Belgaum	H11	16.02.2011
26		800 kW	Kakti	Belgaum	Belgaum	H12	16.02.2011
27		800 kW	Kakti	Belgaum	Belgaum	H13	16.02.2011
28		800 kW	Kakti	Belgaum	Belgaum	H14	16.02.2011
29		800 kW	Kakti	Belgaum	Belgaum	H15	16.02.2011
30		800 kW	Kakti	Belgaum	Belgaum	H16	16.02.2011
31		800 kW	Kakti	Belgaum	Belgaum	H17	16.02.2011
32		800 kW	Kakti	Belgaum	Belgaum	H18	16.02.2011
33		800 kW	Kakti	Belgaum	Belgaum	H19	16.02.2011
34		800 kW	Kakti	Belgaum	Belgaum	H20	16.02.2011
35		800 kW	Kakti	Belgaum	Belgaum	H21	16.02.2011
36		800 kW	Kakti	Belgaum	Belgaum	H22	16.02.2011
37		800 kW	Kakti	Belgaum	Belgaum	H23	16.02.2011
38		800 kW	Kakti	Belgaum	Belgaum	H24	16.02.2011
39		800 kW	Kanabargi	Belgaum	Belgaum	H27	16.02.2011
40		800 kW	Kanabargi	Belgaum	Belgaum	H28	31.03.2011
41		800 kW	Baramanahatti	Belgaum	Belgaum	H41	16.02.2011
42		800 kW	Baramanahatti	Belgaum	Belgaum	H42	16.02.2011
43		800 kW	Baramanahatti	Belgaum	Belgaum	H43	16.02.2011
44		800 kW	Baramanahatti	Belgaum	Belgaum	H44	16.02.2011
45		800 kW	Baramanahatti	Belgaum	Belgaum	H45	16.02.2011
46		800 kW	Baramanahatti	Belgaum	Belgaum	H46	11.03.2011
47		800 kW	Baramanahatti	Belgaum	Belgaum	H47	11.03.2011
48		800 kW	Baramanahatti	Belgaum	Belgaum	H48	11.03.2011

49		800 kW	Nandi	Belgaum	Belgaum	H49	11.03.2011
50		800 kW	Nandi	Belgaum	Belgaum	H50	11.03.2011
51		800 kW	Nandi	Belgaum	Belgaum	H51	11.03.2011
52		800 kW	Nandi	Belgaum	Belgaum	H52	11.03.2011
53		800 kW	Nandi	Belgaum	Belgaum	H53	11.03.2011
54		800 kW	Nandi	Belgaum	Belgaum	H54	11.03.2011
55		800 kW	Nandi	Belgaum	Belgaum	H55	11.03.2011
56		800 kW	Nandi	Belgaum	Belgaum	H56	11.03.2011
57		800 kW	Nandi	Belgaum	Belgaum	H57	11.03.2011
58		800 kW	Nandi	Belgaum	Belgaum	H58	11.03.2011
59		800 kW	Nandi	Belgaum	Belgaum	H59	31.03.2011
60		800 kW	Baramanahatti	Belgaum	Belgaum	H60	11.03.2011
61		800 kW	Baramanahatti	Belgaum	Belgaum	H61	11.03.2011
62		800 kW	Baramanahatti	Belgaum	Belgaum	H62	31.03.2011
63		800 kW	Nandi	Belgaum	Belgaum	H63	31.03.2011

Appendix 3. Major Calibration Records

Date	Turbine No	WTG TOTAL DOWN TIME	STOPPAGE DETAILS
05/04/2018	HH01	21:05:00	Error code 5205 Magneto thermic of the stator protection failure or door open
17/04/2018	HH16	10:27:00	Error code 10007 Manual stop for audit point completion work
26/05/2018	HH-11	23:59:00	Error code 5228 Preloaded Failure
30/05/2018	HH42	23:59:00	Error code 5215 Rotor protection thermal magnetic failure
01/06/2018	HH42	23:59:00	Error code 5215 Rotor protection thermal magnetic failure
26/06/2018	H12	19:32:00	Error code 700 PLC/ Converter communication Failure
13/07/2018	HH42	19:57:00	Error code 5215 Rotor protection thermal magnetic failure
27/07/2018	HH42	15:54:00	Error code 5215 Rotor protection thermal magnetic failure
04/08/2018	HH42	23:59:00	Error code 5215 Rotor protection thermal magnetic failure
05/08/2018	HH42	20:59:00	Error code 5215 Rotor protection thermal magnetic failure
06/09/2018	HH42	23:59:00	Error code 5215 Rotor protection thermal magnetic failure
07/10/2018	HH42	23:59:00	Error code 5215 Rotor protection thermal magnetic failure
18/10/2018	HH42	22:03:00	Error code 5215 Rotor protection thermal magnetic failure
11/11/2018	H24	23:59:00	Error code 402 Gearbox oil hose failure
26/12/2018	H24	23:59:00	Error code 402 Gearbox oil hose failure
13/01/2019	H24	23:59:00	Error code 402 Gearbox oil hose failure
31/01/2019	HH01	11:26:00	Error code 207 High T (HG)
11/02/2019	HH01	11:08:00	Error code 207 High T (HG)
23/02/2019	HH42	11:39:00	Error code 700 PLC / Converter communication failure
04/03/2019	HH42	16:54:00	Error code 700 PLC / Converter communication failure
05/05/2019	HH42	16:54:00	Error code 700 PLC / Converter communication failure
01/06/2019	H24	11:51:00	Error code 5221 encoder synchronism error
22/06/2019	H17	11:49:00	Error code 5239 rectifier phase R overcurrent
24/06/2019	H48	19:47:00	Error code 5216 Grid voltage failure
24/06/2019	H45	13:22:00	Error code 5216 Grid voltage failure
25/06/2019	H48	23:59:00	Error code 10007 Manual stop for SF6 breaker troubleshooting work
26/06/2019	H48	23:59:00	Error code 10007 Manual stop for SF6 breaker troubleshooting work
27/06/2019	H48	23:59:00	Error code 10007 Manual stop for SF6 breaker troubleshooting work
28/06/2019	H48	11:56:00	Error code 10007 Manual stop for SF6 breaker troubleshooting work
07/07/2019	H48	11:53:00	Error code 10007 Manual stop due to check post ROW issue F
12/07/2019	H59	15:58:00	Error code 205 Low level HG refrigeration oil
09/09/2019	HH01	23:59:00	Error code 201 Maximum HG pumping time
10/09/2019	HH01	23:59:00	Error code 201 Maximum HG pumping time
21/10/2019	HH19	23:59:00	Error code 10007 Manual stop for NDE bearing replacement work progress
13/11/2019	HH19	19:23:00	Error code 10007 Manual stop for NDE bearing replacement work progress

25/11/2019	H51	15:52:00	Error code 10007 Manual stop due to large amount of water inside the bottom side of the turbine
12/12/2019	H24	11:07:00	Error code 426 S reading failure
29/12/2019	H13	16:53:00	Error code5216 Grid voltage failure
06/01/2020	H14	10:10:00	Error code 5201 Magneto thermic trigger of stator protection
23/02/2020	H15	11:39:00	Error code 5201 Magneto thermic trigger of stator protection
04/03/2020	H16	11:39:00	Error code 5201 Magneto thermic trigger of stator protection
25/04/2020	H17	11:39:00	Error code 5201 Magneto thermic trigger of stator protection
30/04/2020	H18	23:56:00	Error code 5201 Magneto thermic trigger of stator protection
01/05/2020	H19	17:41:00	Error code 5201 Magneto thermic trigger of stator protection (SF 6 breaker grid side power cable T connector replacement done.)
08/06/2020	H20	12:10:00	Error code 10007 Manual stop due to 'C' Blade accumulator Base plate broken found
29/06/2020	H21	23:59:00	Error code 800 Pitch activation error
13/07/2020	H22	13:10:00	Error code 5216 Grid voltage failure F
11/08/2020	H23	21:49:00	Error code 201 Maximum HG pumping time
13/09/2020	H24	11:16:00	Error code 205 Low level hydraulic group refrigeration oil
24/10/2020	HH01	13:00:00	Error code 203 Low pressure on hydraulic group
03/11/2020	H45	14:49:00	Error code 5201 Magneto thermic trigger of the stator protection
13/11/2020	H45	15:46:00	Error code 5201 Magneto thermic trigger of the stator protection
20/12/2020	HH19	23:59:00	Error code 10007 Manual stop due to abnormal noise observed in generator NDE bearing side

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Document information

Version	*Date*	*Description*
07.0	31 May 2019	Revision to: • 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: • 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: • 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: • 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 *F-CDM-MR* to *CDM-MR-FORM*; • 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.
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).

Version	*Date*	*Description*
01.0	28 May 2010	EB 54, Annex 34. Initial adoption.

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