



**Verified Carbon
Standard**

250 MW WIND POWER PROJECT BY MYTRAH ENERGY



India's Largest Carbon Credit Developer & Supplier

Document Prepared by EKI Energy Services Limited

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Prepared By	Anjali Asst. Manager- Operations EKI Energy Services Limited
Contact	EnKing Embassy, Office No. 201, Plot 48, Scheme 78, Part 2 Vijay Nagar, Near brilliant Convention Centre, Indore- 452010 Madhya Pradesh, India Website: www.enkingint.org Email ID: anjali@enkingint.org T: +91 731 42 89 086, M: +91 9109120940

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The main purpose of this project activity is to generate clean form of electricity through renewable wind energy sources. The project activity involves installation of a 250 MW wind power project in Tamil Nadu state of India.

The project activity will support the development of new grid-connected renewable energy power plants in India and will cover the wind energy technologies. It seeks to enable investment in large scale grid connected plants that export their generated output to the regional / national electricity grid in India. This project activity follows methodology ACM0002 version 19.0.

Over the 10 years of first crediting period, the project will replace average anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 506,370 tCO₂e per year, thereon displacing average electricity generation about 540,531.5 MWh/year amount of electricity from the generation-mix of power plants connected to the Indian grid, which is mainly dominated by thermal/fossil fuel based power plant.

The commissioning details of the project and their location of installation are mentioned in the table below:-

Name of Investor	Capacity in MW	COD	Connectio n with Grid	State	Usage
MytrahVayu (Sabarmati) Pvt. Ltd.	128.79 MW	30-January- 2019	Indian Grid	Tamil Nadu	Sale to State DISCOMs
	58.32 MW	16-April-2019			
	62.89 MW	11-May-2019			

Total emission reductions achieved in this monitoring period:

During the Current Monitoring Period from 01-December-2019 to 31-March-2020 (Inclusive of both the dates) the project activity has supplied 107,139.04 MWh of electricity, and thus contributing to the GHG reductions 100,366 tCO₂e. Further the project underwent continued operation except for scheduled maintenance and breakdowns.

1.2 Sectoral Scope and Project Type

The project activity falls under the following Sectoral scope and Project Type:

Sectoral Scope : 01 - Energy industries (renewable / non-renewable sources)
Project Type : I - Renewable Energy Projects
Project Category : Grid-connected electricity generation from renewable sources
ACM0002- Version 19.0¹

Tools referred with above methodology are:

- Tool to calculate the emission factor for an electricity system² - Version 07.0 (EB 100, Annex 04)
- Tool for the demonstration and assessment of additionality³ - Version 07.0.0 (EB 70, Annex 08)

The project is not a grouped project activity.

1.3 Project Proponent

Organization name	Mytrah Vayu (Sabarmati) Pvt. Ltd.
Contact person	Mr. Santosh Kotti
Title	Assistant Manager
Address	1st Floor, 8001, 8th Floor, Q-City, Nanakramguda, Gachibowli, Hyderabad 500032, Telangana, INDIA
Telephone	+91 9958325673
Email	santoshkotti@mytrah.com

1.4 Other Entities Involved in the Project

Organization name	EKI Energy Services Limited
Role in the Project	Project Consultant
Contact person	Anjali Rao
Title	Project Manager
Address	Office No. 201, EnKing Embassy, Plot No. 48, Scheme No. 78, Part II, Vijay Nagar INDORE – 452010, India.

¹<https://cdm.unfccc.int/UserManagement/FileStorage/58IAGB7SZUDEO2VN6LYM30K41HFPRQ>

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

³<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>

Telephone	+91 9109120940
Email	anjali@enkingint.org

1.5 Project Start Date

Start date of the project activity is the earliest date of interconnection with the grid i.e. 30-January-2019. This is the date of commissioning of first WTG of this project activity.

The details of the commissioning dates of the individual project activity are mentioned in the section **¡Error! No se encuentra el origen de la referencia.** of this report.

1.6 Project Crediting Period

Crediting Period Start date: 30-January-2019

Crediting Period End date: 29-January-2029

The project activity adopts renewable crediting period of 10 years period which can be renewed for maximum 2 times.

1.7 Project Location

The details of the project locations are mentioned in the table below

Name of Investor	Capacity (MW)	Village(s)	District	State
MytrahVayu (Sabarmati) Pvt. Ltd.	250 MW	Kadambur, Kuppanapuram, Ottarampatti, Vandanam, Kayathar, Akhilandapuram&Paneerkulam	Tuticorin	Tamil Nadu

Respective WTG location along with coordinates are mentioned below:

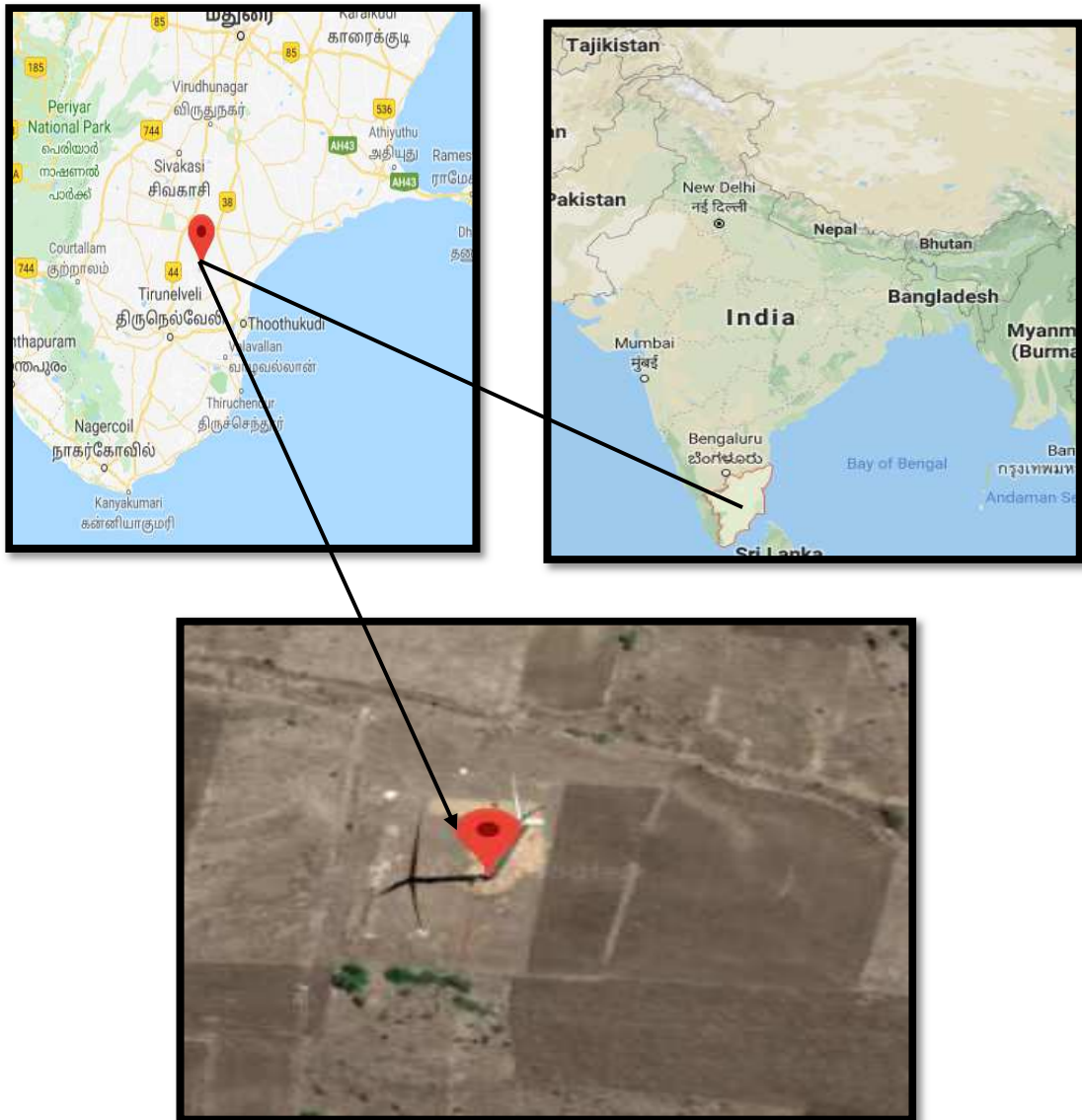
SL. No	Name of Investor	Location Name	Latitude	Longitude
1	M/s MytrahVayu (Sabarmati) Pvt. Ltd.	MAN-322	8°58' 04.93"	77° 55' 00.64"
2		MAN-321	8°58' 24.09"	77° 55' 22.36"
3		MAN -222	8°57' 49.51"	77° 54' 36.21"
4		MAN-215	8°57' 04.03"	77° 53' 07.05"
5		MAN-323	8°57' 30.49"	77° 53' 08.89"
6		MAN-199	8°59' 57.17"	77° 52' 43.33"

7		MAN-324	8°56' 59.21"	77° 52' 17.266"
8		MAN-197	9°00' 44.43"	77° 52' 05.52"
9		MAN-319	8°59' 53.26"	77° 54' 48.26"
10		MAN-196	9°01' 06.79"	77° 52' 15.16"
11		MAN-328	9°01' 42.51"	77° 53' 41.77"
12		MAN-326	9°00' 17.87"	77° 54' 37.53"
13		MAN-320	8°58' 43.03"	77° 54' 41.61"
14		MAN-353	8°57' 22.58"	77° 54' 40.81"
15		MAN-380	8°57' 31.83"	77° 54' 14.29"
16		MAN-311	9°01' 24.09"	77° 53' 43.03"
17		MAN-312	9°01' 53.19"	77° 54' 49.58"
18		MAN-349	9°03' 04.87"	77° 55' 21.34"
19		MAN-361	9°02' 49.37"	77° 56' 49.38"
20		MAN-379	9°01' 40.26"	77° 52' 27.36"
21		MAN-350	9°02' 45.455"	77° 55' 46.40"
22		MAN-362	9°03' 10.15"	77° 56' 09.18"
23		MAN-345	9°02' 24.90"	77° 55' 26.67"
24		MAN-305	9°02' 15.08"	77° 51' 55.31"
25		MAN-340	9°00' 53.28"	77° 56' 03.52"
26		MAN-378	9°05' 18.50"	77° 56' 46.48"
27		MAN-304	9°02' 32.51"	77° 51' 27.31"
28		MAN-377	9°03' 59.32"	77° 57' 18.22"
29		MAN 356	9°01' 06.19"	77° 57' 49.32"
30		MAN-366	9°04' 34.66"	77° 55' 26.91"
31		MAN 314	9° 01' 20.72"	77° 57' 46.01"
32		MAN-159	8°59' 46.60"	77° 49' 42.66"
33		MAN-161	9°00' 26.84"	77° 49' 03.72"
34		MAN-160	9°00' 12.76"	77° 49' 41.56"
35		MAN-415	8°58' 58.96"	77° 50' 49.62"
36		MAN-412	8°58' 28.65"	77° 50' 15.30"
37		MAN-417	8°58' 16.30"	77° 50' 39.34"
38		MAN-388	8°57' 13.89"	77° 47' 52.29"
39		MAN-146	8°59' 53.96"	77° 48' 37.98"
40		MAN-280	8°58' 57.03"	77° 47' 35.55"
41		MAN-297	9°02' 00.42"	77° 49' 53.49"
42		MAN-189	9°01' 11.35"	77° 51' 03.61"
43		MAN-185	9°00' 54.47"	77° 50' 21.21"
44		MAN-184	9°00' 32.44"	77° 50' 27.81"
45		MAN-299	9°01' 52.73"	77° 50' 58.57"
46		MAN-301	8°58' 19.75"	77° 46' 48.29"
47		MAN 351	9°02' 01.39"	77° 57' 35.38"
48		MAN 194	9°01' 59.33"	77° 52' 34.78"
49		MAN 437	9°02' 18.69"	77° 56' 27.38"

50		MAN 370	9°04' 14.19"	77° 56' 41.50"
51		MAN 341	9°01' 20.09"	77° 56' 01.65"
52		MAN 416	8°58' 30.61"	77° 51' 13.21"
53		MAN 405	8°59' 22.95"	77° 49' 34.56"
54		MAN-201	8°58' 59.80"	77° 51' 36.21"
55		MAN-444	8°56' 44.56"	77° 50' 17.04"
56		MAN 398	8°56' 30.02"	77° 50' 08.32"
57		MAN-483	8°59' 28.03"	77° 47' 21.78"
58		MAN-486	8°59' 54.90"	77° 47' 24.90"
59		MAN-485	8°59' 42.49"	77° 47' 57.16"
60		MAN-480	8°58' 09.42"	77° 47' 16.54"
61		MAN-481	8°58' 25.50"	77° 47' 06.75"
62		MAN-443	9°01' 12.22"	77° 49' 11.56"
63		MAN 162	9°00' 41.42"	77° 48' 29.02"
64		MAN-127	9°01' 34.55"	77° 49' 55.41"
65		MAN 126	9°01' 48.64"	77° 49' 54.15"
66		MAN-494	9°02' 02.97"	77° 50' 29.70"
67		MAN-497	9°01' 01.99"	77° 48' 30.88"
68		MAN-17	8°50' 24.87"	77° 53' 28.09"
69		MAN-24	8°49' 27.46"	77° 54' 15.25"
70		MAN-22	8°50' 35.38"	77° 54' 09.83"
71		MAN-255	8°47' 46.68"	77° 49' 24.71"
72		MAN-253	8°47' 11.41"	77° 49' 48.05"
73		MAN-26	8°48' 49.65"	77° 53' 27.41"
74		MAN-55	8°51' 19.15"	77° 52' 42.76"
75		MAN-16	8°50' 33.64"	77° 52' 55.62"
76		MAN-79	8°50' 21.64"	77° 48' 48.32"
77		MAN-490	8°49' 58.53"	77° 50' 20.022"
78		MAN-20	8°48' 56.29"	77° 52' 57.64"
79		MAN-03	8°46' 42.12"	77° 51' 11.26"
80		MAN-04	8°46' 20.45"	77° 51' 21.36"
81		MAN-11	8°49' 49.58"	77° 52' 29.67"
82		MAN-02	8°48' 32.40"	77° 50' 59.91"
83		MAN 05	8°46' 10.74"	77° 50' 53.70"
84		MAN 82	8°47' 02.26"	77° 51' 32.44"
85		MAN 258	8°48' 50.75"	77° 48' 59.17"
86		MAN 264	8°49' 22.98"	77° 51' 50.30"
87		MAN 19	8°49' 43.94"	77° 53' 13.25"
88		MAN 115	8°50' 08.55"	77° 54' 35.45"
89		MAN 12	8°49' 25.81"	77° 52' 28.67"
90		MAN 13	8°49' 05.67"	77° 52' 16.91"
91		MAN 18	8°49' 07.25"	77° 54' 00.83"
92		MAN 10	8°50' 14.01"	77° 54' 05.67"

93		MAN 15	8°50' 54.31"	77° 53' 19.72"
94		MAN 498	8°45' 50.84"	77° 50' 44.16"
95		MAN 499	8°46' 23.84"	77° 51' 59.74"
96		MAN-158	8°59' 34.14"	77° 49' 09.56"
97		MAN-125	8°57' 53.07"	77° 46' 41.11"
98		MAN-136	9°00' 17.13"	77° 4' 53.96"
99		MAN-491	9°02' 30.79"	77° 53' 51.52"
100		MAN-492	9°02' 19.48"	77° 53' 09.58"
101		MAN-488	9°00' 24.42"	77° 51' 32.88"
102		MAN-493	9°00' 52.89"	77° 50' 57.94"
103		MAN-355	8°58' 03.78"	77° 48' 57.02"
104		MAN-500	8°54' 35.50"	77° 49' 39.38"
105		MAN-501	8°54' 09.24"	77° 50' 10.31"

The project locations have been shown in the map below



1.8 Title and Reference of Methodology

Title : Grid-connected electricity generation from renewable sources

Reference : The project activity meets the eligibility criteria of large scale project as it is more than 15 MW

Methodology : ACM0002: Grid-connected electricity generation from renewable sources - Version 19.0⁴

Type I : Energy industries (renewable / non-renewable sources)

Category : Approved Consolidated Methodology (ACM0002)

Tools referred with above methodology and applicable for project activity are:

- Tool to calculate the emission factor for an electricity system⁵ - Version 07.0 (EB 100, Annex 04)
- Methodological Tool- Tool for the demonstration and assessment of additionality⁶ - Version 07.0.0 (EB 70, Annex 08)

1.9 Participation under other GHG Programs

The project has neither been registered nor seeking registration under any other GHG programs. The project is seeking registration only in VCS program.

1.10 Other Forms of Credit

Include the following information, as applicable:

- Emission Trading Programs and Other Binding Limits: The PP has not applied this project in any Emission Trading Programs and other Binding Limits.
- Other Forms of Environmental Credit: The PP has not applied this project in any other form of environmental credits or for REC benefits. PP not participating for REC benefits can be verified from this link- https://www.recregistryindia.nic.in/index.php/publics/accredited_regens

1.11 Sustainable Development

Contribution to sustainable development:

Ministry of Environment and Forests, 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 would help in generating employment opportunities during the construction and operation phases. The project activity will lead to

⁴<https://cdm.unfccc.int/UserManagement/FileStorage/58IAGB7SZUDEO2VN6LYM30K41HFPRQ>

⁵<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf>

⁶<http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>

development in infrastructure in the region like development of roads 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 will also help to reduced the demand supply gap in the state. The project activity generate power using zero emissions wind energy based power generation which helps to reduce GHG emissions and specific pollutants like SOx, NOx, and SPM associated with the conventional thermal power generation facilities. The project activity creates local employment generation which helps economic well-being of local people.
- **Technological well-being:** The successful operation of project activity leads to promotion of wind power generation and would encourage other entrepreneurs to participate in similar projects.
- **Environmental well-being:** Wind 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.

2 SAFEGUARDS

2.1 No Net Harm

The project activity does not involve any major construction activity. It primarily requires the installation of the WTGs, interfacing the generators with the State Electricity Board by setting up HT transmission lines and installation of other accessories.

The report on “Developmental Impacts and Sustainable Governance Aspects of Renewable Energy Projects” prepared by MNRE dated September 2013. This report clearly mentioned that wind project activity operations do not result in direct air pollution, noise pollution. Please refer below web link for the same⁷.

Thus there are no any significant impacts due to implementation of project activity on air, water, soil quality and ambience are envisaged due to the project activity.

2.2 Local Stakeholder Consultation

As a part of continual improvement process, feedback from the associated stakeholders is vital, therefore a dedicated Visitor register cum grievance register has been placed at the project site which is accessible to stakeholders to provide their feedback on the project. It is appropriate publicly accessible location at which local stakeholders can provide their feedback on the

⁷<http://mnre.gov.in/file-manager/UserFiles/report-on-developmental-impacts-of-RE.pdf>

project. This location is also conducive to continuous and regular checks for stakeholder comments. For the global stakeholders, the suggestion and the grievance can be submitted to mail@mytrah.com

Stakeholder meetings are organized on regular intervals in order to identify the major challenges around the area, stakeholders are invited well in advance through printed invitation, calls, meeting and a notice is placed around the local common areas. Various CSR activities around site are carried out with proper stakeholder requirements meeting. The stakeholders are also requested to share their experiences and grievances on continuous basis. Registers is used to records the grievances and feedback. During the current monitoring period, positive feedbacks had been received regarding site operation. No any grievances received during the current monitoring period, therefore, no any mitigation measures were required. Incase of grievances, the nature of probable resolution is discussed with the plant head office and implemented by the site incharge.



Figure 1. Local Stakeholder Consultation photos

2.3 AFOLU-Specific Safeguards

Not Applicable

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The project activity involves the installation of Wind project. The total installed capacity of the project is 250 MW Wind project located at Tamil Nadu state in India. The project is promoted by Mytrah Vayu (Sabarmati) Pvt. Ltd.

The Project activity is a new facility (Greenfield) and the electricity generated by the project will be exported to the Indian electricity grid. The project will therefore displace an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid. The Project Proponent plans to avail the VCS benefits for the project.

The project has been under operation since commissioning without any major breakdowns. Though normal breakdowns due to O&M measures are continuously being worked upon by the dedicated O&M contractor for the projects WEGs. There has been no event that may have an impact on the GHG emissions or removals during the current monitoring period.

Further, there are no changes to the project participant for the project activity during the monitoring period.

3.2 Deviations

3.2.1 Methodology Deviations

There has not been any methodology deviation during the aforesaid monitoring period.

3.2.2 Project Description Deviations

Deviation 1:

This deviation is a permanent monitoring deviation. The meter reading practice in India is upgrading to optimum level which based on robust technology and requires minimum human intervention. Currently in this monitoring period, the deviation is for Tamil Nadu state project having Project Investor name MytrahVayu (Sabarmati) Pvt. Ltd. but not limited to further upgradation at another states of India.

The monitoring practice is updated (October 2018) and it's shifted to Deviation Settlement Mechanism (DSM) in order to more strengthen the national grid. The export and import values are omitted and no longer provided, only net export values are being provided for the invoicing to respective boards/government institutions. In DSM, PP have to forecast electrical energy generation in day time blocks (In India, 15 minutes each block, total 96 blocks) well in advance. The invoicing is done on the forecasted value. The actual generation deviation from the forecasted values is penalized, it depends upon the deviation magnitude. Therefore instead of export and import values, the net values is directly obtained (either by including deviation to the schedule values or directly considering the actual values from the SRPC report) for the emission reduction calculation. The approach doesn't alters the emission reduction and its calculations.

For Sothern Region, Total Energy schedule and the Actual values (which is the actual Net delivered) is maintained by the Southern Regional Power Committee (SRPC) Secretariat, Central Electricity Authority, Government of India. Regional Energy Account (monthly net export) for

every month in respect of Southern Region has been uploaded on the SRPC website, www.srpc.kar.nic.in. Since the document is provided by government nodal agency, therefore no any cross-checking is required.

The nature of deviation is permanent.

3.3 Grouped Projects

The project is not a grouped project.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	EF _{grid,OM,y}
Data unit	tCO ₂ /MWh
Description	Operating Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 14, December 2018 ⁸
Value applied	0.9610
Justification of choice of data or description of measurement methods and procedures applied	Calculated as per “Tool to calculate the emission factor for an electricity system, version 07” as 3-year generation weighted average using data for the years 2015-2016, 2016-2017 & 2017-2018. The data are obtained from “CO ₂ Baseline Database for Indian Power Sector” version 14, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of Data	For the calculation of the Baseline Emission
Comments	This parameter is fixed ex-ante for the entire crediting period.

Data / Parameter	EF _{grid,BM,y}
Data unit	tCO ₂ /MWh
Description	Build Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 14, December 2018
Value applied	0.8644
Justification of choice of	Calculated as per “Tool to calculate the emission factor for an

⁸http://cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

data or description of measurement methods and procedures applied	electricity system, version 07” as per the latest data available for the most recent year 2018. The data is obtained from “CO ₂ Baseline Database for Indian Power Sector” version 14, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of Data	For the calculation of the Baseline Emission
Comments	This parameter is fixed ex-ante for the entire crediting period.

Data / Parameter	EF _{grid,CM,y}
Data unit	tCO ₂ /MWh
Description	Combined Margin CO ₂ emission factor in year y
Source of data	Calculated from CEA database, Version 14, December 2018 ⁸
Value applied	0.9368
Justification of choice of data or description of measurement methods and procedures applied	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 CO₂ emission factor in year y (tCO₂/MWh) EF_{grid,OM,y}= Operating margin CO₂ emission factor in year y (tCO₂/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 75% W_{BM}= Weighting of build margin emissions factor (%) = 25% Calculated as per “Tool to calculate the emission factor for an electricity system, version 07.0.0”. The data is obtained from “CO₂ Baseline Database for Indian Power Sector” Version 14, December 2018, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of Data	For the calculation of the Baseline Emission
Comments	This parameter is fixed ex-ante for the entire crediting period.

4.2 Data and Parameters Monitored

Data / Parameter	EG _{PJ,,y}
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project (Wind) plant/unit to the grid during the monitoring period
Source of data	Deviation Settlement Account statement issued by SRPC

Description of measurement methods and procedures to be applied	Data Type: Measured Monitoring equipment: Energy Meters are used for monitoring. Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters, Summarized Annually Archiving Policy: Paper & Electronic Class of meter: 0.2s. Calibration frequency: One in five years⁹ Electricity exported by the project to the grid at project site switch yard is the actual generation recorded and monitored by the metering system installed at the project site switch yard. The metering system comprises of three individual special energy meters (SEMs) (acts as standby meters) installed at the power station, for each generating units. These are connected via four transmission lines of 220 kV, each having its own SEM meter (main meter and check meter). In case, anyone transmission line in not in service than complete load will be shifted to other transmission line which is in operation. The energy meters are special energy meters which are installed and sealed by the Power Grid Corporation of India Limited in the presence of the representatives of the power producer. The check meter shall be used during the period the main metering system is not in service. Further in case of failure of both main meter and check meter, sum of the net electricity generation recorded by three individual special energy meters (SEMs) and individual auxiliary meters shall be used for accounting and billing purpose. This can be cross-checked from the monthly Invoices raised by the PP which is the scheduled power being feed into the grid. The crosscheck mechanism can be referred from the actual ER sheet.
Frequency of monitoring/recording	Continuous monitoring and monthly recording
Value monitored	107139.04
Monitoring equipment	Special Energy Meters (SEMs) of 0.2s accuracy class

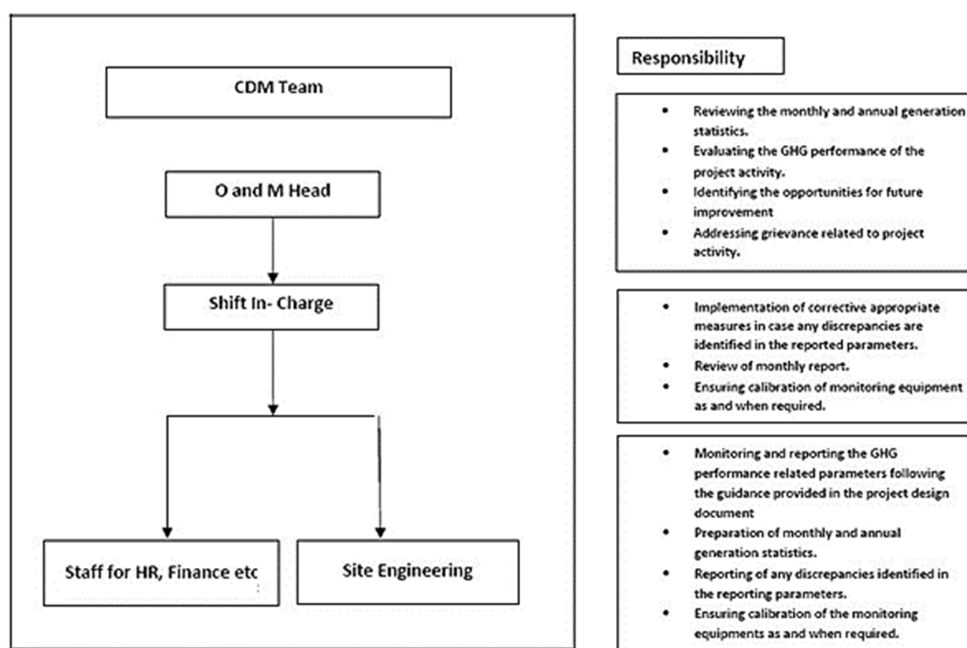
⁹http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

QA/QC procedures to be applied	Energy meters will be calibrated once in a five year and faulty meters will be duly replaced immediately. For detailed schedule of energy meters used in project activity please refer Annexure 2. This data may be cross checked with the Monthly Generation Reports
Purpose of the data	Calculation of Baseline emissions
Calculation method	N/A
Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.

4.3 Monitoring Plan

The monitoring plan is developed in accordance with the modalities and procedures for CDM project activities and is proposed for wind energy power project. The monitoring plan, which will be implemented by the project participant describes about the monitoring organisation, parameters to be monitored, monitoring practices, quality assurance, quality control procedures, data storage and archiving.

The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data rests with the project participant. PP proposed the following structure for data monitoring, collection, data archiving and calibration of equipments for this project activity. The team comprises of the following members:



Data Measurement

The electricity supplied or transmitted is sourced from “Deviation Settlement Account document” and is cross checked from “Monthly Generation Reports”. “Deviation Settlement Account document” which are publically available documents issued by the ‘Southern Regional Power Committee¹⁰. Readings of meters shall be taken on monthly basis by authorized officer of SEB in the presence of PP or representative of PP. Based on the Meter Reading Statement, invoices will be raised. These invoices can be used for cross checking the meter readings taken for the respective project activity.

Data collection and archiving

The records are checked periodically by the Plant Manager and discussed thoroughly with the plant supervisor. The period of storage of the monitored data will be 2 years after the end of crediting period or till the last issuance of VERs for the project activity whichever occurs later.

Emergency preparedness

The project activity will not result in any unidentified activity that can result in substantial emissions from the project activity. No need for emergency preparedness in data monitoring is visualized.

¹⁰<http://www.srpc.kar.nic.in/html/index.html>

Personnel training

In order to ensure a proper functioning of the project activity and a properly monitoring of emission reductions, the staff will be trained. The plant helpers will be trained in equipment operation, data recording, reports writing, operation and maintenance and emergency procedures in compliance with the monitoring plan.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

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

Where:

BE_y : Baseline emissions in year y (tCO₂e/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 VCS project activity in year y (MWh/yr)

$EF_{grid, CM, y}$: Combined margin CO₂ 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” (tCO₂e/MWh)

Parameter	Unit	Value
$EG_{PJ, y}$	MWh	107139.04
$EF_{grid, CM, y}$	tCO ₂ e	0.9368
BE_y	=	107139.04*0.9368
	=	100,366 (Round down value)

5.2 Project Emissions

Not Applicable, since emissions from the project activity is zero as per ACM0002 methodology.

5.3 Leakage

Not Applicable, since leakage emissions are not to be considered as per ACM0002 methodology.

5.4 Net GHG Emission Reductions and Removals

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
01/12/2019 to 31/12/2019	29248	0	0	29248
01/01/2020 to 31/03/2020	71118	0	0	71118
Total	100366	0	0	100366

It is to be noted here that as per the estimated emission reduction to be achieved from the project activity for the current monitoring period is 169252 tCO₂e, whereas actual emission reductions achieved are 100366 tCO₂e, which is approximately 40.7% lower than the estimated emission reductions. The generation of electricity depends upon many other climatic conditions, and not within the control of the project participant. The lower generation during the current verification period is hence due to certain natural conditions and hence acceptable.

APPENDIX 1: CALIBRATION DETAILS

Meter Sl.No.	Make	Class	Initial Meter calibration date	Due date for Calibration	Installed at location
SA0013A, SA0014A , SA0015A, SA0016A	Secure	0.2 s	15-June-2016	14-June-2021	230/33 kV Maniyachi Pooling Sub- station.
SA0012A	Secure	0.2 s	16-June-2016	15-June-2021	
SA0011A	Secure	0.2 s	17-June-2016	16-June-2021	

APPENDIX II: BREAKDOWN DETAILS

Date	Location	From	To	Total	Event	Type	Event Description
02-Dece mber- 19	MAN- 090_010	4:49	0:00	19:11:00	EVENT_157	ID	Secondary rotor brake does not close
02-Dece mber- 19	MAN- 020_197	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
02-Dece mber- 19	MAN- 014_020	0:00	0:00	24:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
02-Dece mber- 19	MAN- 007_115	0:00	0:00	24:00:00	EVENT_568	ID	Battery charging voltage not OK Axis2
02-Dece mber- 19	MAN- 092_012	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
02-Dece mber- 19	MAN- 093_013	0:00	0:00	24:00:00	EVENT_098	ID	Gearbox bearing A over temperature

03-December-19	MAN-020_197	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
03-December-19	MAN-083_255	0:00	0:00	24:00:00	EVENT_063	ID	Safety chain
04-December-19	MAN-092_012	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
04-December-19	MAN-093_013	0:00	0:00	24:00:00	EVENT_098	ID	Gearbox bearing A over temperature
04-December-19	MAN-007_115	0:00	0:00	24:00:00	EVENT_213	ID	Battery voltage not OK axis 2
04-December-19	MAN-020_197	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
04-December-19	MAN-030_494	0:00	0:00	24:00:00	EVENT_213	ID	Battery voltage not OK axis 2
04-December-19	MAN-014_020	0:00	0:00	24:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
05-December-19	MAN-007_115	0:00	21:00	21:00:00	EVENT_213	ID	Battery voltage not ok axis 2
05-December	MAN-092_012	0:00	21:00	21:00:00	EVENT_120	ID	Pitch controller communications fault
05-December	MAN-093_013	0:00	21:00	21:00:00	EVENT_098	ID	Gearbox bearing A over temperature
05-December	MAN-014_020	0:00	21:00	21:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
05-December	MAN-028_258	2:17	0:00	21:43:00	EVENT_072	ID	Gearbox oil over temperature from thermal switch
05-December	MAN-083_255	0:00	0:00	24:00:00	EVENT_063	ID	Safety chain
05-December	MAN-030_494	0:00	0:00	24:00:00	EVENT_213	ID	Battery voltage not ok axis 2

mber							
06-Dec-19	MAN-092_012	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
06-December-19	MAN-090_010	0:00	0:00	24:00:00	EVENT_157	ID	Secondary rotor brake does not close
December-19	MAN-093_013	0:00	0:00	24:00:00	EVENT_098	ID	Gearbox bearing A over temperature
December-19	MAN-014_020	0:00	0:00	24:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
December-19	MAN-007_115	0:00	0:00	24:00:00	EVENT_213	ID	battery voltage not OK axis 2
December-19	MAN-083_255	0:00	0:00	24:00:00	EVENT_063	ID	Safety chain
December-19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
December-19	MAN-061_380	0:00	0:00	24:00:00	EVENT_388	ID	Communication fault pitch controller Axis 3
07-December-19	MAN-090_010	0:00	18:00	18:00:00	EVENT_157	ID	Secondary rotor brake does not close
07-December-19	MAN-007_115	0:00	18:00	18:00:00	EVENT_213	ID	battery voltage not OK axis 2
07-December-19	MAN-092_012	0:00	18:00	18:00:00	EVENT_120	ID	Pitch controller communications fault
07-December-19	MAN-093_013	0:00	18:00	18:00:00	EVENT_098	ID	Gearbox bearing A over temperature
07-December-19	MAN-014_020	0:00	18:00	18:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
07-December-19	MAN-083_255	0:00	22:12	22:12:00	EVENT_063	ID	Safety chain
07-December-19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses

19							
07-December-19	MAN-061_380	0:00	0:00	24:00:00	EVENT_388	ID	Communication fault pitch controller Axis 3
08-December-19	MAN-083_255	0:00	0:00	24:00:00	EVENT_063	ID	Safety chain
08-December-19	MAN-061_380	0:00	0:00	24:00:00	EVENT_388	ID	Communication fault pitch controller Axis 3
09-December-19	MAN-083_255	0:00	0:00	24:00:00	EVENT_063	ID	Safety chain
09-December-19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
09-December-19	MAN-061_380	0:00	0:00	24:00:00	EVENT_388	ID	Communication fault pitch controller Axis 3
10-December-19	MAN-061_380	0:00	0:00	24:00:00	EVENT_388	ID	Communication fault pitch controller Axis 3
10-December-19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
10-December-19	MAN-054_361	3:17	0:00	20:43:00	EVENT_222	ID	Yaw runaway
11-December-19	MAN-090_010	0:00	18:16	18:16:00	EVENT_157	ID	Secondary rotor brake does not close
11-December-19	MAN-092_012	0:00	18:16	18:16:00	EVENT_120	ID	Pitch controller communications fault
11-December-19	MAN-093_013	0:00	18:16	18:16:00	EVENT_098	ID	Gearbox bearing A over temperature
11-December-19	MAN-014_020	0:00	18:16	18:16:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure

11-Dece mber- 19	MAN-007_115	0:00	18:16	18:16:00	EVENT_213	ID	Battery voltage not OK axis 2
11-Dece mber- 19	MAN-061_380	0:00	0:00	24:00:00	EVENT_388	ID	Communication fault pitch controller Axis 3
11-Dece mber- 19	MAN-083_255	0:00	0:00	24:00:00	EVENT_063	ID	Safety chain
11-Dece mber- 19	MAN-104_079	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
11-Dece mber- 19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
12-Dece mber- 19	MAN-083_255	0:00	0:00	24:00:00	EVENT_063	ID	Safety chain
12-Dece mber- 19	MAN-104_079	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
12-Dece mber- 19	MAN-061_380	0:00	0:00	24:00:00	EVENT_388	ID	Communication fault pitch controller Axis 3
12-Dece mber- 19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
13-Dece mber- 19	MAN-061_380	0:00	0:00	24:00:00	EVENT_388	ID	Communication fault pitch controller Axis 3
13-Dece mber- 19	MAN-090_010	0:00	0:00	24:00:00	EVENT_157	ID	Secondary rotor brake does not close
13-Dece mber- 19	MAN-092_012	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
13-Dece mber- 19	MAN-014_020	0:00	0:00	24:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
13-	MAN-	0:00	0:00	24:00:00	EVENT_213	ID	Battery voltage not OK axis 2

December-19	007_115						
13-December-19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
14-December-19	MAN-090_010	0:00	23:43	23:43:00	EVENT_157	ID	Secondary rotor brake does not close
14-December-19	MAN-092_012	0:00	23:43	23:43:00	EVENT_120	ID	Pitch controller communications fault
14-December-19	MAN-093_013	2:11	23:43	21:32:00	EVENT_120	ID	Pitch controller communications fault
14-December-19	MAN-014_020	0:00	23:43	23:43:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
14-December-19	MAN-007_115	0:00	23:43	23:43:00	EVENT_213	ID	Battery voltage not OK axis 2
14-December-19	MAN-061_380	0:00	0:00	24:00:00	EVENT_388	ID	Communication fault pitch controller Axis 3
14-December-19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
15-December-19	MAN-023_215	0:00	0:00	24:00:00	EVENT_063	ID	Safety chain
15-December-19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown fuses
15-December-19	MAN-061_380	0:00	0:00	24:00:00	EVENT_388	ID	Communication fault pitch controller Axis 3
15-December-19	MAN-090_010	6:33	0:00	17:27:00	EVENT_157	ID	Secondary rotor brake does not close
15-December	MAN-092_012	6:33	0:00	17:27:00	EVENT_120	ID	Pitch controller communications fault

mber-19							
15-December-19	MAN-014_020	6:33	0:00	17:27:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
16-December-19	MAN-023_215	0:00	0:00	24:00:00	EVENT_063	ID	Safety chain
16-December-19	MAN-092_012	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
16-December-19	MAN-090_010	0:00	0:00	24:00:00	EVENT_157	ID	Secondary rotor brake does not close
16-December-19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
16-December-19	MAN-061_380	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
16-December-19	MAN-014_020	0:00	0:00	24:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
16-December-19	MAN-093_013	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
17-December-19	MAN-023_215	0:00	0:00	24:00:00	EVENT_063	ID	Safety chain
17-December-19	MAN-092_012	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
17-December-19	MAN-090_010	0:00	0:00	24:00:00	EVENT_157	ID	Secondary rotor brake does not close
17-December-19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
17-December-19	MAN-061_380	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault

19							
17- Dece mber- 19	MAN- 014_020	0:00	0:00	24:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
17- Dece mber- 19	MAN- 093_013	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
17- Dece mber- 19	MAN- 030_494	0:00	17:47	17:47:00	EVENT_213	ID	Battery voltage not OK axis 2
18- Dece mber- 19	MAN- 104_079	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
18- Dece mber- 19	MAN- 083_255	0:00	0:00	24:00:00	EVENT_063	ID	Safety chain
18- Dece mber- 19	MAN- 092_012	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
18- Dece mber- 19	MAN- 093_013	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
18- Dece mber- 19	MAN- 090_010	0:00	0:00	24:00:00	EVENT_157	ID	Secondary rotor brake does not close
18- Dece mber- 19	MAN- 070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
18- Dece mber- 19	MAN- 014_020	0:00	0:00	24:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
18- Dece mber- 19	MAN- 049_350	0:45	0:00	23:15:00	EVENT_1251	BD	Ground Fault, Stator
18- Dece mber- 19	MAN- 090_010	0:00	0:00	24:00:00	EVENT_157	ID	Secondary rotor brake does not close
19- Dece mber- 19	MAN- 092_012	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault

19- Dece mber- 19	MAN- 093_013	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
19- Dece mber- 19	MAN- 014_020	0:00	0:00	24:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
19- Dece mber- 19	MAN- 097_018	0:00	0:00	24:00:00	EVENT_041	ID	Tower vibration sensor failure
19- Dece mber- 19	MAN- 004_126	0:00	0:00	24:00:00		ID	Internal VCB panel bus bar got flash over
19- Dece mber- 19	MAN- 104_079	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
19- Dece mber- 19	MAN- 030_494	0:00	0:00	24:00:00	EVENT_213	ID	Battery voltage not OK axis 2
19- Dece mber- 19	MAN- 028_258	0:00	0:00	24:00:00	EVENT_072	ID	Gearbox oil over temperature from thermal switch
19- Dece mber- 19	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
19- Dece mber- 19	MAN- 061_380	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
19- Dece mber- 19	MAN- 070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
19- Dece mber- 19	MAN- 023_215	0:00	23:00	23:00:00	EVENT_063	ID	Safety chain
19- Dece mber- 19	MAN- 083_255	0:00	0:00	24:00:00	EVENT_063	ID	Safety chain
20- Dece mber- 19	MAN- 070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
20-	MAN-	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator

December-19	049_350						
20-December-19	MAN-030_494	0:00	0:00	24:00:00	EVENT_212	ID	Battery voltage not OK axis 1
20-December-19	MAN-004_126	0:00	0:00	24:00:00		ID	Inside VCB panel bus bar flashover happend
21-December-19	MAN-004_126	6:53	0:00	17:07:00	EVENT_1242	ID	Inside VCB panel bus bar flashover happend
21-December-19	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
21-December-19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
22-December-19	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
22-December-19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
22-December-19	MAN-090_010	0:00	0:00	24:00:00	EVENT_157	ID	Secondary rotor brake does not close
22-December-19	MAN-092_012	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
22-December-19	MAN-093_013	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
22-December-19	MAN-014_020	0:00	0:00	24:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
22-December-19	MAN-083_255	0:00	0:00	24:00:00	EVENT_063	ID	Safety chain
22-December	MAN-015_253	0:00	0:00	24:00:00	EVENT_1749	ID	Pitch First Fault_Axis 2_SM_Pitch_PitchSysTypewConvVerA2

mber-19							
22-Dece mber-19	MAN-001_498	0:00	0:00	24:00:00	EVENT_1224	ID	Wiring Issue, Grid or Line converter
22-Dece mber-19	MAN-097_018	0:00	0:00	24:00:00	EVENT_177	ID	Tower vibration
23-Dece mber-19	MAN-001_498	6:59	0:00	17:01:00	EVENT_1224	ID	Wiring Issue, Grid or Line converter
23-Dece mber-19	MAN-104_079	6:59	0:00	17:01:00	EVENT_102	ID	Top Box Fuse or Motor protection alarm
23-Dece mber-19	MAN-097_018	6:59	0:00	17:01:00	EVENT_177	ID	Tower vibration
23-Dece mber-19	MAN-015_253	6:59	0:00	17:01:00	EVENT_1749	ID	Pitch First Fault_Axis 2_SM_Pitch_PitchSysTypewConvVerA2
23-Dece mber-19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown fuses
23-Dece mber-19	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
23-Dece mber-19	MAN-004_126	0:00	0:00	24:00:00	EVENT_1242	ID	Inside VCB panel bus bar flashover happend
23-Dece mber-19	MAN-083_255	6:59	0:00	17:01:00	EVENT_063	ID	Safety chain
24-Dece mber-19	MAN-104_079	1:06	0:00	22:54:00	EVENT_102	ID	Top Box Fuse or Motor protection alarm
24-Dece mber-19	MAN-097_018	1:06	0:00	22:54:00	EVENT_177	ID	Tower vibration
24-Dece mber-	MAN-015_253	1:06	0:00	22:54:00	EVENT_1749	ID	Pitch First Fault_Axis 2_SM_Pitch_PitchSysTypewConvVerA2

19							
24-Decmber-19	MAN-090_010	0:00	0:00	24:00:00	EVENT_157	ID	Secondary rotor brake does not close
24-Decmber-19	MAN-092_012	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
24-Deceember-19	MAN-093_013	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
24-Deceember-19	MAN-014_020	0:00	0:00	24:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
25-Deceember-19	MAN-104_079	0:00	18:23	18:23:00	EVENT_102	ID	Top Box Fuse or Motor protection alarm
25-Deceember-19	MAN-097_018	0:00	18:23	18:23:00	EVENT_177	ID	Tower vibration
25-Deceember-19	MAN-015_253	0:00	18:23	18:23:00	EVENT_1749	ID	Pitch First Fault_Axis 2_SM_Pitch_PitchSysTypewConvVerA2
25-Deceember-19	MAN-090_010	0:00	0:00	24:00:00	EVENT_157	ID	Secondary rotor brake does not close
25-Deceember-19	MAN-092_012	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
25-Deceember-19	MAN-093_013	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
25-Deceember-19	MAN-014_020	0:00	0:00	24:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
25-Deceember-19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
25-Deceember-19	MAN-004_126	0:00	0:00	24:00:00	EVENT_1242	ID	Inside VCB panel bus bar flashover happend

25-Dece mber- 19	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
25-Dece mber- 19	MAN-040_322	0:00	0:00	24:00:00	EVENT_1502	ID	Communication Failure with WET
26-Dece mber- 19	MAN-090_010	0:00	0:00	24:00:00	EVENT_157	ID	Secondary rotor brake does not close
26-Dece mber- 19	MAN-092_012	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
26-Dece mber- 19	MAN-093_013	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
26-Dece mber- 19	MAN-014_020	0:00	0:00	24:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
26-Dece mber- 19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown fuses
26-Dece mber- 19	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
26-Dece mber- 19	MAN-040_322	0:00	0:00	24:00:00	EVENT_1502	ID	Communication Failure with WET
26-Dece mber- 19	MAN-004_126	0:00	0:00	24:00:00	EVENT_1242	ID	Inside VCB panel bus bar flashover happend
27-Dece mber- 19	MAN-104_079	0:00	18:26	18:26:00	EVENT_102	ID	Top Box Fuse or Motor protection alarm
27-Dece mber- 19	MAN-090_010	0:00	18:38	18:38:00	EVENT_157	ID	Secondary rotor brake does not close
27-Dece mber- 19	MAN-092_012	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
27-	MAN-	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault

December-19	093_013						
27-December-19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown fuses
27-December-19	MAN-015_253	0:00	0:00	24:00:00	EVENT_1749	ID	Pitch First Fault_Axis 2_SM_Pitch_PitchSysTypewConvVerA2
27-December-19	MAN-097_018	0:00	0:00	24:00:00	EVENT_177	ID	Tower vibration
27-December-19	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
27-December-19	MAN-014_020	0:00	0:00	24:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
28-December-19	MAN-092_012	0:00	21:18	21:18:00	EVENT_120	ID	Pitch controller communications fault
28-December-19	MAN-093_013	0:00	0:00	24:00:00	EVENT_120	ID	Pitch controller communications fault
28-December-19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown fuses
28-December-19	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
28-December-19	MAN-014_020	0:00	0:00	24:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
29-December-19	MAN-014_020	0:00	18:11	18:11:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure
29-December-19	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
29-December	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses

mber-19							
29-December-19	MAN-004_126	0:00	0:00	24:00:00	EVENT_144	ID	Blade angle asymmetry
30-December-19	MAN-097_018	0:00	17:26	17:26:00	EVENT_177	ID	Tower vibration
30-December-19	MAN-097_018	0:00	17:26	17:26:00	EVENT_177	ID	Tower vibration
30-December-19	MAN-097_018	0:00	17:26	17:26:00	EVENT_177	ID	Tower vibration
30-December-19	MAN-104_079	0:00	18:40	18:40:00	EVENT_120	ID	Pitch controller communications fault
30-December-19	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
30-December-19	MAN-070_437	0:00	0:00	24:00:00	EVENT_1201	ID	Blown Fuses
30-December-19	MAN-004_126	0:00	0:00	24:00:00	EVENT_144	ID	Blade angle asymmetry
31-December-19	MAN-004_126	0:00	0:00	24:00:00	EVENT_144	ID	Blade angle asymmetry
31-December-19	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
31-December-19	MAN-014_020	0:00	0:00	24:00:00	EVENT_201	ID	IO Card 28V power supply failed or Communication failure

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01-January-20	MAN-004_126	0:00	0:00	24:00:00	EVENT_144	ID	Blade angle asymmetry
02-January-20	MAN-049_350	0:00	18:13	18:13:00	EVENT_1251	BD	Ground Fault, Stator
03-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
04-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
05-January-20	MAN-004_126	0:00	0:00	24:00:00	EVENT_144	ID	Blade angle asymmetry
06-January-20	MAN-004_126	0:00	0:00	24:00:00	EVENT_274	ID	Pitch Converter not ready axis 1
07-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
08-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
09-January-20	MAN-049_350	0:00	0:00	24:00:00	NA	BD	Grid fail reset time
10-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
11-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
12-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
13-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
14-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
15-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
16-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
17-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator

18-January-20	MAN-092_012	6:34	0:00	17:26:00	EVENT_1242	ID	Tripped(Grid loss)
18-January-20	MAN-093_013	6:34	0:00	17:26:00	EVENT_1242	ID	Tripped(Grid loss)
18-January-20	MAN-098_019	6:34	0:00	17:26:00	EVENT_1242	ID	Tripped(Grid loss)
18-January-20	MAN-014_020	6:34	0:00	17:26:00	EVENT_1242	ID	Tripped(Grid loss)
20-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
20-January-20	MAN-092_012	0:00	17:28	17:28:00	EVENT_1242	ID	Tripped(Grid loss)
20-January-20	MAN-093_013	0:00	17:28	17:28:00	EVENT_1242	ID	Tripped(Grid loss)
20-January-20	MAN-098_019	0:00	17:28	17:28:00	EVENT_1242	ID	Tripped(Grid loss)
20-January-20	MAN-014_020	0:00	17:28	17:28:00	EVENT_1242	ID	Tripped(Grid loss)
20-January-20	MAN-016_264	0:00	17:28	17:28:00	EVENT_1242	ID	Tripped(Grid loss)
21-January-20	MAN-015_253	6:36	0:00	17:24:00	EVENT_087	ID	Restart time delay
21-January-20	MAN-030_494	0:00	0:00	24:00:00	EVENT_340	ID	Pitch control deviation Axis 2
21-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
22-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
22-January-20	MAN-030_494	0:00	0:00	24:00:00	EVENT_340	ID	Pitch control deviation Axis 2
23-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
23-January-20	MAN-030_494	0:00	0:00	24:00:00	EVENT_340	ID	Pitch control deviation Axis 2
25-January	MAN-030_494	0:00	18:26	18:26:00	EVENT_340	ID	Pitch control deviation Axis 2

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25-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
26-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
26-January-20	MAN-030_494	0:00	0:00	24:00:00	EVENT_340	ID	Pitch control deviation Axis 2
27-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
27-January-20	MAN-030_494	0:00	0:00	24:00:00	EVENT_340	ID	Pitch control deviation Axis 2
28-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
29-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
30-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
31-January-20	MAN-071_370	0:00	0:00	24:00:00	EVENT_1255	ID	Thermal Turbine Shutdown
31-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_212	BD	Battery voltage not OK axis 1
31-January-20	MAN-067_314	0:00	0:00	24:00:00	EVENT_003	ID	Manual stop
31-January-20	MAN-071_370	0:00	0:00	24:00:00	EVENT_1255	ID	Thermal Turbine Shutdown
31-January-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_212	BD	Battery voltage not OK axis 1
31-January-20	MAN-067_314	0:00	0:00	24:00:00	EVENT_003	ID	Manual stop
01-February-20	MAN-071_370	0:00	0:00	24:00:00	EVENT_1255	ID	Thermal Turbine Shutdown
02-February-20	MAN-067_314	0:00	0:00	24:00:00	EVENT_003	ID	Manual Stop
02-February-20	MAN-071_370	0:00	0:00	24:00:00	EVENT_1255	ID	Thermal Turbine Shutdown

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02- Febru ary-20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
03- Febru ary-20	MAN- 071_370	0:00	0:00	24:00:00	EVENT_1255	ID	Thermal Turbine Shutdown
03- Febru ary-20	MAN- 067_314	0:00	0:00	24:00:00	EVENT_003	ID	Manual stop
03- Febru ary-20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
04- Febru ary-20	MAN- 071_370	0:00	0:00	24:00:00	EVENT_1255	ID	Thermal Turbine Shutdown
04- Febru ary-20	MAN- 067_314	0:00	0:00	24:00:00	EVENT_003	ID	Manual stop
04- Febru ary-20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
05- Febru ary-20	MAN- 071_370	0:00	0:00	24:00:00	EVENT_1255	ID	Thermal Turbine Shutdown
05- Febru ary-20	MAN- 067_314	0:00	0:00	24:00:00	EVENT_003	ID	Manual stop
05- Feb- ruary- 20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
06- Febru ary-20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
06- Febru ary-20	MAN- 071_370	0:00	0:00	24:00:00	EVENT_1255	ID	Thermal Turbine Shutdown
06- Febru ary-20	MAN- 067_314	0:00	0:00	24:00:00	EVENT_003	ID	Manual stop
07- Febru ary-20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
07- Febru ary-20	MAN- 071_370	0:00	0:00	24:00:00	EVENT_1255	ID	Thermal Turbine Shutdown
07- Febru ary-20	MAN- 067_314	0:00	0:00	24:00:00	EVENT_003	ID	Manual stop
08- Febru ary-20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator

08-February-20	MAN-071_370	0:00	0:00	24:00:00	EVENT_1255	ID	Thermal Turbine Shutdown
08-February-20	MAN-067_314	0:00	0:00	24:00:00	EVENT_003	ID	Manual stop
08-February-20	MAN-007_115	0:00	0:00	24:00:00	EVENT_213	ID	Battery voltage not OK axis 2
09-February-20	MAN-071_370	6:46	0:00	17:14:00	EVENT_1255	ID	Thermal Turbine Shutdown
09-February-20	MAN-073_405	5:21	0:00	18:39:00	EVENT_1290	ID	IGBT Desat, Line Bridge
09-February-20	MAN-067_314	0:00	0:00	24:00:00	EVENT_003	ID	Manual Stop
09-February-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
10-February-20	MAN-067_314	0:00	0:00	24:00:00	EVENT_003	ID	Manual Stop
10-February-20	MAN-073_405	0:00	17:34	17:34:00	EVENT_1290	ID	IGBT Desat, Line Bridge
10-February-20	MAN-007_115	0:00	0:00	24:00:00	EVENT_213	ID	Battery voltage not OK axis 2
10-February-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
10-February-20	MAN-071_370	0:00	0:00	24:00:00	EVENT_1255	ID	Thermal Turbine Shutdown
11-February-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
11-February-20	MAN-067_314	0:00	17:51	17:51:00	EVENT_003	ID	Manual Stop
11-February-20	MAN-073_405	0:00	0:00	24:00:00	EVENT_1290	ID	IGBT Desat, Line Bridge
11-February-20	MAN-071_370	0:00	0:00	24:00:00	EVENT_1255	ID	Thermal Turbine Shutdown
12-February-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
12-February	MAN-071_370	0:00	0:00	24:00:00	EVENT_1255	ID	Thermal Turbine Shutdown

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12- Febru ary-20	MAN- 073_405	0:00	0:00	24:00:00	EVENT_1290	ID	IGBT Desat, Line Bridge
12- Febru ary-20	MAN- 082_490	4:03	0:00	19:57:00	EVENT_212	ID	Battery voltage not OK axis 1
13- Febru ary-20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
13- Febru ary-20	MAN- 073_405	0:00	20:47	20:47:00	EVENT_1290	ID	IGBT Desat, Line Bridge
13- Febru ary-20	MAN- 082_490	5:08	0:00	18:52:00	EVENT_212	ID	Battery voltage not OK axis 1
14- Febru ary-20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
14- Febru ary-20	MAN- 082_490	5:44	22:54	17:10:00	EVENT_212	ID	Battery voltage not OK axis 1
15- Febru ary-20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
16- Febru ary-20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
17- Febru ary-20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
18- Febru ary-20	MAN- 049_350	0:00	18:02	18:02:00	EVENT_1251	BD	Ground Fault, Stator
19- Febru ary-20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
20- Febru ary-20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
21- Febru ary-20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
22- Febru ary-20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground fault, Stator
23- Febru ary-20	MAN- 035_311	0:00	18:01	18:01:00	EVENT_1502	ID	Communication Failure with WET
23- Febru ary-20	MAN- 049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator

25-February-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
26-February-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
27-February-20	MAN-035_311	0:00	0:00	24:00:00	EVENT_247	ID	Cable supervision pitch motor
27-February-20	MAN-093_013	0:00	0:00	24:00:00	EVENT_340	ID	Pitch control deviation Axis 2
27-February-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
28-February-20	MAN-093_013	0:00	21:19	21:19:00	EVENT_340	ID	Pitch control deviation Axis 2
28-February-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
29-February-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
01-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
02-March-20	MAN-054_361	0:00	0:00	24:00:00	EVENT_211	ID	Generator brush wear shutdown
02-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
03-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
03-March-20	MAN-054_361	0:00	17:10	17:10:00	EVENT_211	ID	Generator brush wear shutdown
04-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
05-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
06-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
07-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
08-March	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator

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09-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
10-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
11-March-20	MAN-035_311	0:00	17:06	17:06:00		ID	Anemometer failure
11-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
12-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
13-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
14-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
15-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
17-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
18-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
19-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
20-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
21-March-20	MAN-035_311	5:31	0:00	18:29:00	EVENT_1290	ID	IGBT Desat, Line Bridge
21-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
22-March-20	MAN-035_311	0:00	0:00	24:00:00	EVENT_1290	ID	IGBT Desat, Line Bridge
22-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
24-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator

25-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
26-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
27-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
28-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
29-March-20	MAN-049_350	0:00	0:00	24:00:00	EVENT_1251	BD	Ground Fault, Stator
29-March-20	MAN-001_498	0:00	0:00	24:00:00	EVENT_1262	ID	IOC, Rotor Converter
30-March-20	MAN-001_498	0:00	0:00	24:00:00	EVENT_1291	ID	IGBT Desat, Rotor Bridge