# MONITORING REPORT

PUBLICATION DATE **14.10.2020**

VERSION **v. 1.1**

RELATED SUPPORT – **TEMPLATE GUIDE Monitoring Report v. 1.1**

This document contains the following Sections

KEY PROJECT INFORMATION

## Key Project Information

| | |
|---|---|
| **GS ID (s) of Project (s)** | GS5007 |
| **Title of the project (s) covered by monitoring report** | Renewable Energy Wind Power Project in Rajasthan |
| **Version number of the PDD/VPA-DD (s) applicable to this monitoring report** | 3 |
| **Version number of the monitoring report** | 1.3 |
| **Completion date of the monitoring report** | 02/03/2023 |
| **Date of project design certification** | 28/11/2016 (GS Registration Date) |
| **Date of Last Annual Report** | Not Applicable |
| **Monitoring period number** | 4 |
| **Duration of this monitoring period** | 01/04/2020-27/02/2022 (including both days) |
| **Project Representative** | Vish Wind Infrastrukture LLP<br>ACT Financial Solutions B.V<br>First Climate Markets A.G. |
| **Host Country** | India |
| **Activity Requirements applied** | ☐ Community Services Activities<br>☒ Renewable Energy Activities<br>☐ Land Use and Forestry Activities/Risks & Capacities<br>☐ N/A |
| **Methodology (ies) applied and version number** | ACM0002 "Grid-connected electricity generation from renewable sources" Version 12.3.0 |
| **Product Requirements applied** | ☒ GHG Emissions Reduction & Sequestration<br>☐ Renewable Energy Label<br>☐ N/A |

**Table 1 - Sustainable Development Contributions Achieved**

| Sustainable Development Goals Targeted | SDG Impact | Amount Achieved | Units/ Products |
|---|---|---|---|
| SDG 3 : Good Health And Well-Being | No of Beneficiaries | 2 | Programmes |
| SDG 7: Affordable and Clean Energy | MWh of renewable energy generated | 78112.12 | MWh |
| SDG 8: Decent Work and Economic Growth | Trainings<br>Employees | 5 Training<br>10 employees | Numbers |
| SDG 13: Climate Action | Emission Reduction | 72,048 | tCO2/GSVERs |

**Table 2 – Product Vintages**

| | | Amount Achieved |
|---|---|---|
| Start Dates | End Dates | GS VERs |
| 01/04/2020 | 31/12/2020 | 27790 |
| 01/01/2021 | 31/12/2021 | 40129 |
| 01/01/2022 | 27/02/2022 | 4129 |

# SECTION A. DESCRIPTION OF PROJECT

## A.1. General description of project

The project consists of 37 machines of Wind World (The name of Enercon (India) Ltd. has been changed to Wind World (India) Ltd. From 01/01/2013, hereafter it will be referred as Wind World (India) Ltd.) make E-53 type WEGs of 800KW capacity each totaling to the capacity of 29.6 MW. The WEGs generates 3-phase power at 400V, which is stepped up to 33 kV and further transmitted to Wind World Sub-station. From Wind World substation electricity is further evacuated to the Rajasthan regional electricity grid which is part of the NEWNE (Northern, Eastern, Western and North-Eastern) grid (now merged in the integrated Indian grid) in India. The clean and green electricity supplied by the project is contributing towards sustainable growth in the

region. Vish Wind Infrastructure LLP (hereafter referred as 'VWIL') is the project owner and project participant for the project activity.

The purpose of the project activity is to utilize renewable wind energy for generation of electricity. Project activity is the installation of green field energy production using wind as a source of power generation. In the absence of the project activity the equivalent amount of electricity would have been generated from the connected/ new power plants in the NEWNE, which would have been predominantly based on fossil fuels. Whereas the operation of Wind Energy Generators (WEG'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 23/09/2010 and last machine under the project activity was commissioned on 26/01/2011. The expected operational lifetime of the project is for 20 years. The end date of crediting period is 27/02/2022. Details of previous GS issuances are provided below:

| Monitoring Period | Credit Issued under GS |
|---|---|
| 01/01/2015 to 31/08/2017 | 86,238 ($tCO_2$) |
| 01/09/2017 to 31/12/2018 | 42,481($tCO_2$) |
| 01/01/2019 to 31/03/2020 | 46,633($tCO_2$) |

The total emission reductions achieved under current monitoring period (01/04/2020 – 27/02/2022, Inclusive of both dates) are 72,048 tCO2e.

## A.2. Location of project

Host Party(ies); India
Region/State/Province, etc.; Rajasthan State
The Project is located in Jaisalmer & Jodhpur district in the Indian State of Rajasthan. The Project is spread across Ugawa, Korwa & Kita villages of Jaisalmer District and Salodi & Jelu Villages of Jodhpur district in the Rajasthan state of India. The nearest railway station for project activity located at Ugawa, Korwa & Kita villages (District-Jaisalmer) is Jaisalmer approximately at a distance of 50 Kms from site, while the nearest railway station for project activity located at Salodi & Jelu villages (District-Jodhpur) is Jodhpur approximately at a distance of 50 Kms.

Individual WEG location numbers and coordinates are detailed out in below table:-

| S.No. | WEG Loc No. | Village | District | State | Latitude | Longitude |
|---|---|---|---|---|---|---|
| 1 | 41 | Ugawa | Jaisalmer | Rajasthan | N 26° 37'51.5" | E 70° 57'51.2" |
| 2 | 39 | Ugawa | Jaisalmer | Rajasthan | N 26° 37'41.5" | E 70° 57'33.5" |
| 3 | 38 | Ugawa | Jaisalmer | Rajasthan | N 26° 37'35.4" | E 70° 57'38.7" |
| 4 | 37 | Ugawa | Jaisalmer | Rajasthan | N 26° 37'33.3" | E 70° 57'45.8" |
| 5 | 36 | Ugawa | Jaisalmer | Rajasthan | N 26° 37'27.8" | E 70° 57'49.9" |
| 6 | 35 | Ugawa | Jaisalmer | Rajasthan | N 26° 37'21.6" | E 70° 57'53.9" |
| 7 | 34 | Ugawa | Jaisalmer | Rajasthan | N 26° 37'17.7" | E 70° 57'59.2" |
| 8 | 33 | Ugawa | Jaisalmer | Rajasthan | N 26° 37'14.6" | E 70° 58'05.7" |
| 9 | 31 | Ugawa | Jaisalmer | Rajasthan | N 26° 37'11.3" | E 70° 58'13.3" |
| 10 | 30 | Ugawa | Jaisalmer | Rajasthan | N 26° 37'01.5" | E 70° 58'13.1" |
| 11 | 50 | Korwa | Jaisalmer | Rajasthan | N 26° 37'47.9" | E 70° 56'27.3" |
| 12 | 53 | Korwa | Jaisalmer | Rajasthan | N 26° 38'06.1" | E 70° 56'13.0" |
| 13 | 121 | Kita | Jaisalmer | Rajasthan | N 26° 41'05.2" | E 71° 00'07.2" |
| 14 | 582 | Kita | Jaisalmer | Rajasthan | N 26° 41'58.8" | E 71° 01'44.9" |
| 15 | 601 | Kita | Jaisalmer | Rajasthan | N 26° 40'24.0" | E 71° 04'28.4" |
| 16 | 602 | Kita | Jaisalmer | Rajasthan | N 26° 40'12.2" | E 71° 04'31.5" |
| 17 | 603 | Kita | Jaisalmer | Rajasthan | N 26° 40'08.5" | E 71° 04'19.3" |
| 18 | 153 | Jelu | Jodhpur | Rajasthan | N 26° 31'22.3" | E 72° 46'00.2" |
| 19 | 154 | Jelu | Jodhpur | Rajasthan | N 26° 31'24.2" | E 72° 45'52.0" |
| 20 | 155 | Jelu | Jodhpur | Rajasthan | N 26° 31'31.9" | E 72° 45'46.5" |
| 21 | 156 | Jelu | Jodhpur | Rajasthan | N 26° 31'44.0" | E 72° 45'39.4" |
| 22 | 157 | Jelu | Jodhpur | Rajasthan | N 26° 31'49.0' | E 72° 45'33.5" |
| 23 | 158 | Jelu | Jodhpur | Rajasthan | N 26° 31'50.8" | E 72° 45'25.1" |
| 24 | 159 | Jelu | Jodhpur | Rajasthan | N 26° 31'55.7" | E 72° 45'17.0" |
| 25 | 161 | Jelu | Jodhpur | Rajasthan | N 26° 31'22.1" | E 72° 45'03.8" |
| 26 | 162 | Jelu | Jodhpur | Rajasthan | N 26° 31'26.4" | E 72° 45'15.8" |
| 27 | 163 | Jelu | Jodhpur | Rajasthan | N 26° 31'19.3" | E 72° 45'24.0" |
| 28 | 164 | Jelu | Jodhpur | Rajasthan | N 26° 31'15.2" | E 72° 45'11.9" |
| 29 | 165 | Jelu | Jodhpur | Rajasthan | N 26° 30'49.8" | E 72° 45'18.1" |
| 30 | 166 | Jelu | Jodhpur | Rajasthan | N 26° 30'44.3" | E 72° 45'22.1" |
| 31 | 167 | Jelu | Jodhpur | Rajasthan | N 26° 30'32.8" | E 72° 45'17.4" |
| 32 | 168 | Jelu | Jodhpur | Rajasthan | N 26° 30'36.7" | E 72° 45'40.3" |
| 33 | 169 | Jelu | Jodhpur | Rajasthan | N 26° 30'43.3" | E 72° 45'35.3" |
| 34 | 10 | Salodi | Jodhpur | Rajasthan | N 26 ° 25'35.7" | E 72° 48'32.9" |
| 35 | 11 | Salodi | Jodhpur | Rajasthan | N 26 ° 25'25.2" | E 72 ° 48'35.8" |
| 36 | 509 | Salodi | Jodhpur | Rajasthan | N 26 ° 26'51.1" | E 72 ° 50'44.5" |
| 37 | 510 | Salodi | Jodhpur | Rajasthan | N 26 ° 26'57.7" | E 72 ° 50'35.8" |

## A.3. Reference of applied methodology

Title: Consolidated baseline and monitoring methodology for "Grid-connected electricity generation from renewable sources"

References: Approved consolidated baseline methodology ACM0002 (Version 12.3.0, EB 66)

UNFCCC web reference of methodology:
http://cdm.unfccc.int/methodologies/DB/MPY3HVJIMTKE5P0UNTYE827D6Q7EHB

ACM0002 draws upon the following tools which have been used in the PDD:
- Tool to calculate the emission factor for an electricity system – Version 02.2.0
- Tool for the demonstration and assessment of additionality – Version 5.2

### A.4. Crediting period of project

Type of Crediting Period : Fixed

Start date of crediting period : 28/02/2012

End date of crediting period : 27/02/2022

Length of the current GS crediting period: 10 years (Fixed Crediting Period)

## SECTION B. IMPLEMENTATION OF PROJECT

### B.1. Description of implemented project

The project activity consists of 37 machines (800 kW) of Wind World make E-53. The first machine under the project activity was commissioned on 23/09/2010 and last machine under the project activity was commissioned on 26/01/2011. The commissioning dates for all the machines include in the project activity are given in the table below:

| S.No | Village | Dist. | No. of Loc. | Loc. No. | No. of WEGs | Date of Comm. |
|---|---|---|---|---|---|---|
| 1 | Ugawa | Jaisalmer | 1 | 41 | 4 | 23/09/2010 |
| | | Jaisalmer | 1 | 39 | | 23/09/2010 |
| | | Jaisalmer | 1 | 38 | | 23/09/2010 |
| | | Jaisalmer | 1 | 37 | | 23/09/2010 |
| 2 | Ugawa | Jaisalmer | 1 | 36 | 6 | 23/09/2010 |
| | | Jaisalmer | 1 | 35 | | 23/09/2010 |
| | | Jaisalmer | 1 | 34 | | 23/09/2010 |
| | | Jaisalmer | 1 | 33 | | 23/09/2010 |
| | | Jaisalmer | 1 | 31 | | 23/09/2010 |
| | | Jaisalmer | 1 | 30 | | 23/09/2010 |
| 3 | Korwa | Jaisalmer | 1 | 50 | 2 | 23/09/2010 |
| | | Jaisalmer | 1 | 53 | | 23/09/2010 |

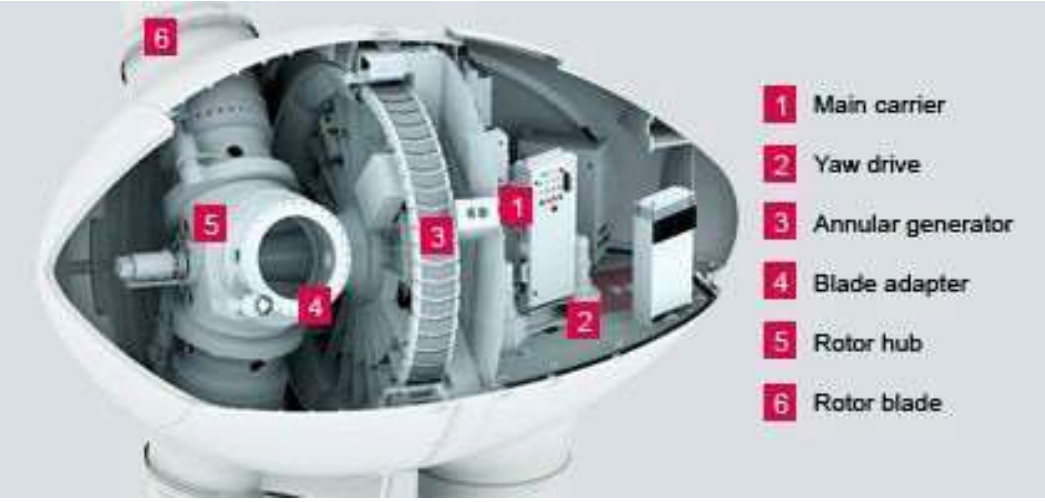
| | | | | | | |
|---|---|---|---|---|---|---|
| 4 | Kita | Jaisalmer | 1 | 121 | 5 | 30/09/2010 |
| | | Jaisalmer | 1 | 582 | | 30/09/2010 |
| | | Jaisalmer | 1 | 601 | | 30/09/2010 |
| | | Jaisalmer | 1 | 602 | | 30/09/2010 |
| | | Jaisalmer | 1 | 603 | | 30/09/2010 |
| 5 | Jelu | Jodhpur | 1 | 153 | 20 | 30/09/2010 |
| | | Jodhpur | 1 | 154 | | 30/09/2010 |
| | | Jodhpur | 1 | 155 | | 30/09/2010 |
| | | Jodhpur | 1 | 156 | | 30/09/2010 |
| | | Jodhpur | 1 | 157 | | 30/09/2010 |
| | | Jodhpur | 1 | 158 | | 30/09/2010 |
| | | Jodhpur | 1 | 159 | | 30/09/2010 |
| | | Jodhpur | 1 | 161 | | 30/09/2010 |
| | | Jodhpur | 1 | 162 | | 30/09/2010 |
| | | Jodhpur | 1 | 163 | | 30/09/2010 |
| | | Jodhpur | 1 | 164 | | 30/09/2010 |
| | | Jodhpur | 1 | 165 | | 30/09/2010 |
| | | Jodhpur | 1 | 166 | | 30/09/2010 |
| | | Jodhpur | 1 | 167 | | 30/09/2010 |
| | | Jodhpur | 1 | 168 | | 17/11/2010 |
| | | Jodhpur | 1 | 169 | | 17/11/2010 |
| | Salodi | Jodhpur | 1 | 10 | | 26/01/2011 |
| | | Jodhpur | 1 | 11 | | 26/01/2011 |
| | | Jodhpur | 1 | 509 | | 26/01/2011 |
| | | Jodhpur | 1 | 510 | | 26/01/2011 |
| | | | **Total** | | **37** | |

Wind World operation and maintenance activities are ISO 9001:2008 certified. 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. During the monitoring period there were no events or situations occurred, which may impact the applicability of the methodology.

The project activity consists of 37 WEGs of Wind World make E-53 and each machine capacity is of 800 kW (E-53) totaling to the capacity of 29.6 MW. The WEGs generates 3-phase power at 400V, which is stepped up to 33 kV and connected to 33kV metering points. From 33 kV metering point's electricity transmitted to Wind World Sub-station. At sub-station electricity is step-up to 220 kV. From Wind World substation electricity is further evacuated to the state electricity grid at 220kV. The Project can operate in the frequency range of 47.5–51.5 Hz and in the voltage range of 400 V ± 12.5%. The other salient features of the state-of-art-technology are:-

- Gearless Construction - Rotor & Generator Mounted on same shaft eliminating the Gearbox.
- Variable speed function – has the speed range of 18 to 33 RPM thereby ensuring optimum efficiency at all times.
- Variable Pitch functions ensuring maximum energy capture.
- Near Unity Power Factor at all times
- Minimum drawl (less than 1% of kWh generated) of Reactive Power from the grid.
- No voltage peaks at any time.
- Operating range of the WEG with voltage fluctuation of -20 to +20%
- Less Wear & Tear since the system eliminates mechanical brake, which are not needed due to low speed generator, which runs at maximum speed of 33 rpm and uses Air Brakes.
- Three Independent Braking Systems
- Generator achieving rated output at only 33 rpm.
- Incorporates lightning protection system, which includes blades.
- Starts generation of power at wind speed of 3 m/s

Wind World (India) Ltd has secured and facilitated the technology transfer for wind based renewable energy generation from Wind World GmbH, has established a manufacturing plant at Daman in India, where along with other components the "Synchronous Generators" using "Vacuum Impregnation" technology are manufactured. Diagram of main component of Wind World make E-53 is shown in below picture:-




### B.1.1. Forward Action Requests

No FARs envisaged from previous verification and or Validation.

## B.2. Post-Design Certification changes

B.2.1. Temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline

There are no deviations/delays regarding the implementation status from registered PDD, Monitoring & Reporting Plan, applied methodology or applied standardized baseline.

B.2.2. Corrections

There are no corrections to the approved registered PDD identified in the monitoring period.

B.2.3. Changes to start date of crediting period

Not Applicable

B.2.4. Permanent changes from the Design Certified monitoring plan, applied methodology or applied standardized baseline

There are no permanent changes from the registered monitoring plan applicable in the monitoring period.

B.2.5. Changes to project design of approved project

Not Applicable

# SECTION C. DESCRIPTION OF MONITORING SYSTEM APPLIED BY THE PROJECT

Wind World (India) Limited is EPC contractor for the project activity. Wind World (India) Limited is responsible for the maintaining all the monitoring data on behalf of Vish Wind Infrastructure LLP in respect of the project activity. Wind World (India) Limited has implemented the management structure for managing the monitored data.

This approved monitoring methodology requires monitoring of the following:

- Net electricity supplied from the project activity; and
- Operating margin emission factor and build margin emission factor of the grid, where *ex post* determination of grid emission factor has been chosen

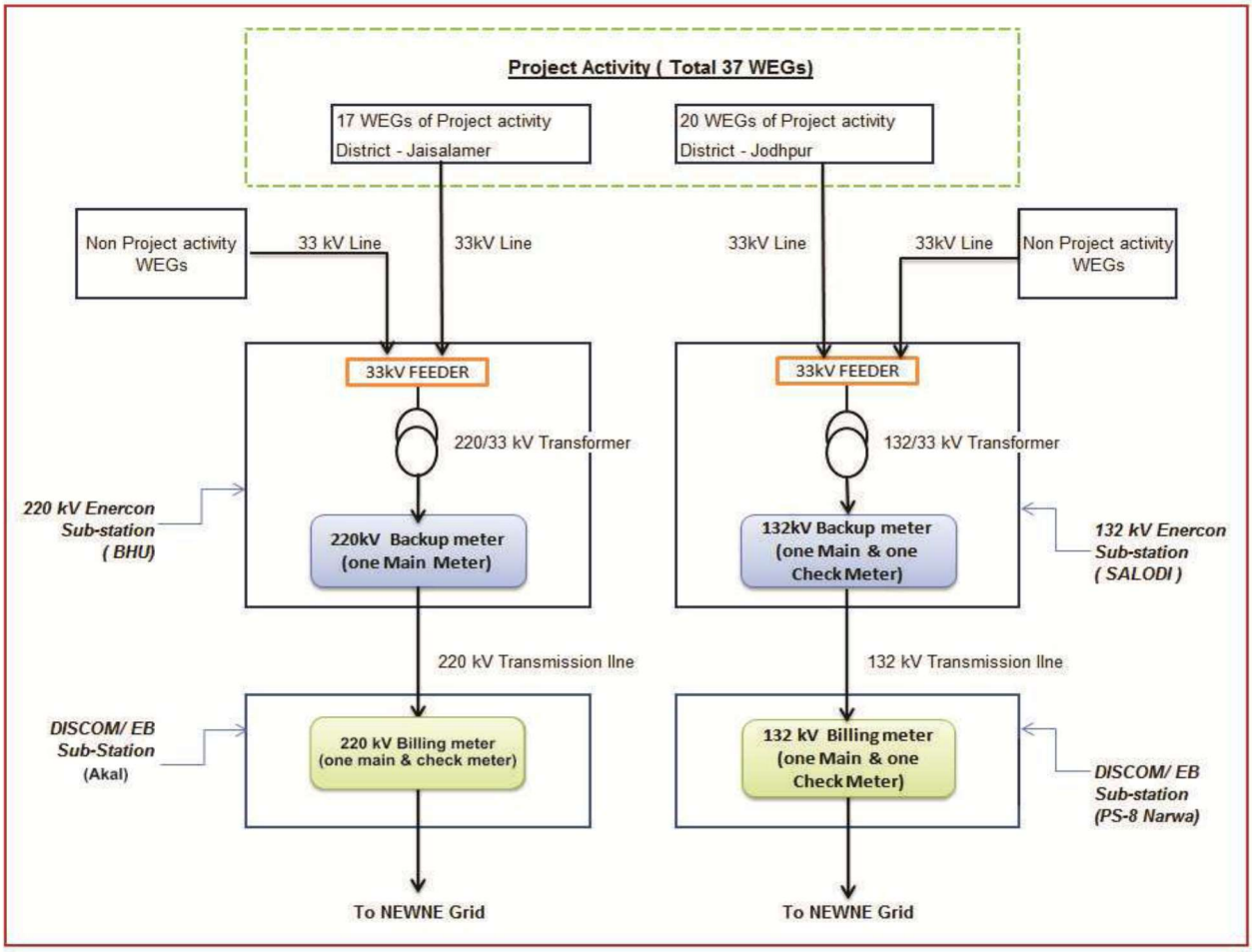
Emission factor of the project activity is fixed ex ante hence no further monitoring of this parameter is required. As per ACM0002 leakage need not be considered hence leakage has not been considered for the project activity. Hence, the sole parameter for monitoring is the net electricity supplied by the project activity to the grid.

The Project activity is operated by WWIL (EPC contractor for the project activity), and managed by the PP. The operational and maintenance contract for the project activity is with WWIL, which is an ISO 9001 certified company. WWIL follows the documentation practices to ensure the reliability and availability of the data for all the activities as required from the identification of the site, wind resource assessment, logistics, finance, construction, commissioning and operation of the wind power project.

The break-up sheet reflecting net electricity, supplied by the project activity to the grid is prepared by EPC contractor, based on the allocation procedure explained below. Based on this break-up sheet, tariff Invoice is raised by PP to DISCOM.

**Calculation of Net Electricity Supplied to the grid by project activity:**

Layout of Metering arrangement for project activity is as follows:-




From the above layout it is clear that project activity WEGs (37Nos) along with WEGs of other customers, who are not the part of project activity are connected to WWIL Sub-stations which are further connected to EB sub-station through EHV line. The detail of metering points are as follows;-

1) 17WEGs of project activity installed in Jaisalmer district is connected through 220kV Wind World (India) Limited (herein after referred as WWIL) pooling sub-station (220kV BHU sub-station), through 33kV feeder lines. At WWIL pooling sub-station BHU electricity is stepped up to 220kV, wherein the backup meter (one main meter) is connected. From WWIL pooling sub-station electricity is, transmitted to state utility (DISCOM) sub-station (AKAL sub-station) through 220kV transmission line/ EHV line wherein the billing meter (one main meter & one check meter) is connected. At Akal sub-station, metering is done at 220kV billing meter. From EB sub-station electricity is further transmitted to NEWNE grid.

2) 20WEGs of project activity installed in Jodhpur district is connected through 132kV Wind World (India) Limited (herein after referred as WWIL) pooling sub-station (132kV SALODI sub-station), through 33kV feeder lines. At WWIL pooling sub-station SALODI electricity is stepped up to 132kV, wherein the backup meter (one main & one check meter) connected. From WWIL pooling sub-station electricity is transmitted to state utility (DISCOM) sub-station (PS-8 Narwa Sub-station) through 132kV transmission line/ EHV line wherein billing meter (one main & one check meter) is connected. At EB sub-station metering is done at 132kV billing meter. From EB sub-station electricity is further transmitted to NEWNE grid.

The net electricity supplied to the grid is, calculated on monthly basis at the EB/DISCOM substations (Akal & PS-8 Narwa) wherein the billing meter is connected. The representatives of DISCOM and WWIL (EPC Contractor), who also signs the JMR take the Monthly Joint Meter reading. Simultaneously, the monthly joint meter reading of backup meters available at WWIL pooling sub-stations (BHU & SALODI) is also taken by representatives of RVPN/DISCOM and WWIL. The copy of JMR at backup meters is available with WWIL.

Since the project activity WEGs are connected through common metering system along with non-project activity WEGs of other customers at the main meter. Apportioning of electricity export & import as recorded in JMR is being done to calculate the electricity export & import by individual customer's WEGs Apportioning is being done based on the net electricity generation (Gross Export-Gross Import) recorded at LCS meter installed in individual WEGs.

Based on the monthly JMR reading, which is signed by representative of DISCOM and EPC contractor; WWIL prepares the monthly breakup[1] generation sheets which

[1] As per section 4.2 (ii) of PPA 'Measurement of Energy and Metering':- The Joint Meter Reading taken at common evacuation /injection system shall be supported by controller readings of individual power producers using such common evacuation/ injection system. Based on this breakup, limited to total energy injection, the power purchase form the individual power plant shall be regulated for the purpose of payment.

indicate the export, import & net electricity supplied by individual customers to the grid.
The monthly generation sheet is submitted to both, DISCOM as well as individual investors. PP raises the invoice based on the monthly breakup sheet corresponding to the net electricity generation value indicated in the monthly breakup sheet. DISOM based on the JMR reading along with monthly breakup sheet prepared by WWIL and the invoice raised by investors, conduct the audit to cross check the net electricity values and in case all the values are found to be correct, DISCOM release the payment against the invoice raised by individual investors.

The values of the net electricity supplied to grid by project activity can be cross checked with invoices raised by the PP on DISCOM.

**Procedure for apportioning:-**

***Case 1*:- Procedure used by EPC Contractor to prepare monthly breakup sheets for project activity**

The monthly JMR reading contains the electricity export, import & net electricity supplied by all the WEGs of project activity as well as non-project activity connected to the metering system at DISCOM substation. Hence in order to arrive at the electricity export, import & net electricity supplied by WEGs of the project activity based on the net electricity generation (Gross Export-Gross Import) recorded at LCS meter, following procedure is used by EPC contractor:-.

As LCS meter measures the net electricity generation (Gross Export-Gross Import) by individual WEG, which is the difference of export and import and doesn't provide individual reading of Export & Import; the apportioning of electricity export & import at recorded at billing meter as indicated in JMR sheet is done based on net electricity generation (Gross Export-Gross Import) of WEGs. This standard procedure is followed in the state of Rajasthan and is accepted by the state DISCOM for payment of tariff invoices.

Electricity exported by all WEGs of project activity is apportioned on the basis of summation of net electricity generation (Gross Export-Gross Import)[2] ( by all the WEGs (j number of WEGs) of project activity, as measured at the controller (LCS meter) at project site and the electricity export recorded at the main meter mentioned in the JMR. The formula used for computing electricity export to the grid by the project activity is as follows:-

Electricity Export to the grid by the Project activity,

$$\mathbf{EG_{Export,y}} = \frac{\mathbf{EG}_{JMR,Export} * \sum \mathbf{EG}_{Controller,\ j}}{\sum EG_{Controller,i}} \quad \text{.....(1)}$$

As LCS meter measures the net electricity generation (Gross Export – Gross Import) by WEGs and doesn't provide individual reading of Export & Import. Therefore, apportioning of export as well as, import for all WEGs of the project activity were also apportioned, on the basis of summation of net electricity generation by all the WEGs (j number of WEGs) of project activity, as measured at the controller (LCS meter) at project site and the electricity import recorded at the main meter mentioned in the JMR. The formula used for computing electricity import from the grid by the project activity is as follows

Electricity Import from the grid by the Project activity,

$$\mathbf{EG_{Import,y}} = \frac{\mathbf{EG}_{JMR,Import} * \sum EG_{Controller,\ j}}{\sum EG_{Controller,i}} \quad \text{.....(2)}$$

[2] LCS meter installed in individual WEGs control panel measures the net electricity generation (Gross Export-Gross Import) by WEG and therefore $\sum EG_{Controller,\ j}$ is used by developer to calculate electricity export & import by individual developer (project activity & non project activity WEGs).

Wherein,

$\sum EG_{Controller,\ j}$ = Summation of net electricity generation by all the WEGs (j number of WEGs) of project activity, as measured at the controller (LCS meter) at project site.

$\sum EG_{Controller,i}$ = Summation of net electricity generation by all WEG (i number of WEGs) of project activity or non project activity, as measured at the controller (LCS meter) at project site,

$EG_{JMR,Export}$ = Electricity export by project and non project recorded at respective billing meters located at DISCOM sub-station. This can be checked from JMR certificates.

$EG_{JMR,Import}$ = Electricity import by project and non project recorded at respective billing meters located at DISCOM sub-station. This can be checked from JMR certificates.

$\mathbf{EG_{Export,y}}$ = Electricity export by project activity calculated as per formula 1 above

$\mathbf{EG_{import,y}}$ = Electricity import by project activity calculated as per formula 2 above.

Therefore net electricity supplied to grid by 37 WEGs of the project activity is calculated as the difference of equation (1) & (2),

$$\mathbf{EG_{Facitlity,y} = EG_{Export,y} - EG_{Import,y}}$$

Even though the above mentioned of apportioning is done by the EPC Contractor and submitted to respective DISCOM, the same undergoes the series of audit by the hierarchy of auditors (Asst. Auditors, divisional auditors & account auditors) and then finally authorised by the Superintending engineer (SE) of the circle office of respective DISCOMs. The above mentioned procedure of apportioning has been done separately for WEGs of project activity installed at Jaisalmer & Jodhpur site by EPC Contractor.
The apportioning of electricity generated by the all WEGs (project activity and non-project activity) is entirely under the jurisdiction of the EPC Contractor. The project participant has no role in computing and furnishing the apportioned electricity generated for them or any other project developer. The above apportioning procedure for deriving the apportioned electricity generated by the project activity has been included only to bring clarity to the apportioning and overall monitoring procedure.

***Case 2*:- Apportioning procedure in case the date of verification period doesn't match with the billing cycle dates**

In case the date of project registration is not in line with billing cycle of project activity then the calculation of net electricity supplied to grid for period between date of registration and next date of billing cycle will be done by PP based on data available for that month. Although it is not applicable for current monitoring period.

| |
|---|
| Net electricity export to the grid by a WEG @ SEB meter for n no. of days = (Daily controller net electricity generation (Gross Export-Gross Import) of that WEG for n no. of days) x (Total Net generation of that WEG @ SEB main meter for a month) |
| Monthly controller net electricity generation (Gross Export-Gross Import) of that WEG for that month |

**Procedure to deal with data uncertainty:**

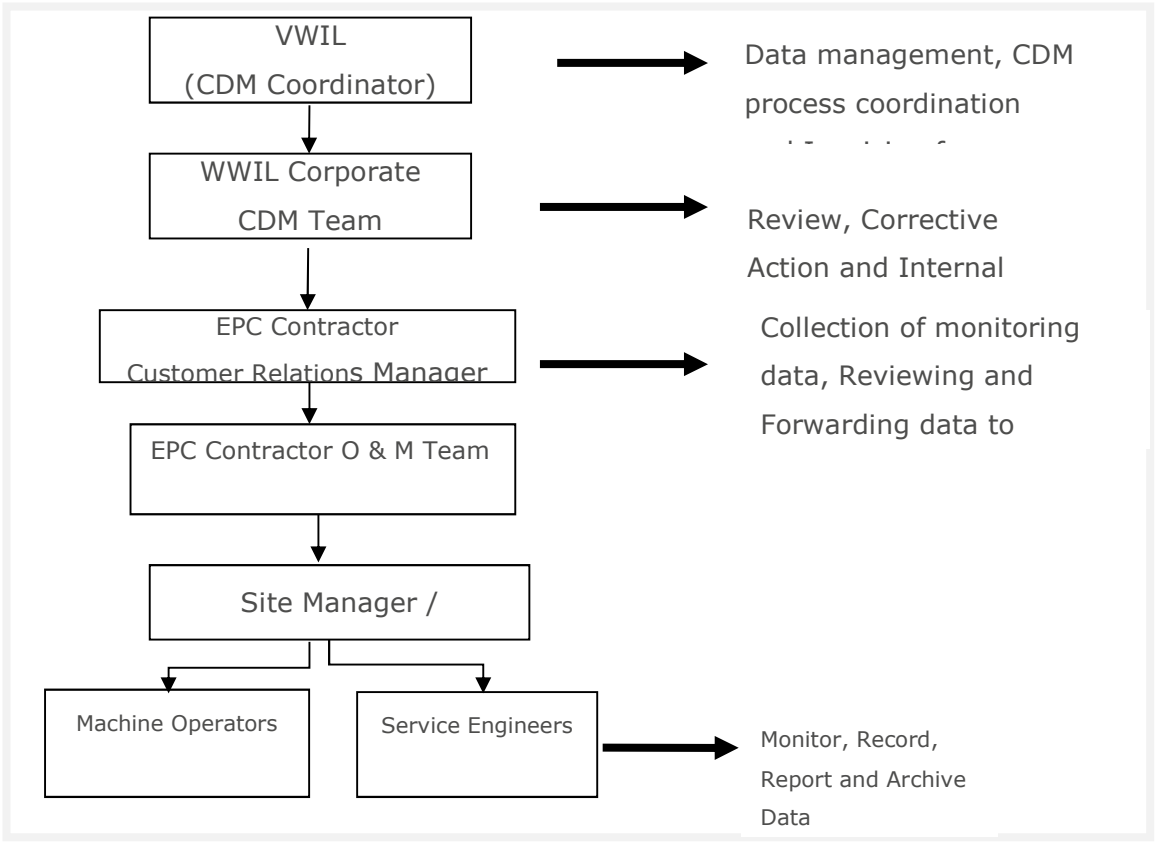
During the annual calibration, if the meter is found to be outside the permissible limits of the error and if that meter readings have been used in JMR, the (–ve) error value would be applied to electricity export and (+ve) error value will be applied to import of electricity from grid to all the JMR values since the date of last calibration. The meter would be replaced immediately with new calibrated meter.

**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 Generators (WEGs), it is extremely essential, that the engineers and technicians understand the machines and keep them in good health. In order to ensure, that WWIL's service staffs 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 Wind World Training Academy provides need-based training to meet the training requirements of WWIL 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.

**Monitoring roles and responsibilities**

The operational and management structure implemented for data monitoring is as follows:




**Meter Test Checking Details:**

The metering equipment were inspected & tested by State Utility. Meter details & calibration details for the all the main and check meters are as follows:-

The EB substation meters are used for billing purpose and the data from the same are used for the calculation of emission reduction. The calibration details for both the main and check meters for the monitoring period has been provided below:

**Akal substation & PS 08 Substation meter details:**

| Substation | Main meter | Check meter | Calibration dates |
|---|---|---|---|
| Akal substation | 15624842 | 15624844 | 20/01/2020 and 15/03/2021 |
| PS 08 Substation | RJB00354 | RJB00356 | 14/08/2019, 09/02/2021 and 23/07/2022 |

The delay period in calibration (Akal & PS-08 SS) identified during current monitoring period has been provided below:

| Substation | Meter sr. Nos | Calibration dates | Calibration delayed period | Percentage error |
|---|---|---|---|---|
| Akal substation | Main Meter: 15624842 Check meter: 15624844 | 20/01/2020 and 15/03/2021 | 20/01/2021 to 14/03/2021 | Main meter:- 0.05% Check meter:- 0.04% |
| PS 08 Substation | Main meter: RJB00354 Check meter: RJB00356 | 14/08/2019 09/02/2021 23/07/2022 | 14/08/2020 to 08/02/2021 | Main meter: 0.03% Check meter:- 0.07% |
| | | | 09/02/2022 to 28/02/2022 | Main meter: 0.02% Check meter:- 0.01% |

**Bhu & Salodi substation meter details:**

| Substation | Backup Meter | | Date of calibration |
|---|---|---|---|
| Bhu Substation | 15197055 | | 20-01-2020<br>15-03-2021 |
| Salodi Substation | RJB00358 | RJB00357 | 14-08-2019<br>09-02-2021 |

The delay period in calibration (Bhu and Salodi SS) identified during current monitoring period has been provided below:

| Substation | Meter sr. Nos | Calibration dates | Calibration delayed period | Percentage error |
|---|---|---|---|---|
| Bhu Substation | Backup Meter: 15197055 | 20/01/2020 and 15/03/2021 | 20/01/2021 to 14/03/2021 | -0.01% |
| Salodi Substation | Main meter: RJB00358 Check meter: RJB00357 | 14/08/2019 09/02/2021 23/07/2022 | 14/08/2020 to 08/02/2021 | Main meter:- 0.01% Check meter:- 0.07% |
| | | | 09/02/2022 to 28/02/2022 | Main meter: -0.02% Check meter:-- 0.01% |

As indicated in the above tables and confirmed through the calibration reports, there is delay in calibration identified during the current monitoring period, calibration results confirms that all meters were working satisfactorily and the error identified was within the prescribed error limit, which is maximum of 0.2%. Hence, a correction factor (maximum 0.2% error factor of the meters) has been applied to the monitoring parameters for the delayed period (please refer ER calculation sheet) in line with the guidelines as mentioned under paragraph 366(a) of VVS PAs v03.0.

# SECTION D. DATA AND PARAMETERS

## D.1. Data and parameters fixed ex ante or at renewal of crediting period

**Relevant SDG Indicator 13**: 13.2.1 Number of countries that have communicated the establishment or operationalization of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other).

| **Data/parameter:** | $EF_{grid\ OM,\ y}$ |
|---|---|
| Unit | tCO2e/MWh |
| Description | Operating Margin Emission Factor of NEWNE Electricity Grid |
| Source of data | "CO2 Baseline Database for Indian Power Sector", version 5.0, published by the Central Electricity Authority, Ministry of Power, Government of India.<br><br>The "CO2 Baseline Database for Indian Power Sector" is available at http://www.cea.nic.in/tpeandce.html |
| Value(s) applied) | 1.0050 |
| Choice of data or measurement methods and procedures | Operating Margin Emission Factor has been calculated by the Central Electricity Authority using the simple OM approach in accordance with ACM0002. |
| Purpose of data | The data is used to calculate baseline emission reductions. |
| Additional comments | This value is calculated on ex-ante basis and will remain fixed for the entire crediting period. |

| **Data/parameter:** | $EF_{grid\ BM,\ y}$ |
|---|---|
| Unit | tCO2e/MWh |

| | |
|---|---|
| Description | Build Margin Emission Factor of NEWNE Electricity Grid |
| Source of data | "CO2 Baseline Database for Indian Power Sector", version 5.0, published by the Central Electricity Authority, Ministry of Power, Government of India.<br><br>The "CO2 Baseline Database for Indian Power Sector" is available at http://www.cea.nic.in/tpeandce.html |
| Value(s) applied) | 0.6752 |
| Choice of data or measurement methods and procedures | Build Margin Emission Factor has been calculated by the Central Electricity Authority in accordance with ACM0002. |
| Purpose of data | The data is used to calculate baseline emission reductions. |
| Additional comments | This value is calculated on ex-ante basis and will remain fixed for the entire crediting period. |

| **Data/parameter:** | $EF_{grid\ CM,\ y}$ |
|---|---|
| Unit | $tCO_2e/MWh$ |
| Description | Combined Margin Emission Factor of NEWNE Electricity Grid |
| Source of data | Combined Margin Emission Factor (EFgrid,CM,y) is calculated as the weighted average of Operating Margin Emission Factor (EFgrid,OM,y) and Build Margin Emission Factor (EFgrid,BM, y).<br><br>The "CO2 Baseline Database for Indian Power Sector" published by the Central Electricity Authority, Ministry of Power, Government of India.<br><br>The "CO2 Baseline Database for Indian Power Sector" is available at www.cea.nic.in |
| Value(s) applied) | 0.9225 |
| Choice of data or measurement methods and procedures | Combined Margin Emission Factor has been calculated by the Central Electricity Authority in accordance with CDM methodologies: ACM0002, and Tool to Calculate the emission Factor for an Electricity System. |
| Purpose of data | The data is used to calculate baseline emission reductions. |
| Additional comments | This value is calculated on ex-ante basis and will remain fixed for the entire crediting period. |

## D.2. Data and parameters monitored

**Relevant SDG Indicator 7.2**: 7.2.1 Renewable energy share in the total final energy consumption

| **Data/parameter:** | **$EG_{facitlity,y}$** |
|---|---|
| Unit | MWh |
| Description | Net electricity generation supplied to the grid by the Project activity. |
| Measured/calculated/default | Calculated (based on the measured values of electricity exported and imported) |
| Source of data | The break-up sheet based on Joint Meter Reading (JMR). |
| Value(s) of monitored parameter | 78112.116 MWh |
| Monitoring equipment | Since it is calculated value, hence not applicable. |
| Measuring/reading/recording frequency: | Frequency of measurement/recording data: Continuously monitoring and Monthly recording<br>Refer section 'Description of monitoring system' for an illustration of the provisions for measurement methods.<br>Monthly values of parameter are provided in the ER calculation sheet. |
| Calculation method (if applicable): | The procedures for calculation of net electricity supplied to grid has been followed as per the provisions of the power purchase agreement and details of calculation method has been explained in monitoring plan under section C of monitoring report. |
| QA/QC procedures: | Value of EG,y can be cross checked with the tariff invoices raised on the DISCOM .<br>All the billing Main & Backup meters are calibrated by DISCOM annually and the records are available with the EPC Contractor (WWIL) |
| Purpose of data: | Calculation of baseline emission |
| Additional comments: | The data will be archived both in electronic and hard paper format for crediting period + 2 years. |

**Relevant SDG Indicator 7.2**: 7.2.1Renewable energy share in the total final energy consumption

| **Data/parameter:** | **$EG_{Export,y}$** |
|---|---|
| Unit | MWh (Mega-watt hour) |
| Description | Summation of electricity exported to the grid by all the WECs |
| Measured/calculated/default | Calculated |

| | |
|---|---|
| Source of data | The break-up sheet based on Joint Meter Reading (JMR) prepared by EPC Contractor. |
| Value(s) of monitored parameter | 78213.481 MWh |
| Monitoring equipment | Since it is calculated value, hence not applicable. |
| Measuring/reading/recording frequency: | Frequency of recording data: Monthly.<br>Further all the meters have the capability of continuous measurement of data.<br>Refer section 'C' for an illustration of the provisions for measurement methods.<br>Monthly values of parameter are provided in the ER calculation sheet. |
| Calculation method (if applicable): | Based on the monthly JMR reading recorded at main meters installed at DISCOM sub-stations and the LCS controller meters (panel meters) readings. |
| QA/QC procedures: | Value of $EG_y$ can be cross checked with the tariff invoices raised on the DISCOM.<br>All the billing & Backup meters are calibrated by DISCOM annually and the records are available with the EPC Contractor (WWIL). |
| Purpose of data: | Calculation of Baseline Emissions |
| Additional comments: | The data will be archived both in electronic and hard paper format for crediting period + 2 years. |

**Relevant SDG Indicator 7.2**: 7.2.1Renewable energy share in the total final energy consumption

| **Data/parameter:** | **$EG_{Import,y}$** |
|---|---|
| Unit | MWh (Mega-watt hour) |
| Description | Summation of electricity imported from the grid by all the WECs (63 machines) included in the project activity. |
| Measured/calculated/default | Calculated |

| | |
|---|---|
| Source of data | The break-up sheet based on Joint Meter Reading (JMR) prepared by EPC Contractor. |
| Value(s) of monitored parameter | 101.364 MWh |
| Monitoring equipment | Since it is calculated value, hence not applicable. |
| Measuring/reading/recording frequency: | Frequency of recording data: Monthly<br>Further all the meters have the capability of continuous measurement of data.<br>Refer section 'C' for an illustration of the provisions for measurement methods.<br>Monthly values of parameter are provided in the ER calculation sheet. |
| Calculation method (if applicable): | Based on the monthly JMR reading recorded at main meters installed at DISCOM sub-stations and the LCS controller meter (panel meters) readings. |
| QA/QC procedures: | The Values can be cross checked with the tariff invoices raised on the DISCOM.<br>All the billing & Backup meters are calibrated by DISCOM annually and the records are available with the EPC Contractor (WWIL). |
| Purpose of data: | Calculation of Baseline Emissions |
| Additional comments: | The data will be archived both in electronic and hard paper format for crediting period + 2 years |

**Relevant SDG Indicator 7.2**: 7.2.1 Renewable energy share in the total final energy consumption

| | |
|---|---|
| **Data/parameter:** | **$\Sigma EG_{Controller,j}$** |
| Unit | MWh (Mega-watt hour) |
| Description | Summation of net electricity generation (Gross Export-Gross Import) by all the WEGs of project activity (j number of WEGs), as measured at the controller (LCS meter) at project site. Each WEG has exclusive LCS meter that records net |

| | |
|---|---|
| | electricity generation (Gross Export-Gross Import) from the WEG.<br>j is number of WEGs of project activity connected to main meter (JMR/billing meter) at DISCOM substation and backup meter at WWIL substation. |
| Measured/calculated/default | Measured |
| Source of data | Monthly operating logs recorded in electronic format by EPC contractor. |
| Value(s) of monitored parameter | 81179.425 MWh |
| Monitoring equipment | Controller meter (LCS). |
| Measuring/reading/recording frequency: | Frequency of measuring/recording data: Continuous measurement and Monthly recording<br>The value is recorded continuously by the online monitoring station. This reading can also be seen in the electronic panel installed inside the WEG tower. The LCS meters do not require calibration as the energy readings of electricity generated at the LCS meter is cross verified by the energy calculated by inverting system installed in the WEGs. In case there is any mismatch in the energy values recorded by the Panel meter and the energy values calculated by the inverting system; the machine will stop working and generate the error report. The operations and maintenance staff will attend to the problem immediately in order to identify and correct the error.<br>Monthly values of parameter are provided in the ER calculation sheet. |
| Calculation method (if applicable): | Not Applicable |
| QA/QC procedures: | This data parameter will be logged electronically on a monthly basis by EPC contractor on its online portal. The value of this parameter shall be compared with the value of $EG_{facitlity,y}$ and the conservative approach would be taken by |

| | |
|---|---|
| | the PP for estimating the net electricity supplied value for the calculation of emission reduction. |
| Purpose of data: | Calculation of Baseline Emissions |
| Additional comments: | The data will be archived both in electronic and hard paper format for crediting period + 2 years |

**Relevant SDG Indicator 8.5:** 8.5.2 Unemployment rate, by sex, age and persons with disabilities

| **Data/parameter:** | Quality of Employment |
|---|---|
| Unit | Number of Health and safety trainings for qualitatively better work opportunities during Operation and Maintenance. |
| Description | Training records, categories of jobs created, occupational health management, safeguards put in place.<br><br>Project developer has comprehensive internal systems in place wherein all essential norms pertaining to safety, occupational health and working conditions are being followed. |
| Measured/calculated/default | Measured |
| Source of data | Documentation pertaining to training programmes, awareness generation activities, photographs, interviews etc. |

| | |
|---|---|
| Value(s) of monitored parameter | Following training programs have been conducted in order to enhance the safety awareness, operational skill levels and occupational health management for the local staff. Total 5 trainings were organised in current monitoring period.<br><br>2020<br>- On 27/07/2020, total 11 employees benefitted through SHE training programs related to Electrical Safety & 5 Safety Rule. The records of training have been submitted to the DOE.<br>- On 09/11/2020, total 19 employees benefitted through SHE training programs related to Electrical Safety & LOTO Awareness. The records of training have been submitted to the DOE.<br><br>2021<br>- On 21/01/2021, total 9 employees benefitted through SHE training programs related to Electrical Safety & LOTO Training. The records of training have been submitted to the DOE.<br>- On 29/06/2021, total 9 employees benefitted through SHE training programs related to Incident Management, HIRA & PPE Training. The records of training have been submitted to the DOE.<br>- On 24/08/2021, total 9 employees benefitted through SHE training programs related to First Aid, Fire & Electrical Safety. The records of training have been submitted to the DOE. |
| Monitoring equipment | Manually by PP representative |
| Measuring/reading/recording frequency: | Annually |
| Calculation method (if applicable): | Manually by PP representative |
| QA/QC procedures: | The training programmes help in making the workforce efficient and skilled at their job. This not only helps the company but adds to growth of individual employees. Thus, the project has a positive impact on the parameter. |
| Purpose of data: | Assessment of SDGs as per safeguarding principles |
| Additional comments: | None |

| **Relevant SDG Indicator** | **8.5.2 Unemployment rate, by sex, age and persons with disabilities** |
|---|---|
| **Data/parameter:** | Quantitative employment and income generation |
| Unit | Number of Employees |
| Description | Number of jobs generated during the operation of the wind farm. |
| Measured/calculated/default | Measured |
| Source of data | Attendance Sheet and employment records maintained by Project Developer |
| Value(s) of monitored parameter | The project activity is located at Jaisalmer and Jodhpur district. 17WEGs of project activity installed in Jaisalmer district is connected through 220kV Wind World (India) Limited (herein after referred as WWIL) pooling sub-station (220kV BHU sub-station), through 33kV feeder lines. 20WEGs of project activity installed in Jodhpur district is connected through 132kV Wind World (India) Limited (herein after referred as WWIL) pooling sub-station (132kV SALODI sub-station), through 33kV feeder lines.<br><br>O&M contractor has assigned team of technical, non-technical and security guards for the project activity, who are responsible for all project related wind turbines. Specifically, Total 10 local people have been employed for the project activity during the monitoring period under consideration. Corresponding attendance sheets and other relevant records on annual monitoring have been submitted to DOE.<br>In addition to this, because of the infrastructure development (road construction, road repairs, cleaning of substation etc.), local villagers are getting short time jobs thus leading to income generation. Since this is an indirect benefit of the project activity in terms of income generation, it is not possible to exactly quantify the same. |
| Monitoring equipment | Attendance Sheet and employment records maintained by Project Developer |
| Measuring/reading/recording frequency: | Annually |
| Calculation method (if applicable): | - |
| QA/QC procedures: | Additional job opportunities created for the local population. Income generation to be enhanced by creating relatively high value job opportunities through training and capacity building. |

| | |
|---|---|
| Purpose of data: | To monitor the contribution to SDG 8 |
| Additional comments: | None |

In addition to above mentioned monitoring parameters as per approved transition annex of the project activity, PP has taken additional initiatives to improve basic education, health & hygiene and clean drinking water facility in nearby areas. The details of these programs organized during current monitoring period is provided below:

| | |
|---|---|
| **Relevant SDG Indicator** | **3.8.1 Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, new born and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population)** |
| **Data/parameter:** | Human and Institutional capacity |
| Unit | Total number of initiatives, events and programmes, primarily Health and Education Camps |
| Description | Health and Education related activities conducted for well-being of locals/villagers |
| Measured/calculated/default | Measured |
| Source of data | Records of organized events, photographs, proof of payments etc. |

| | |
|---|---|
| Value(s) of monitored parameter | Since access to basic education, health, basic amenities and infrastructural facilities are basic factors to facilitate human and institutional capacity development; various initiatives have been undertaken by the project developer to contribute to these thematic areas. The contribution made during monitoring period is mentioned below:<br><br>- On 28/02/2017: PP have also launched Safe Drinking Water facility programs in 10 govt. schools across Jaisalmer district. Under this program RO water facilities have been installed at schools giving access to clean and safe water for students.<br>- On 22/07/2020: During the time of COVID-19 crisis dry ration kits were distributed to the needy people across 4 villages. |
| Monitoring equipment | Manually |
| Measuring/reading/recording frequency: | Annually |
| Calculation method (if applicable): | - |
| QA/QC procedures: | - |
| Purpose of data: | Assessment of SDGs as per safeguarding principles |
| Additional comments: | None |

### D.3. Comparison of monitored parameters with last monitoring period

Not Applicable

### D.4. Implementation of sampling plan

No sampling process is involved, hence not applicable.

## SECTION E. CALCULATION OF SDG IMPACTS

### E.1. Calculation of baseline value or estimation of baseline situation of each SDG Impact

In the baseline, there were no Social Development activities taking place; whereas baseline Emissions for electricity supplied by project activity, $BE_y$ is calculated as:

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

Where,

$BE_y$ = Baseline emissions in year y (tCO2/yr)

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr).

$EF_{grid,CM,y}$ = Combined margin 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" (tCO2/MWh).

Thus, the estimated baseline situation of each SDG outcome are summarised as follows;

| Item | Baseline value |
|---|---|
| **SDG 3 : Good Health And Well-Being** | **No Activities in the baseline** |
| **SDG 7: Affordable and Clean Energy** | **No Activities in the baseline** |
| **SDG 8: Decent Work and Economic Growth** | **No Activities in the baseline** |
| **SDG 13: Climate Action** | **Emission of 72,048 tCO2** |

## E.2. Calculation of project value or estimation of project situation of each SDG Impact

Based on the surveys, PP identifies and works on several scope(s) of developmental activities such as dry ration distribution, RO water purifier. Apart from these activities, some or all of which will be conducted in any given year, following SDGs will be impacted every year:

| | |
|---|---|
| **SDG 3:** Good Health And Well-Being | Method: PP has distributed dry ration kits in nearby villages and installed RO in schools.<br><br>Frequency: Annually.<br><br>QA/QC procedures: Maintain records of primary data at |

| | |
|---|---|
| | execution level; also conduct data analysis and gap assessment at various levels of such programs and events.<br><br>Purpose: To identify the beneficiaries that are impacted under this SDG parameter. |
| **SDG 7:**<br>Ensure access to affordable, reliable, sustainable and modern energy for all | Method: Monitored through energy meter. The net electricity supplied to the grid by the wind farm has been calculated by Rajasthan state grid on the basis of main meter reading and the meter readings taken at substation meters after adjusting transmission loss. The net electricity generated by the project activity has been taken directly from the JMR issued by the state grid on monthly basis.<br><br>Frequency: Monthly<br><br>QA/QC procedures: Net electricity supplied to the grid by the project activity will be cross checked with invoices submitted to EB. The meter(s) shall be calibrated on a regular basis.<br><br>Purpose: To measure the electricity produced and supplied to the grid |
| **SDG 8:**<br>Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all | Method: Training records, Attendance Sheet, Employment records data maintained by Project Developer. Project developer has comprehensive internal systems in place wherein all essential norms pertaining to safety, occupational health and working conditions are being followed.<br><br>Frequency: Annual<br><br>QA/QC procedures: Continuation of regular |

| | |
|---|---|
| | trainings/workshops for employees & O&M staffs<br><br>Purpose: To identify and record the no. of trainings provided to the employees as well as employment generated due to project activity. |
| **SDG 13:**<br>Take urgent action to combat climate change and its impacts | Method: Monitored through energy meter. Net electrical energy has been calculated to the best accuracy at the substation of State Electricity Board. Further using processes and equations provided under "Tool to calculate the emission factor for an electricity system", and referencing data from CEA database.<br><br>Frequency: Every monitoring period (whereas Emission Factor calculated based on combined margin approach is fixed ex-ante for the entire crediting period)<br><br>QA/QC procedures: Transparent data collection, analysis, calculation and reporting as CEA database is publicly available.<br><br>Purpose: To calculate emissions avoided due to the project activity |

## E.3. Calculation of leakage

As per applied methodology ACM0002, version 12.3.0 Leakage emissions are not considered for the project activity.

## E.4. Calculation of net benefits or direct calculation for each SDG Impact

| SDG | SDG Impact | Baseline estimate | Project estimate | Net benefit |
|---|---|---|---|---|
| 7 | MWh of renewable energy generated | 0 | 101551.39 MWh | 78112.116 MWh |

| | | | | |
|---|---|---|---|---|
| 8 | SDG 8: Decent Work and Economic Growth | 0 | 1 trainings | 5 trainings |
| 13 | Emission Reduction | 93,681tCO2 | 0 | 72,048 tCO2 |

## E.5. Comparison of actual SDG Impacts with estimates in approved PDD

| SDG | Values estimated in ex ante calculation of approved PDD for this monitoring period | Actual values achieved during this monitoring period |
|---|---|---|
| 7 | 101551.39 MWh | 78112.116 MWh |
| 8 | 1 trainings | 5 trainings |
| 13 | 93,681 tCO2 | 72,048 tCO2 |

### E.5.1. Explanation of calculation of value estimated ex ante calculation of approved PDD for this monitoring period

SDG 3: As per Transition Annex, minimum 100 people to be benefitted annually. Therefore, following unitary method, the amount of estimated ex ante for this monitoring period is identified. The total number of days in this monitoring period is 698 = (100/365)* 698 = 191 beneficiaries.

SDG 7: As per Transition Annex, 53103.52 MWh is the amount of electricity generated annually. Therefore, following unitary method, the amount of estimated ex ante for this monitoring period is identified. The total number of days in this monitoring period is 698 = (53103.52/365)* 698 = 101551.39 MWh

SDG 8: As per Transition Annex, Minimum 1 training to be carried out annually, therefore for this monitoring period 3 trainings needs to take place.

SDG 13 Climate Action: As per CDM registered PDD, 48,988 tCO2e is the amount of CERs generated annually. Therefore, following unitary method, the amount of estimated ex ante for this monitoring period is identified. The total number of days in this monitoring period is 698 = (48,988/365)* 698 = 93,681 tCO2e

## E.6. Remarks on increase in achieved SDG Impacts from estimated value in approved PDD

The actual emission reduction achieved is 23.1% less than the estimated figure as per registered PDD. This is due to lower electricity generation compared to estimated generation in registered PDD (for the equivalent period) during the monitoring period. Further, as the actual generation is less than the estimated generation mentioned in registered PDD, thus, further justification is not necessary.

# SECTION F. SAFEGUARDS REPORTING

>> Not applicable.

Safeguard principles were assessed in detail and reported under the registered GS-Passport and Transition document.

# SECTION G. STAKEHOLDER INPUTS AND LEGAL DISPUTES

**G.1. List all Inputs and Grievances which have been received via the Continuous Input and Grievance Mechanism together with their respective responses/mitigations.**

>>

No grievances received during the monitoring period together with their respective answers/actions. However, as part of organizational policy, continuous interactions have been undertaken by Project Participants officials with local community stakeholders and a register has been maintained for the said purpose at site office.

**G.2. Report on any stakeholder mitigations that were agreed to be monitored.**

>>

No grievances received in the previous monitoring period, thus no follow up required.

**G.3. Provide details of any legal contest that has arisen with the project during the monitoring period**

>>

No legal contest or dispute that has arisen with the project during the monitoring period.

**Revision History**

| Version | Date | Remarks |
|---|---|---|
| 1.1 | 14 October 2020 | Hyperlinked section summary to enable quick access to key sections<br>Improved clarity on Key Project Information<br>Section for POA monitoring<br>Forward action request section<br>Improved Clarity on SDG contribution/SDG Impact term used throughout<br>Clarity on safeguard reporting<br>Clarity on design changes<br>Leakage section added for VER/CER projects<br>Addition of Comparison of monitored parameters with last monitoring period<br>Provision of an accompanying Guide to help the user understand detailed rules and requirements |
| 1.0 | 10 July 2017 | Initial adoption |