Monitoring report form for CDM project activity
(Version 08.0)

Complete this form in accordance with the instructions attached at the end of this form.

MONITORING REPORT			
Title of the project activity	Jangi 91.8 MW wind farm in Gujarat		
UNFCCC reference number of the project activity	6702		
Version number of the PDD applicable to this monitoring report	3.0		
Version number of this monitoring report	01		
Completion date of this monitoring report	20/04/2021		
Monitoring period number	03		
Duration of this monitoring period	01/05/2016 to 31/05/2018 (Inclusive of both dates)		
Monitoring report number for this monitoring period	01		
Project participants	GP Wind (Jangi) Private Limited		
Host Party	India		
Applied methodologies and standardized baselines	Methodology: ACM0002 ver. 12.3 – Consolidated baseline methodology for grid-connected electricity generation from renewable sources. Standardized Baseline: NA		
Sectoral scopes	Scope 1 : Energy industries (renewable - / non-renewable sources)		
Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period	Amount achieved before 1 January 2013	Amount achieved from 1 January 2013 until 31 December 2020	Amount achieved from 1 January 2021
	0 tCO_2	441,290 tCO_2	0 tCO_2
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD	530,671 tCO_2		

SECTION A. Description of project activity

A.1. General description of project activity

The purpose of Jangi 91.8 MW wind farm in Gujarat (hereafter referred to as "the project") is to utilise the wind resources for power generation to alleviate electricity shortage in Northern, Eastern, Western, and North-Eastern (hereafter referred to as "NEWNE") regions(now is a part of Unified Indian Grid). The generated electricity is delivered to NEWNE grid (now Unified Indian Grid), which is dominant of fuel-fired power plants.

The project is a wind farm project with installed capacity 91.8 MW, consisting of 51 sets 1.8 MW V100 class 3 turbines which are manufactured by Vestas Denmark.

The project implementation was started on 02/12/2010. The 1st turbine was put into operation on 31/08/2011 and the project is fully operational from 23/12/2011.

Purpose of the project activity:

The purpose of this project is to generate environmentally friendly, clean, GHG-emission-free-electricity, which will reduce the overall GHG emissions resulting from conventional electricity generation activities.

Scenario existing prior to the start of the implementation of the project activity:

The project activity forms a part of the NEWNE Grid of India (now part of Unified Indian Grid). The project activity generates power by using the kinetic energy of wind, thus resulting in zero emissions during electricity production. The power produced displaces an equivalent amount of power from the grid, which is generated mainly by fossil fuel fired power plants. Hence, the project activity results in reduction of GHG emissions. Hence, in the absence of this project activity, this power would be otherwise generated by grid connected fossil fuel based power plants.

Project Scenario:

Wind powered electricity generation is considered environmentally friendly. It replaces some of the fossil fuel dominated electricity generation mix of the current grid and contributes to GHG emission reduction.

The project activity generates electricity by using the kinetic energy of flowing wind. There are no GHG emissions during electricity production in this way. The electricity produced displaces an equivalent amount of power from the existing grid, which is currently generated mainly by fossil fuel fired power plants. Hence, it reduces GHG emissions.

A.2. Location of project activity

The project is located in Jangi town, Kutch District, Gujarat, India. The project site is about 20km South East from Samakhiyali town. The access to the project site is through village roads of Vandhiya, Modpar, Lakhapar and Jangi, situated along the National Highway No.8A. It is situated between Latitudes 23°15′02.0″ and 23°11′22.0″ North and between Longitudes 70°30′12.0″ and 70°38′26.0″ East with the average elevation varying from 8 to 30 meters above mean sea level. The project owns 52 parcels of land (51 turbine locations and 1 SCADA building location).

A.3. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
India (host)	GP Wind (Jangi) Private Limited	No

A.4. References to applied methodologies and standardized baselines

ACM0002-Consolidated baseline and monitoring methodology for grid connected electricity generation from renewable sources (Version 12.3.0)[1]

Tool for the demonstration and assessment of additionality (Version 06.1.0)

Tool to calculate the emission factor for an electricity system (Version 02.2.1)

A.5. Crediting period type and duration

Crediting Type - Fixed
Length of Crediting Period - 10 Years
Duration of Crediting Period - 01/11/2012 – 31/10/2022

SECTION B. Implementation of project activity

B.1. Description of implemented project activity

The project is a wind farm project, the installed capacity of the project is 91.8 MW, consisting of 51 sets 1.8 MW turbines.

The project implementation was started on 02/12/2010. The 1st turbine was commissioned and put into operation on 31/08/2011 and the project was fully put into operation on 23/12/2011. The project was under normal and continued operation status until now.

Sr. No.	WTG Location no.	Commissioning date	Sr. No.	WTG Location no.	Commissioning date
1	VW08	31/08/2011	26	JW39	20/10/2011
2	VW44	31/08/2011	27	JW40	29/09/2011
3	VW57	01/10/2011	28	JW41	20/10/2011
4	JW03	31/08/2011	29	JW42	20/12/2011
5	JW06	31/08/2011	30	JW43	30/09/2011
6	JW07	31/08/2011	31	JW44	30/11/2011
7	J W21	18/11/2011	32	JW45	23/11/2011
8	JW17	19/11/2011	33	JW46	24/10/2011
9	JW18	19/11/2011	34	JW47	24/10/2011
10	JW19	19/11/2011	35	JW48	30/11/2011
11	JW20	19/11/2011	36	JW49	24/10/2011
12	JW22	18/11/2011	37	JW50	13/12/2011
13	JW26	31/08/2011	38	JW51	13/12/2011
14	JW28	31/08/2011	39	JW52	23/12/2011
15	JW32	23/12/2011	40	JW53	21/12/2011
16	VW59	23/12/2011	41	JW54	13/12/2011
17	VW61	31/08/2011	42	JW55	20/12/2011

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

18	VW70	23/12/2011	43	JW56	17/12/2011
19	JW24	30/09/2011	44	JW57	20/12/2011
20	JW31	31/08/2011	45	JW58	20/12/2011
21	JW33	03/09/2011	46	JW59	17/12/2011
22	JW34	03/09/2011	47	JW60	20/12/2011
23	JW35	01/10/2011	48	JW61	20/12/2011
24	JW36	29/09/2011	49	JW62	20/12/2011
25	JW37	23/11/2011	50	JW63	12/11/2011
			51	JW64	23/11/2011

B.2. Post-registration changes

B.2.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents

Not Applicable

B.2.2. Corrections

Not Applicable

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

The start date of crediting period was changed from 01/06/2013 to 01/11/2012. The same is approved by UNFCCC. Please refer UN web page for same. https://cdm.unfccc.int/Projects/DB/RWTUV1342443620.03/view

B.2.4. Inclusion of monitoring plan

Not Applicable

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

Not Applicable

B.2.6. Changes to project design

Not Applicable

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

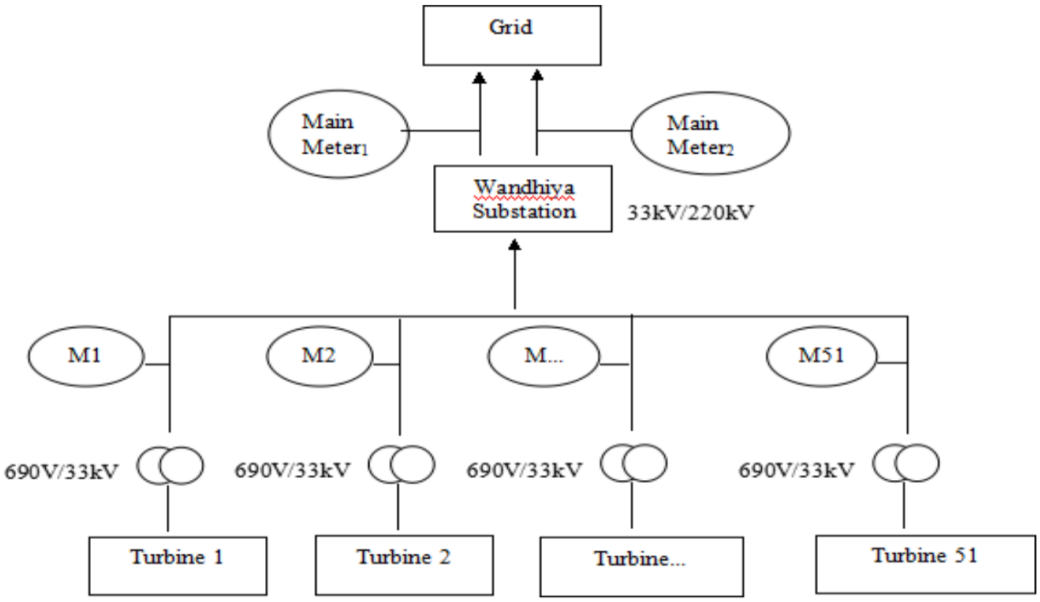
Not Applicable

SECTION C. Description of monitoring system

The generated electricity from the project is transmitted to the substation and then delivered to the grid through line 1 and line 2 respectively.

There are two bidirectional electronic meters (Main Meter 1 and Main Meter 2) installed at substation for line 1 and line 2 to monitor the power exported to power grid and power imported from power grid. Furthermore, there are also two backup meters with same accuracy and function for main meters to ensure the monitoring purpose if the main meter is found malfunction.

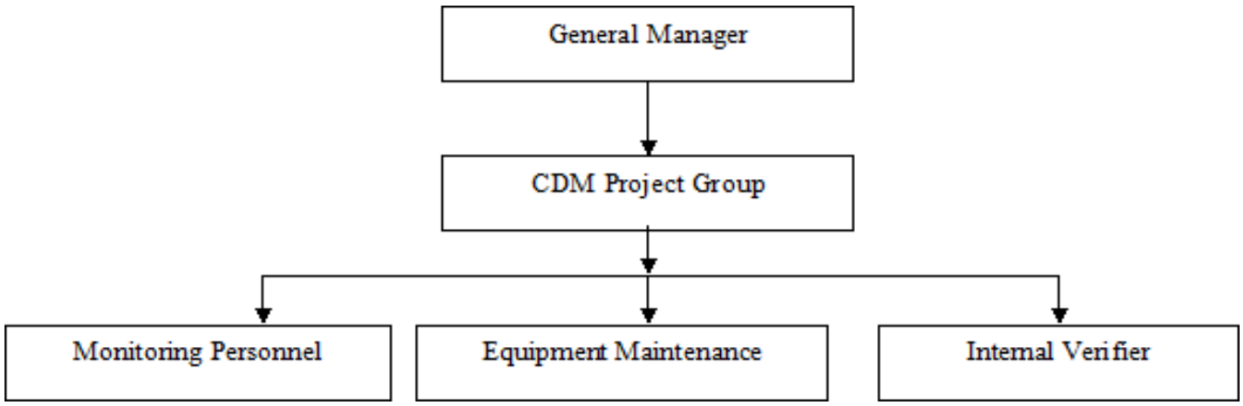
Besides the main meters and backup meters, there are 51 meters and their backup meters installed for each turbine to monitor the power generation of the project. The power electric connection diagram is as follow:



Data collection procedures:
The net electricity supplied to power grid data are measured continuously by 51 turbine meters and are recorded jointly by Grid Company & the Monitoring Personnel from project entity monthly. For monitoring data, based on the readings of meters and after accounting for line losses and grid imports, the power grid company provides the meter readings of 51 meters to project owner and the power grid company provides the net electricity supply data in the second/ third week of early of each month ('Share Certificate'). The Monitoring Personnel from project entity checks and confirms the net electricity supply data mentioned in the Share Certificate. The Internal Verifier from finance department of project entity issues the electricity sales receipts ('Invoices') after approval of general manager.

All the electronic (scanned documents of meter calibration records, scanned documents of sales receipts and electricity transaction notes) and paper monitoring documents are archived during the crediting period and two years after and also two years after last issuance of CERs.

Organizational structure:
The monitoring organizational structure is as follow:



Roles and responsibilities of personnel:

General Manager: General Manager is responsible for the overall management of the monitoring plan and for the internal verification of the monitored data.

CDM Project Group: It is consisted of Monitoring Personnel, Equipment Maintenance and Internal Verifier.

Monitoring Personnel: To conduct the monitoring task strictly based on the monitoring manual and registered PDD. The staffs are responsible for recording required monitored parameters, for reporting the monitoring results and for reporting the abnormal situation of the project. Each shift is responsible for the works.

Equipment Maintenance: To conduct the regular check and maintenance of equipment's.

Internal Verifier: Internal Verifier is appointed from financial department. The verifier is responsible for calculating the emission reductions regularly and for preparing the sales receipts of electricity transaction.

Training:

The project staffs have been trained respectively regarding operational regulations, quality control, data monitoring & archive and CDM knowledge.

Emergency procedures:

The backup meters will be used for monitoring when main meters are in malfunction status. The emergency report will be prepared by Monitoring Personnel and Equipment Maintenance together for reference.

During the given monitoring period, the meters were in well functions and no emergency situation happened.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante

Data/Parameter	**$EF_{grid\ CM,y}$**
Unit	tCO_2/MWh
Description	Combined margin CO2 emission factor for grid connected power generation
Source of data	"CO2 Baseline Database for the Indian Power Sector" version 6[2] published by the Central Electricity Authority, Ministry of Power, Government of India.
Value(s) applied	0.9491
Choice of data or measurement methods and procedures	Data used is from Indian authorities(CEA)
Purpose of data/parameter	Used for emission reductions calculation
Additional comments	N/A.

D.2. Data and parameters monitored

Data/Parameter	**$EG_{facility,y}$**
Unit	MWh

[2] https://cea.nic.in/wp-content/uploads/baseline/2020/07/user_guide_ver6.pdf

Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y.
Measured/calculated/ default	Measured
Source of data	Electricity meters
Value(s) of monitored parameter	464,956.631
Monitoring equipment	Bidirectional electronic meters.
Measuring/reading/recording frequency	Continuous measurement, monthly recording
Calculation method (if applicable)	None
QA/QC procedures	Meter records are cross-checked by invoices. All meters have back-up meters installed. Calibration procedures are in line with the wheeling agreement between the project owner and the grid company. Calibration expected every year, minimum every 3 years
Purpose of data/parameter	Used for calculation of baseline emission reductions
Additional comments	N/A.

D.3. Implementation of sampling plan

Not Applicable

SECTION E. Calculation of emission reductions or net anthropogenic removals

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

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

Baseline emission factor (Combined Margin) ($EF_{grid,CM,y}$) = 0.9491 tCO_2e/MWh
Baseline Emission = $EG_{facility,y} * EF_{grid,CM,y}$ = 464,956.631 MWh × 0.9491 tCO_2e/MWh
= 441,290 tCO_2 (Rounded Down Value)

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

According to ACM0002, Version 12.3.0 the project emissions are zero.
Thus, PE_y=0

E.3. Calculation of leakage emissions

According to ACM0002, Version 12.3.0 there are no leakage emissions. So LE_y = 0.

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

	Baseline GHG emissions or baseline net GHG removals (t CO_2e)	Project GHG emissions or actual net GHG removals (t CO_2e)	Leakage GHG emissions (t CO_2e)	GHG emission reductions or net anthropogenic GHG removals (t CO_2e)			
				Before 01/01/ 2013	From 01/01/ 2013 until 31/12/ 2020	From 01/01/ 2021	Total amount
Total	441,290	0	0	0	441,290	0	441,290

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

Amount achieved during this monitoring period (t CO_2e)	Amount estimated ex ante for this monitoring period in the PDD (t CO_2e)
441,290	530,671

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

Considering the annual average emission reductions as per the registered PDD which is 254,527 tCO_2e per year, the number of days covered during the current monitoring period comes out to be 761 days, based upon which the estimated emission reductions attributed to this monitoring period comes out to be 530,671 tCO_2e. The detailed calculation can be referred from the emission reduction sheet.

E.6. Remarks on increase in achieved emission reductions

It is to be noted here that as per the estimated emission reduction to be achieved from the project activity for the current monitoring 530,671 tCO_2e, whereas actual emission reductions achieved are 441,290 tCO_2e, which is approximately 16.84% 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 low PLF.

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

Not Applicable as project activity is not a small-Scale project activity.

Document information

Version	*Date*	*Description*
08.0	6 April 2021	Revision to: • Reflect the “Clarification: Regulatory requirements under temporary measures for post-2020 cases” (CDM-EB109-A01-CLAR).
07.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Add a section on remarks on the observance of the scale limit of small-scale project activity during the crediting period; • Add "changes specific to afforestation or reforestation project activity" as a possible post-registration changes; • Clarify the reporting of net anthropogenic GHG removals for A/R project activities between two commitment periods; • Make editorial improvements.
06.0	7 June 2017	Revision to: • Ensure consistency with version 01.0 of the “CDM project standard for project activities” (CDM-EB93-A04-STAN); • Make editorial improvements.
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: • Include provisions related to delayed submission of a monitoring plan; • Provisions related to the Host Party; • Remove reference to programme of activities; • Overall editorial improvement.
04.0	25 June 2014	Revisions to: • Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0)); • Include provisions related to standardized baselines; • Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1; • Change the reference number from *F-CDM-MR* to *CDM-MR-FORM*; • Editorial improvement.
03.2	5 November 2013	Editorial revision to correct table in page 1.
03.1	2 January 2013	Editorial revision to correct table in section E.5.
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB 70, Annex 11).

Version	*Date*	*Description*
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01.0	28 May 2010	EB 54, Annex 34. Initial adoption.

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