



Monitoring report form for CDM project activity
(Version 08.0)

MONITORING REPORT

Title of the project activity	Enercon Wind Farms in Karnataka Bundled Project – 30.40 MW		
UNFCCC reference number of the project activity	1291		
Version number of the PDD applicable to this monitoring report	7.0		
Version number of this monitoring report	1		
Completion date of this monitoring report	15/09/2021		
Monitoring period number	07		
Duration of this monitoring period	01 April 2017 – 31 Dec 2017 including both start and end date of monitoring period.		
Monitoring report number for this monitoring period	NA		
Project participants	Wind World (India) Ltd.		
Host Party	India		
Applied methodologies and standardized baselines	“Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, ACM0002, Version 06		
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	41, 931 tonnes of CO ₂ e	0
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD	49,556 tonnes of CO ₂ e		

SECTION A. Description of project activity

A.1. General description of project activity

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The project activity includes development, design, engineering, procurement, finance, construction, operation and maintenance of 30.4 MW wind power project ("Project") in the Indian state of Karnataka to provide reliable, renewable power to the state electricity grid which is part of the Southern electricity grid. The Project leads to reduce greenhouse gas emissions because it displaces electricity from grid connected fossil fuel based electricity generation plants.

The Project involves 38 wind energy converters (WECs) of 800 kW E-48 with internal electrical lines connecting the Project with local evacuation facility. The details are as follows:

1. Wind World Wind Farms (Chitradurga) Ltd (Formerly Enercon Wind Farms (Chitradurga) Ltd): 8.80 MW
2. Panama Business Centre: 1.60 MW
3. Sameer Ladkat: 1.60 MW
4. Elpro International: 0.80 MW
5. Gautam Ladkat: 0.80 MW
6. Panama Infrastructure: 1.60 MW
7. Sameer Ladkat: 0.80 MW
8. Steelfab Offshore 0.80 MW
9. MK Agrotech Private Ltd: 1.60 MW
10. Srinivas Sirigeri: 0.80 MW
11. Dempo Industries: 0.80 MW
12. Desai Brothers: 0.80 MW
13. Dewanchand Ramsaran: 0.80 MW
14. Abhilash Garments & Estates (P) Ltd: 0.80 MW
15. Prasad Global Solutions: 1.60 MW
16. Gangadhar Narsingdas Agarwal: 4.00 MW
17. Siddaganga Oil Extractions Ltd.: 1.60 MW
18. Power Link System Private Limited: 0.80 MW

The first machine under the project activity was commissioned on 29/03/2006 and the last machine under the project activity was commissioned on 29/12/2006. The expected operational lifetime of the project is for 20 years. The total emission reductions achieved under this monitoring period (01/04/2017-31/12/2017) is 41, 931 tCO₂. The length of the Crediting period of the project activity as per registered PDD is 10 years (Fixed). The seventh monitoring period considered is from 01 April 2017 to 31 Dec 2017.

The total emission reductions achieved during the current monitoring period is 41, 931 tCO₂.

A.2. Location of project activity

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The Project is located in Gadag & Chitradurga districts of Karnataka state in India. Approximate distance of the project activity from Bangalore by road is 200 km. The nearest major railway station as well as airport is Bangalore. The longitude and latitude details of WECs are given below:

Sr. No.	Project Owner	Unique Identification No.	Loc. No.	Latitude			Longitude		
				Deg.	Min.	Sec.	Deg.	Min.	Sec.
1	Wind World Wind Farms (Chitradurga) Ltd.	EWCLA-01	1	14	2	45.2	76	28	8.3
2		EWCLA-02	2	14	2	49	76	28	6.3
3		EWCLA-03	3	14	2	52.6	76	28	5
4		EWCLA-04	4	14	2	56.7	76	28	4.4
5		EWCLA-05	5	14	3	0.6	76	28	3.8
6		EWCLA-06	6	14	3	4.4	76	28	3
7		EWCLA-07	7	14	3	8.8	76	28	2.4
8		EWCLA-08	8	14	3	14.6	76	28	1.2
9		EWCLA-09	9	14	3	18.4	76	28	0.3
10		EWCLA-10	10	14	3	22.1	76	27	59.2
11		EWCLA-11	11	14	3	26	76	27	58.6
12	Panama Business Centre	PBCGH2-01	65	13	57	23.5	76	24	55
13		PBCGH2-02	66	13	57	20	76	24	54.6
14	Sameer Ladkat	BMLGH2-01	67	13	57	16.3	76	24	55.9
15		BMLGH2-02	68	13	57	12.9	76	24	57.5
16	Elpro International	EILGH2-01	59	13	58	50.7	76	25	24.9
17	Gautam Ladkat	GLGH2-01	69	13	57	10.8	76	25	0.9
18	Panama Infrastructure	PIPPGH2-01	43	13	59	28.2	76	23	46.2
19		PIPPGH2-02	44	13	59	28.5	76	23	50.8
20	Sameer Ladkat	SLGH2-01	45	13	59	22.4	76	23	52.6
21	Steelfab Offshore	SFOGH2-01	71	13	57	3.6	76	25	4.9
22	MK Agrotech Private Ltd.	MKAGH2-01	61	13	58	44.3	76	25	26.3
23		MKAGH2-02	62	13	58	40.9	76	25	28
24	Srinivas Sirigeri	SSHD-01	7	13	57	0.10	76	19	29.80
25	Dempo Industries	DIPLHD-01	6	13	57	4.30	76	19	28.20
26	Desai Brothers	DBLHD-01	1	13	59	27.70	76	18	45.70
27	Dewanchand Ramsaran	DRGH2-01	72	13	57	0	76	25	6.7
28	Abhilash Garments & Estates (P) Ltd.	AGEGA-01	11	15	8	57.30	75	38	38.20
29	Prasad Global Solutions	PGSGA-01	1	15	10	7.90	75	38	34.50
30		PGSGA-02	17	15	8	19.4	75	39	1.80
31	Gangadhar Narsingdas Agarwal	GNAGA-01	6	15	9	34.3	75	38	27.1
32		GNAGA-02	7	15	9	26.4	75	38	31.5
33		GNAGA-03	8	15	9	20.5	75	38	32
34		GNAGA-04	12	15	8	48.7	75	38	39.4
35		GNAGA-05	13	15	8	44.7	75	38	41
36	Siddaganga Oil Extractions Ltd.	SOEGA-01	14	15	8	40.3	75	38	44.3
37		SOEGA-02	15	15	8	36.5	75	38	46.8
38	Power Link System Private Limited	PLSHD-01	5	13	57	8.10	76	19	27.30

A.3. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
Government of India (Host)	Wind World (India) Ltd.	No

A.4. References to applied methodologies and standardized baselines

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Title: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"

Reference: Approved consolidated baseline methodology ACM0002 (Version 6.0)

ACM0002 draws upon the following tools which have been used in the PDD:

- Tool for the demonstration and assessment of additionality – Version 2

Further information with regards to the methodology/ tools can be obtained at <https://cdm.unfccc.int/methodologies/DB/VJ9AX539D9MLOPXN2AY9UR1N4IYGD>

A.5. Crediting period type and duration

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Type of crediting period : Fixed

Start date of crediting period : 18 March 2010

Length of crediting period : 10 years

Duration of the crediting period: 18/03/2010 to 17/03/2020 (Fixed)

SECTION B. Implementation of project activity**B.1. Description of implemented project activity**

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The first machine under the project activity was commissioned on 29/03/2006 and last machine under the project activity was commissioned on 29/12/2006. The project activity consists of 38 machines (800 kW) of Wind World make E-48 totalling to a capacity of 30.4 MW.

The commissioning date for all the WECs included in the project activity is given in the table below:

1		EWCLA-01	1	06/05/2006
2		EWCLA-02	2	06/05/2006
3		EWCLA-03	3	06/05/2006
4		EWCLA-04	4	06/05/2006
5		EWCLA-05	5	06/05/2006
6	Wind World Wind Farms (Chitradurga) Ltd.	EWCLA-06	6	06/05/2006
7		EWCLA-07	7	31/03/2006
8		EWCLA-08	8	31/03/2006
9		EWCLA-09	9	31/03/2006
10		EWCLA-10	10	31/03/2006
11		EWCLA-11	11	31/03/2006
12	Panama Business Centre	PBCGH2-01	65	31/03/2006
13		PBCGH2-02	66	31/03/2006
14	Sameer Ladkat	BMLGH2-01	67	31/03/2006
15		BMLGH2-02	68	31/03/2006
16	Elpro International	EILGH2-01	59	31/03/2006
17	Gautam Ladkat	GLGH2-01	69	31/03/2006
18	Panama Infrastructure	PIPPGH2-01	43	31/03/2006
19		PIPPGH2-02	44	31/03/2006
20	Sameer Ladkat	SLGH2-01	45	31/03/2006
21	Steelfab Offshore	SFOGH2-01	71	31/03/2006
22	MK Agrotech Private Ltd.	MKAGH2-01	61	31/03/2006
23		MKAGH2-02	62	31/03/2006
24	Srinivas Sirigeri	SSHD-01	7	29/03/2006
25	Dempo Industries	DIPLHD-01	6	29/03/2006
26	Desai Brothers	DBLHD-01	1	29/03/2006
27	Dewanchand Ramsaran	DRGH2-01	72	31/03/2006
28	Abhilash Garments & Estates (P) Ltd.	AGEGA-01	11	29/12/2006
29	Prasad Global Solutions	PGSGA-01	1	29/12/2006
30		PGSGA-02	17	29/12/2006
31	Gangadhar Narsingdas Agarwal	GNAGA-01	6	29/12/2006
32		GNAGA-02	7	29/12/2006
33		GNAGA-03	8	29/12/2006
34		GNAGA-04	12	29/12/2006
35		GNAGA-05	13	29/12/2006
36	Siddaganga Oil Extractions Ltd.	SOEGA-01	14	31/03/2006
37		SOEGA-02	15	31/03/2006
38	Power Link System Private Limited	PLSHD-01	5	29/03/2006

B.2. Post-registration changes

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

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There is no deviation from registered monitoring plan or applied methodology during this monitoring period.

B.2.2. Corrections

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Correction has been reported in PDD Version 7 dated 19/08/2014.

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

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There is no change to the start date of crediting period.

B.2.4. Inclusion of monitoring plan

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Not applicable.

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

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Revision of monitoring plan has been successfully completed and approved by UNFCCC on 21/07/2011 for the project activity.

B.2.6. Changes to project design

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Changes to project design have been approved by UNFCCC on 29/01/2015, and the same is reported in PDD Version 7 dated 19/08/2014.

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

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Not applicable.

SECTION C. Description of monitoring system

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Approved monitoring methodology ACM0002 / Version 06 Sectoral Scope: 1, "Consolidated monitoring methodology for zero-emissions grid-connected electricity generation from renewable sources", by CDM - Meth Panel is proposed to be used to monitor the emission reductions.

This approved monitoring methodology requires monitoring of the following:

- Electricity generation 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

Since the baseline methodology is based on ex ante determination of the baseline, the monitoring of operating margin emission factor and build margin emission factor is not required.

There is dedicated main and check meters for each of the sub projects included in the project activity at 33 kV metering point. The feeders of 33 kV metering point are further connected to step up transformer at substation and subsequently to bulk meter at high voltage side of receiving substation.

The bulk meters are connected to machines of the project activity and the machines commissioned by the other project developers. The subprojects included in the project activity are connected to following four substations where the bulk meters are located:

1	Wind World Wind Farms	8.8	Wind World Sub-station at Imangala	Aiamangala, 66/11 kV
2	Steelfab Offshore	0.8	GIM-II Sub-station at Gownalli	Hiriyur, 220/66/11 kV KPTCL sub-station
3	Dewanchand Ramsaran	0.8		
4	Elpro International	0.8		
5	Gautam Ladkat	0.8		
6	Sameer Ladkat	0.8		
7	Panama Business Centre	1.6		
8	Sameer Ladkat	1.6		
9	Panama Infrastructure	1.6		
10	MK Agrotech Private Ltd.	1.6		
11	Srinivas Sirigeri	0.8	EP-II Sub-station at Nandana Hosuru	Ramagiri, 66/11 kV KPTCL substation
12	Dempo Industries	0.8		
13	Power Link Systems Pvt. Ltd.	0.8		
14	Desai Brothers	0.8		
15	Siddganga Oil Extractions Ltd.	1.6	Gadag Sub-station at Banikoppa	Dambal, 110/33/11 kV KPTCL sub-station.
16	Abhilash Garments & Estates	0.8		
17	Prasad Global Solution	1.6		
18	Gangadhar Narsingdas	4.0		

Therefore in order to determine the net electricity supplied to the grid by the project at high voltage side of receiving substation, the state utility applies the transmission loss to the meter reading recorded at the 33 kV metering point. The transmission loss calculated by the state utility is endorsed / confirmed jointly by the representatives of Wind World and the state utility. The transmission loss applied to the project activity by the state utility is reflected in the JMR (Form B) for each sub project recorded at 33 kV metering point. Net electricity supplied to the grid is calculated by applying transmission loss to the meter readings taken at 33 kV metering location for all the sub projects included in the project activity.

The procedure for calculation of transmission loss as given in the PPA is set out below:

$$Z = \frac{(x_1+x_2+x_3...+x_n)-y}{(X_1+X_2+X_3...+X_n)} \times 100$$

Z = Percentage transmission loss for export incurred in transmission line between the meters located at 33 kV metering point (including the machines of the project activity and other project developers) and the meters located at high voltage side (bulk meter: main and check) of receiving sub-station.

Summation of meter readings at 33 kV metering points for all the project developers connected to receiving substation (including the machines of the project activity and other project developers) = (X₁+X₂+X₃...+X_n)

X_i = Energy Export Reading (X_i) noted at energy meter installed at 33kV metering point where i vary from 1 to n which represents the meters connected to project activity and other project developers.

X₁, X₂, X₃,...X_n are the meters that are installed at 33kV metering point (including the machines of the project activity and other project developers) and further connected to the receiving substation by internally connected lines.

Y = Energy Export Reading at bulk meter installed at high voltage side of transformer of the receiving sub- station

The Export Reading X_i is adjusted for transmission loss that is determined by the state utility and is applied directly to the JMR (Form B) for each sub project included in the project activity taken at 33 kV metering point. This can be checked from the JMR signed jointly by the representatives of Wind World and the state utility.

Transmission Loss in Export (T_E) = Transmission Loss (Z) * Energy Export at 33kV metering point (EG_{Export})

Empirical Formula for Energy Export after adjustment of transmission loss (Equation 1) .

- Net Energy Export for each of the sub project after adjustment of transmission loss = $EG_{Export} - \text{Transmission Loss } (T_E)$

The transmission loss in export is generally less than 5%. However in case of Energy Import, the state utility conservatively applies adjustment of 15% to the import values noted at 33 kV metering point.

Transmission Loss in Import (T_I) = 15% * Energy Import at 33kV metering point (EG_{Import})

Empirical Formula for Energy Import after adjustment of transmission loss (Equation 2)

- Net Energy Import for each of the sub project after adjustment of transmission loss = $EG_{Import} + 15\% * EG_{Import} = 115\% * EG_{Import}$

Therefore, Energy Supplied to Grid for each of the sub project after adjustment of transmission loss is difference of equation 1 and 2 as given in the JMR (Form B) signed jointly by Wind World and the state utility.

EG_y (Sub project) = $EG_{Export} - 115\% * EG_{Import} - \text{Transmission Loss } (T_E)$

The Joint meter reading for each of the sub project noted at 33 kV metering location contains the following data:-

1. Electricity Export (EG_{Export})
2. Electricity Import (EG_{Import})
3. Transmission Loss (T_E) between 33 kV metering point and high voltage side of receiving Sub-station
4. Net Electricity supplied to the Grid [$EG_{Export} - 115\% * EG_{Import} - T_E$]

JMR is signed by the representatives of Wind World and the state utility. The meter readings (both export and import), transmission loss and net electricity supplied to the grid are recorded in the JMR (33 kV metering point). Hence all these values are reproduced from the JMR for calculation of emission reductions.

In addition to the JMR (Form B) at 33kV metering location for each of the sub project included in the project activity, the following documents are also be provided to the DoE for verification:

1. JMR (Form B) at high voltage side of receiving sub-station (bulk meters: main and check)
2. Transmission loss calculation endorsed / confirmed jointly by the representatives of Wind World and the state utility.

The net electricity supplied to the grid can be cross checked from the invoices for each of the Sub-project raised on the state utility for supply of net electricity supplied to the grid.

Net electricity Supplied to Grid for the project activity is summation of Net electricity Supplied to Grid for each of the sub project included in the project activity.

The Project is operated and managed by Wind World (India) Ltd. The operational and management structure implemented by Wind World is as follows:

The detailed monitoring plan is described below:

Metering: Electricity supplied to the grid is metered jointly by state utility and Wind World through dedicated main and check meters at 33 kV metering point for each of the sub project included in the project activity.

In addition to this there are main and check meters (Bulk meters) at high voltage side of receiving sub-station covering sub projects of the project activity and machines of other project developers. There are four receiving stations to which the sub projects included in the project activity are connected.

The schematic diagram shows location of meters for the project activity is attached as Appendix 1.

Metering Equipment: Metering system for the project activity consists of main and check meters at 33kV metering point for each of the sub project included in the project activity and set(s) of main and check meters at high voltage side of receiving substation. All the meters are two-way tri-vector meters capable of recording import and export of electricity. The meters installed are capable of recording and storing half hourly readings of the electrical parameters for a maximum period of 35 days with digital output.

Meter Readings: The electricity export and import to the grid is recorded by taking a Joint Meter Reading (JMR) in the presence of Officials from state Utility and Wind World (India) Ltd at 33kV metering point for each of the sub project included in the project activity. The Joint meter reading contains the value of energy imported, exported, transmission loss and the net electricity exported to the grid during the recording period. This Joint meter reading is certified by the Executive engineer of the state utility and by Wind World Officials. These certified readings are then used by the state utility to prepare the tariff invoices. Thus net electricity supplied to the grid for each of the sub project included in the project activity can be crosschecked with the value mentioned in the invoices raised on the state utility by each of the sub project included in the project activity.

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

Meter Test Checking: All main and check meters are tested (and calibrated if found necessary) for accuracy on annual basis with reference to a portable standard meter. The portable standard meter is owned by KPTCL. The main and check meters shall be deemed to be working satisfactorily if the errors are within specifications for meters of 0.2 accuracy class. The consumption registered by the main meters alone hold good for the purpose of metering electricity supplied to the grid as long as the error in the main meters is within the permissible limits. All the meters are be tested / calibrated for accuracy annually.

If during the meter test checking,

The main meter is found to be within the permissible limit of error and the corresponding check meter is beyond the permissible limits, then the meter reading will be as per the main meter as usual. The check meter shall, however, be calibrated immediately.

The main meter is found to be beyond permissible limits of error, but the corresponding check meter is found to be within permissible of error, then the meter reading for the month up to the date and time of such test shall be as per the check meter. There will be a revision in the meter reading for the period from the previous calibration test up to the current test based on the

readings of the check meter. The main meter shall be calibrated immediately and meter reading for the period thereafter till the next monthly meter reading shall be as per the calibrated main meter.

Both the main meters and the corresponding check meters are found to be beyond the permissible limits of error, both the main meters shall be immediately calibrated and the correction applied to the reading registered by the main meter to arrive the correct reading of energy supplied for metering electricity supplied to the grid for the period from the last month's meter reading up to the current test. Meter reading for the period thereafter till the next monthly reading shall be as per the calibrated main meter.

If during any of the monthly meter readings, the variation between the main meter and the check meter is more than the permissible limit for meters of 0.2% accuracy class, all the meters shall be re-tested and calibrated immediately. The schematic showing the location of meters for the project activity is given in Annex 1.

Training and maintenance requirements:

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

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante

Data/Parameter	$EF_{grid,OM,y}$
Unit	tCO ₂ e/MWh
Description	Operating Margin Emission Factor of Southern Electricity Grid
Source of data	The "CO ₂ Baseline Database for Indian Power Sector" is available at http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm
Value(s) applied	1.0034
Choice of data or measurement methods and procedures	"CO ₂ Baseline Database for Indian Power Sector", published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data/parameter	This data is used for baseline emission calculation.
Additional comments	The value is calculated on ex-ante basis and it will remain same throughout the crediting period.

Data/Parameter	$EF_{grid,BM,y}$
Unit	tCO ₂ e/MWh
Description	Build Margin Emission Factor of Southern Electricity Grid

Source of data	The "CO ₂ Baseline Database for Indian Power Sector" is available at http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm
Value(s) applied	0.7180
Choice of data or measurement methods and procedures	"CO ₂ Baseline Database for Indian Power Sector", published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data/parameter	This data is used for baseline emission calculation.
Additional comments	The value is calculated on ex-ante basis and it will remain same throughout the crediting period.

Data/Parameter	$EF_{grid,CM,y}$
Unit	tCO ₂ e/MWh
Description	Combined Margin Emission Factor of Southern Electricity Grid
Source of data	The "CO ₂ Baseline Database for Indian Power Sector" is available at http://www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm
Value(s) applied	0.93204
Choice of data or measurement methods and procedures	"CO ₂ Baseline Database for Indian Power Sector", published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of data/parameter	This data is used for baseline emission calculation.
Additional comments	The value is calculated on ex-ante basis and it will remain same throughout the crediting period.

D.2. Data and parameters monitored

Data/parameter	EGy
Unit	MWh
Description	Net electricity supplied to the grid by the Project
Measured/calculated/default	Calculated
Source of data	Electricity supplied to the grid as per Joint Meter Readings (Form B) taken at 33 kV metering point for each of the sub project included in the project activity.
Value(s) of monitored parameter	44, 989
Monitoring equipment	Calculated as per formulas described under section C.
Measuring/reading/recording frequency	Monthly

Calculation method (if applicable)	<p>Monitoring: All the meters are two-way trivector meters capable of recording import and export of electricity and provide output in the form of net electricity supplied to the grid. The procedures for metering and meter reading is as per the provisions of the power purchase agreement except or otherwise explicitly stated in the monitoring plan. Metering system for the project activity consists of dedicated main and check meters for each of the sub project owner included in the project activity at 33 kV metering location. In addition to this Joint meter readings are also noted at main and check meters (bulk meters) located at the substations.</p> <p>The bulk meters are connected to the machines of the project activity and the machines commissioned by the other project developers. Therefore in order to determine the electricity supplied to the grid by the project activity at high voltage side of the substation, the state utility applies the transmission loss between 33 kV metering point and meter reading noted at high voltage side of the receiving substation to the meter reading recorded at the 33 kV metering point.</p> <p>The transmission loss calculated by the state utility is endorsed / confirmed jointly by the representatives of Wind World and the state utility. The transmission loss applied to the project activity by the state utility is reflected in the JMR (Form B) recorded at 33kV metering point.</p> <p>Frequency of recording data: Monthly</p> <p>Recording: The values of electricity supplied to the grid are sourced from JMR for the sub projects at 33 kV metering point.</p> <p>Responsibility: Joint responsibility of Wind World and state utility. Refer section C for an illustration of the provisions for measurement methods.</p>
QA/QC procedures	Refer section C for an illustration of the provisions for QA/QC procedures.
Purpose of data/parameter	Calculation of baseline emission
Additional comments	The data will be archived for the entire crediting period plus two years.

Data/parameter	EG_{Export}
Unit	MWh
Description	Electricity Export recorded at meters (main and check meters). All the subprojects included in the project activity have dedicated main and check meters at 33 kV metering point.
Measured/calculated/default	Measured at Main Meter and Check Meter
Source of data	Electricity Export recorded at meters (main and check meters). All the subprojects included in the project activity have dedicated main and check meters at 33 kV metering point.

Value(s) of monitored parameter	-
Monitoring equipment	The details have been mentioned in section C.
Measuring/reading/recording frequency	Monthly
Calculation method (if applicable)	Not applicable
QA/QC procedures	Refer section C for an illustration of the provisions for QA/QC procedures.
Purpose of data/parameter	Calculation of Baseline Emissions
Additional comments	The data will be archived for the entire crediting period plus two years.

Data/parameter	$EG_{Import} \quad t$
Unit	MWh
Description	Electricity Import recorded at meters (main and check meters). All the subprojects included in the project activity have dedicated main and check meters at 33 kV metering point.
Measured/calculated/default	Measured at Main Meter and Check Meter
Source of data	Electricity import from the grid as per joint meter reading for each of the sub-project taken at 33kV metering point.
Value(s) of monitored parameter	-
Monitoring equipment	The details have been mentioned in section C.
Measuring/reading/recording frequency	Monthly
Calculation method (if applicable)	Not applicable
QA/QC procedures	Refer section C for an illustration of the provisions for QA/QC procedures.
Purpose of data/parameter	Calculation of Baseline Emissions
Additional comments	The data will be archived for the entire crediting period plus two years.

Data/parameter	$T_E \quad t$
Unit	MWh
Description	Transmission loss for export between the metering location at 33 kV metering point and the high voltage side of the substation to which the subproject is connected.
Measured/calculated/default	Calculated as per the procedure mentioned in the PPA. Refer section C of the MR.
Source of data	Transmission Loss for export is sourced from the joint meter reading (Form B) taken at 33kV metering point for all the sub projects included in the project activity.

Value(s) of monitored parameter	-
Monitoring equipment	Calculated as per formulas better described under section C.
Measuring/reading/recording frequency	Monthly
Calculation method (if applicable)	<p>Monitoring: Transmission loss between metering location at 33 kV and the metering location at receiving substation is applied to the meter reading taken at meters connected at 33 kV point for the project activity.</p> <p>The Substation is connected to the machines of the project activity and the machines commissioned by the other project owners. Therefore transmission loss is applied by the state utility as reflected in the JMR (Form B) taken at 33kV point for all the sub projects included in the project activity. The JMR is signed by the representatives of Wind World and the state utility. Refer section C of MR.</p> <p>Frequency of recording data: Monthly</p> <p>Recording: The value of transmission loss is sourced from JMR for all the subprojects at 33 kV metering point.</p> <p>Responsibility: Joint responsibility of Wind World and state utility</p>
QA/QC procedures	Refer section C for an illustration of the provisions for QA/QC procedures.
Purpose of data/parameter	Calculation of Baseline Emissions
Additional comments	The data will be archived for the entire crediting period plus two years.

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

>>

The baseline emissions are to be calculated as follows:

$$BE_y = EG_y * EF_y$$

Where:

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

EG_y = Net electricity supplied to the grid in year y and is applied directly from JMR certified by state utility. This value can also be cross checked from the invoice. (MWh/yr)

EF_y = CO₂ emission factor of the grid (932.04 tCO₂e/GWh fixed ex-ante).

Baseline Emission for the period (01/04/2017-31/12/2017)

$$= 44,989 \text{ (MWh)} * 0.93204 \text{ (tCO}_2\text{/MWh)}$$

$$= 41,931 \text{ tCO}_2$$

Baseline Emission Reductions calculation for project activity:-

Duration	Net electricity generation supplied to the grid by the Project activity [MWh]	Baseline Emission Factor (tCO ₂ e/MWh)	Baseline Emissions (tCO ₂ e)
	[EG _y]	[EF _y]	[BE _y] = [EG _y] * [EF _y]
01/04/2017-31/12/2017	41,931	0.93204	41,931
Total	41,931	0.93204	41,931

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

>>

The project activity uses wind power to generate electricity, hence, the emissions from the project activity have been taken as zero.

$$PE_y = 0$$

E.3. Calculation of leakage emissions

>>

No leakage has been considered from the project activity as per approved methodology ACM0002.

$$\text{Hence, } L_y = 0$$

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

	Baseline GHG emissions or baseline net GHG removals (t CO ₂ e)	Project GHG emissions or actual net GHG removals (t CO ₂ e)	Leakage GHG emissions (t CO ₂ e)	GHG emission reductions or net anthropogenic GHG removals (t CO ₂ e)			
				Before 01/01/2013	From 01/01/2013 until 31/12/2020	From 01/01/2021	Total amount
Total	41,931	0	0	0	41,931	0	41,931

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

Amount achieved during this monitoring period (t CO ₂ e)	Amount estimated ex ante for this monitoring period in the PDD (t CO ₂ e)
41,931	49,556

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

>>

The annual estimated volume of CERs as per registered PDD is 65, 774 tCO_{2e}. The total nos. of days included in this monitoring period (i.e. 01/04/2017-31/12/2017, inclusive of both the days) = 275. Thus, to calculate the ex-ante estimated value corresponds to this monitoring period, the value has been apportioned and made equivalent to 275 days, which results in 49, 556 tCO_{2e}.

The same has been mentioned in the ER spreadsheet.

E.6. Remarks on increase in achieved emission reductions

>>

The emission reduction for the current monitoring period is 15.39% lower than the estimated value in the registered PDD for the same monitoring period. This is primarily due to seasonal nature of wind power projects in India.

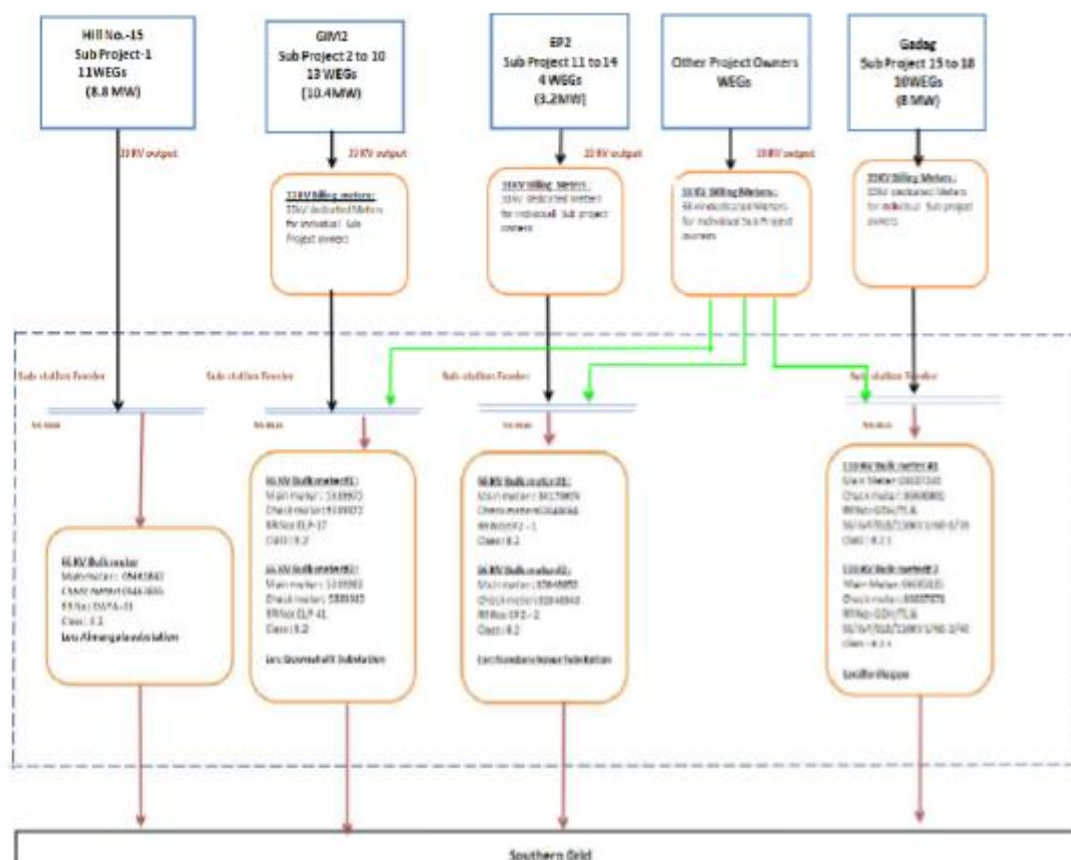
E.7. Remarks on scale of small-scale project activity

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Not applicable

Annex 1

Line Diagram Showing Relevant Metering Points



Document information

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

<i>Version</i>	<i>Date</i>	<i>Description</i>
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.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: monitoring report		