



**Verified Carbon
Standard**

WIND ENERGY PROJECT IN SAMANA, GUJARAT AND SAUNDATTI, KARNATAKA

Document Prepared by CLP Wind Farms (India) Private Limited

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The project activity being undertaken by CLP Wind Farms (India) Private Limited (CLPWFPL), is a greenfield project that involves the utilization of kinetic energy of wind for generation of electricity and supply to the Integrated Indian Grid (earliest North-East-West-North East (NEWNE) and Southern Regional grids). Presently, all Indian grids now synchronized and termed as Integrated Indian Grid.

This VCS project activity includes two sub-projects i.e. installation of 12 Wind Turbine Generators (WTGs) at s site in Gujarat and 55 WTGs at Saundatti site in Karnataka. The WTG has an individual capacity of 800 kW and are supplied by Wind World (India) Limited (formerly known as Enercon (India) Ltd.). The WTGs are of E-53 WWIL make and each individual WTG has a rating of 800 kW. The project activity involves installation of 53.6 MW WTGs in Gujarat and Karnataka site.

Site	No. of WTGs	Capacity of each WTG (MW)	Total Installed capacity (MW)	Grid
Samana	12	0.8 MW	9.6	Integrated Indian Grid
Saundatti	55	0.8 MW	44	Integrated Indian Grid
TOTAL	67	-	53.6	-

It is to be noted that, total installed capacity of Samana site is 50.4 (63*0.8) MW and entire capacity of the project is registered under CDM scheme (UNFCCC ref. no. 8955). However, only part of this Samana project (i.e. 9.6 (12*0.8) MW) as mentioned in above table is registered under VCS scheme. Similarly, total installed capacity of Saundatti site is 72 (90*0.8) MW and entire capacity of the project is registered under CDM scheme (UNFCCC ref. no. 6794). However, only part of this Saundatti project (i.e. 44.0 (55*0.8) MW) as mentioned in above table is registered under VCS scheme.

Salient features of the E-53 turbine are as follows:

- Gearless construction
- Continuous variable wind speed operation in sync with varying wind speeds
- Continuous variable pitch regulation of blades
- Three independent braking and lighting systems for blades
- Ability to withstand voltage fluctuations of -20% to +20% of nominal voltage
- Synchronous generator directly connected to turbine rotor
- Optimum adaptation to many grid voltages at different locations

- Maximum utilization of grid connection capacity for feeding in power.

E-53 Technical Specifications

- Rated capacity : 800 kW
- Rotor diameter : 52.9 m
- Tower height : 72-74 m (consists of both concrete and steel sections)
- Turbine concept : Gearless, variable speed, variable pitch control

The project activity utilises wind power to generate clean power with a view to bring in greenhouse gas emission reductions. The power generated from this project activity is being supplied to the state electricity grid which is a part of Integrated Indian grid. The Project is fully commissioned and is supplying electricity to Integrated Indian grid.

The Project activity is a new facility (Greenfield) and the purpose of the project activity is to generate energy electricity by the utilization of wind velocity power and further selling the generated energy to the Integrated Indian Grid. In this process there is no consumption of any fossil fuel and hence the project does not lead to any greenhouse gas emissions. Thus, electricity would be generated through sustainable means without causing any negative impact on the environment.

The Project activity helps to reduce the demand- supply gap in the country and also helps in contributing to the sustainable development by using wind energy as the source of power generation and reduction of GHG emissions. The first machine under this project activity was commissioned on 23-06-2010 and last machine was commissioned on 31-01-2011. The expected operational lifetime of the project is for 20 years.

The total emission reductions achieved during the monitoring period from 01-06-2021 to 30-09-2022 (both days inclusive) is 126,918 tCO₂.

The audit history of the project is provided below:

Audit Type	Period	Program	VB Name	Number of years
Validation	Not applicable	VCS	URS Verification Private Limited (URS)	Not applicable
Verification	23/06/2010 - 30/06/2012	VCS	URS Verification Private Limited (URS)	2 years
Verification	01/07/2012 - 31/12/2012	VCS	URS Verification Private Limited (URS)	6 months
Verification	01/01/2013 - 31/12/2013	VCS	Earthood Services Private Limited	1 year
Verification	01/01/2014 - 31/03/2018	VCS	Earthood Services Private Limited	4 year 3 months

Verification	01/04/2018 - 30/04/2020	VCS	LGAi Technological Center S.A.(Applus+ Certification)	2 years 1 month
Verification	01/05/2020 - 22/06/2020	VCS	Earthood Services Private Limited	1 month
Validation and Verification	23/06/2020 - 31/05/2021	VCS	Earthood Services Private Limited	11 months,
Verification	01-06-2021 - 30-09-2022	VCS	LGAi Technological Center S.A. (Applus+ Certification)	1 year, 3 months
Total	23/06/2010 - 30/09/2022			12 years, 3 months

1.2 Sectoral Scope and Project Type

Sectoral scope : 1 Energy Industries (renewable -/ non renewable sources)

Project Type : I, Renewable energy project

Methodology : ACM0002 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources (Version 20.0.0)

The project is not a grouped project.

1.3 Project Proponent

Organization name	CLP Wind Farms (India) Private Limited
Contact person	Navneet Kumar
Title	Manager
Address	7th Floor, FULCRUM, Sahar Road, Andheri (East), Mumbai – 400 099. India
Telephone	+ 91 22 6758 8888
Email	carbon@clpindia.in

1.4 Other Entities Involved in the Project

Organization name	NA
Role in the Project	NA
Contact person	NA
Title	NA
Address	NA
Telephone	NA
Email	NA

1.5 Project Start Date

The project start date is 23/06/2010 which is the date of commissioning of the first WTG installed under the project activity.

1.6 Project Crediting Period

The Project has started generating GHG emission reductions from 23-06-2010 i.e. from earliest date of commercial operations of these wind projects. Hence, first crediting period for VCS begins on 23/06/2010 and ends on 22/06/2020 i.e. 10 years. This is the second crediting period of the project activity.

Start date of the crediting period : 23/06/2020

End date of the crediting period : 22/06/2030

Project crediting period : 10 years 0 months (renewable)

1.7 Project Location

Project is spread across two sites – Samana and Saundatti. Location details of these sites are as follows

Site 1: Samana

Taluk : Kalavad, Jamjodhpar, Upleta

District : Jamnagar and Rajkot

State : Gujarat

Host Party : India

The nearest airport and railway station are at Jamnagar city which is located at a distance of approximately 60 kms from the project activity site. The coordinates of individual WTGs of this site are as below:

Sr. No.	Unique Identification No.	GEDA Ref No.	Latitude	Longitude	Date of Commissioning
1	CLPSM-38	EIL/800/09-10/1615	22° 06' 20.1" N	70° 20' 13.1" E	12/07/2010
2	CLPSM-39	EIL/800/09-10/1616	22° 03' 00.8" N	70° 04' 21.9" E	12/07/2010
3	CLPSM-40	EIL/800/09-10/1695	22° 05' 45.4" N	70° 05' 46.2" E	28/01//2011
4	CLPSM-44	EIL/800/09-10/1696	22° 05' 35.8" N	70° 05' 53.6" E	28/01//2011
5	CLPSM-45	EIL/800/09-10/1697	22° 05' 27.8" N	70° 05' 46.6" E	28/01//2011
6	CLPSM-47	EIL/800/09-10/1699	22° 05' 13.5" N	70° 05' 44.2" E	28/01//2011
7	CLPSM-48	EIL/800/09-10/1700	22° 05' 04.8" N	70° 05' 40.8" E	28/01//2011
8	CLPSM-49	EIL/800/09-10/1701	22° 04' 57.9" N	70° 05' 42.1" E	28/01//2011
9	CLPSM-46	EIL/800/09-10/1698	22° 05' 22.0" N	70° 05' 44.3" E	31/01/2011
10	CLPSM-50	EIL/800/09-10/1702	22° 05' 05.5" N	70° 05' 09.2" E	31/01/2011
11	CLPSM-51	EIL/800/09-10/1703	22° 05' 00.0" N	70° 05' 06.9" E	31/01/2011
12	CLPSM-53	EIL/800/09-10/1704	22° 04' 51.6" N	70° 05' 04.3" E	31/01/2011

Site 2: Saundatti

Villages : Katamalli, Hooli, Vatnal, Gorbala, Basidoni, Mallapur, Goravanakolla, Haletorgal

District : Belgaum

State : Karnataka

Host Party : India

The nearest airport and railway station are in Hubli city which is located at a distance of approximately 67 kms from the project activity site. The coordinates of individual WTGs of this site are as below:

Sr. No.	Unique Identification No.	CEIG Ref. No.	Latitude	Longitude	Date of Commissioning
1	CLPSN-36	CLP-40	15° 47' 40.6" N	75° 09' 56.9" E	23/06/2010
2	CLPSN-37	CLP-41	15° 47' 46.2" N	75° 09' 54.9" E	23/06/2010
3	CLPSN-38	CLP-43	15° 48' 01.1" N	75° 09' 57.5" E	23/06/2010
4	CLPSN-39	CLP-51	15° 49' 56.4" N	75° 11' 29.8" E	23/06/2010
5	CLPSN-40	CLP-52	15° 50' 04.2" N	75° 11' 30.6" E	23/06/2010
6	CLPSN-41	CLP-53	15° 50' 11.7" N	75° 11' 31.6" E	23/06/2010
7	CLPSN-42	CLP-54	15° 50' 19.2" N	75° 11' 34.2" E	23/06/2010
8	CLPSN-43	CLP-55	15° 50' 26.5" N	75° 11' 35.6" E	23/06/2010
9	CLPSN-44	CLP-56	15° 50' 35.7" N	75° 11' 40.9" E	23/06/2010
10	CLPSN-45	CLP-65	15° 50' 42.6" N	75° 11' 32.3" E	23/06/2010
11	CLPSN-46	CLP-66	15° 50' 48.6" N	75° 11' 32.8" E	23/06/2010
12	CLPSN-47	CLP-67	15° 50' 55.9" N	75° 11' 29.8" E	23/06/2010
13	CLPSN-48	CLP-68	15° 51' 02.2" N	75° 11' 28.6" E	23/06/2010
14	CLPSN-49	CLP-69	15° 51' 08.8" N	75° 11' 27.2" E	23/06/2010
15	CLPSN-50	CLP-59	15° 50' 58.8" N	75° 11' 45.5" E	23/06/2010
16	CLPSN-51	CLP-60	15° 51' 04.7" N	75° 11' 44.1" E	23/06/2010
17	CLPSN-52	CLP-61	15° 51' 09.9" N	75° 11' 41.7" E	23/06/2010
18	CLPSN-53	CLP-62	15° 51' 19.1" N	75° 11' 47.5" E	23/06/2010
19	CLPSN-54	CLP-63	15° 51' 27.9" N	75° 11' 53.0" E	23/06/2010
20	CLPSN-55	CLP-64	15° 51' 34.7" N	75° 11' 52.0" E	23/06/2010
21	CLPSN-56	CLP - 58	15° 50' 51.7" N	75° 11' 47.4" E	03/08/2010
22	CLPSN-57	CLP - 70	15° 51' 24.3" N	75° 12' 21.2" E	03/08/2010
23	CLPSN-58	CLP - 71	15° 51' 17.9" N	75° 12' 34.6" E	03/08/2010

Sr. No.	Unique Identification No.	CEIG Ref. No.	Latitude	Longitude	Date of Commissioning
24	CLPSN-59	CLP - 72	15° 51' 25.7" N	75° 12' 35.4" E	03/08/2010
25	CLPSN-60	CLP - 73	15° 51' 32.0" N	75° 12' 34.2" E	03/08/2010
26	CLPSN-61	CLP - 74	15° 51' 38.2" N	75° 12' 31.3" E	03/08/2010
27	CLPSN-62	CLP - 75	15° 51' 46.8" N	75° 12' 36.6" E	03/08/2010
28	CLPSN-63	CLP - 76	15° 51' 55.1" N	75° 12' 39.8" E	03/08/2010
29	CLPSN-64	CLP - 77	15° 52' 03.0" N	75° 12' 42.8" E	03/08/2010
30	CLPSN-65	CLP - 79	15° 51' 31.9" N	75° 13' 42.2" E	03/08/2010
31	CLPSN-66	CLP - 80	15° 51' 38.3" N	75° 13' 40.6" E	03/08/2010
32	CLPSN-67	CLP - 81	15° 51' 44.0" N	75° 13' 37.6" E	03/08/2010
33	CLPSN-68	CLP - 82	15° 51' 50.3" N	75° 13' 35.1" E	03/08/2010
34	CLPSN-69	CLP - 83	15° 51' 56.6" N	75° 13' 34.2" E	03/08/2010
35	CLPSN-70	CLP - 84	15° 52' 02.1" N	75° 13' 29.8" E	03/08/2010
36	CLPSN-71	CLP - 85	15° 52' 08.5" N	75° 13' 29.0" E	03/08/2010
37	CLPSN-72	CLP - 86	15° 52' 15.4" N	75° 13' 29.2" E	03/08/2010
38	CLPSN-73	CLP-92	15° 52' 22.9" N	75° 13' 40.0" E	03/08/2010
39	CLPSN-74	CLP-91	15° 52' 18.3" N	75° 13' 46.5" E	03/08/2010
40	CLPSN-75	CLP-90	15° 52' 13.4" N	75° 13' 51.8" E	03/08/2010
41	CLPSN-76	CLP-95	15° 52' 42.3" N	75° 13' 42.6" E	15/09/2010
42	CLPSN-77	CLP-96	15° 52' 51.0" N	75° 13' 44.7" E	15/09/2010
43	CLPSN-78	CLP-97	15° 52' 56.5" N	75° 13' 44.3" E	15/09/2010
44	CLPSN-79	CLP-98	15° 53' 03.1" N	75° 13' 46.0" E	15/09/2010
45	CLPSN-80	CLP-99	15° 53' 10.3" N	75° 13' 46.1" E	15/09/2010
46	CLPSN-81	CLP-57	15° 50' 45.3" N	75° 11' 49.2" E	15/09/2010

Sr. No.	Unique Identification No.	CEIG Ref. No.	Latitude	Longitude	Date of Commissioning
47	CLPSN-82	CLP-103	15° 53' 19.3" N	75° 14' 02.9" E	03/12/2010
48	CLPSN-83	CLP-102	15° 53' 12.6" N	75° 14' 05.0" E	03/12/2010
49	CLPSN-84	CLP-02	15° 49' 15.8" N	75° 06' 31.1" E	03/12/2010
50	CLPSN-85	CLP-03	15° 49' 23.5" N	75° 06' 47.8" E	03/12/2010
51	CLPSN-86	CLP-04	15° 49' 17.1" N	75° 06' 49.1" E	03/12/2010
52	CLPSN-87	CLP-05	15° 49' 10.4" N	75° 06' 49.8" E	03/12/2010
53	CLPSN-88	CLP-08	15° 48' 50.9" N	75° 06' 48.4" E	03/12/2010
54	CLPSN-89	CLP-09	15° 48' 43.7" N	75° 06' 46.6" E	03/12/2010
55	CLPSN-90	CLP-10	15° 48' 46.3" N	75° 06' 40.2" E	03/12/2010

1.8 Title and Reference of Methodology

The approved consolidated baseline and monitoring methodology ACM0002 (Version 2.0, EB105)¹, has been used to determine the baseline emissions and emission reduction due to the project activity. The title of this baseline methodology is “Grid-connected electricity generation from renewable sources”. The other UNFCCC documents referred are as below:

- Tool for the demonstration and assessment of additionality (Version 07.0.0)
- Tool to calculate the emission factor for an electricity system (Version 7.0, EB 100)
- Guidance on assessment of investment analysis (05, EB 62)
- Guidelines on demonstration of and assessment of prior consideration of the CDM (Version 04, EB 62)
- Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period (ver 3.0.1, Annex 47 of EB 66)

1.9 Participation under other GHG Programs

Both sites of the Project are also registered as a separate CDM Project activity. Details of these CDM projects are as follows:

¹ <https://cdm.unfccc.int/methodologies/DB/XP2LKUSA61DKUQC0PIWPGWDN8ED5PG>

Site 1: Samana Site

Project Title: Wind based renewable energy project by CLP Wind Farms India Private Limited in Gujarat

UNFCCC Registration Number: 8955

Crediting period start date: 01/01/2013

CLP has not issued any CERs from this project

Site 2: Saundatti Site

Project Title: Wind Energy Project in Saundatti, Karnataka

CDM Registration Number: 6794

Crediting Period Start Date: 24/09/2012

CLP has issued CERs for the duration of 01/01/2013 to 01/10/2016

Further, the net GHG Emission reductions or removals generated by the project activity will not be used for compliance with an emission trading program or to meet binding limits on GHG Emissions.

1.10 Other Forms of Credit and Supply Chain (Scope 3) Emissions

- Emission Trading Programs and Other Binding Limits: The project has not participated in any Emissions Trading Programs. The emission reductions generated for this duration of periodic verification would not be claimed under any other GHG programs.
- Other Forms of Environmental Credit: The project proponent hereby confirms that the project has not sought or received any other GHG related environmental credit except CDM and submitted a declaration to DoE that CLPWFIPL wouldn't claim any form of environmental credit except VCU for the said duration.
- Supply Chain (Scope 3) Emissions are not applicable for project activity.

1.11 Sustainable Development Contributions

The project is already registered with VCS and currently undergoing periodic verification. The contribution of this project activity in terms of following four indicators of sustainable development as stipulated by the National CDM Authority (NCDMA) of India is provided below:

Social wellbeing:

Since, the project activity is in a rural area, it will aid in the development of the region by generating direct and indirect employment opportunities for the local people. The project activity will also cause development of infrastructure like roads which will benefit the population in the nearby areas.

Economic wellbeing:

The project has created a business opportunity for local stakeholders such as suppliers, manufacturers, contractors etc. Use of wind as a source of energy reduces the dependence on imported fossil fuels like coal and associated price variation thereby leading to increased energy security. It will also narrow the existing electricity supply gap in the State of Maharashtra as well as India.

Environmental wellbeing:

Since, the project uses renewable source for power generation; it does not lead to any greenhouse gas emission. Avoidance of fossil fuel consumption results in reduction of Sulphur oxides (SO_x), Oxides of nitrates (NO_x) and particulate matter emission thus avoiding air pollution. The project activity is a step towards environmental sustainability by preventing exploitation and depletion of a natural, finite, and non-renewable resource (fossil fuels). Consumption of large quantities of water that is required in generation of electricity in current mix of power plants is avoided.

Technological wellbeing:

The technology leads to utilization of environmentally safe and sound technologies in power sector. The project harnesses wind power potential in the region and encourages setting up such projects in near future. Increased interest in wind energy projects will encourage Research & Development efforts by technology providers to develop more efficient and better equipment in future.

The project was registered with VCS before 20/01/2023 and currently undergoing period verification, hence it is not mandatory to demonstrate contributions to at least three SDGs before 20 January 2025.

Table 1: Sustainable Development Contributions

Row number	SDG Target	SDG Indicator	Net Impact on SDG Indicator	Current Project Contributions	Contributions Over Project Lifetime
Not Applicable	Not Applicable	Not Applicable	Since PP did not monitor SDG activities during current or previous monitoring period, No SDG indicator and its impact has been reported.	Not Applicable	Not Applicable

2 SAFEGUARDS

2.1 No Net Harm

In line with Ministry of Environment Forest and Climate Change, Govt. of India, Environmental Impact Assessment (EIA) is not mandatory for wind energy project. However, as per CLP's internal governance system, EIA is mandatory for all projects. Thus, EIA has been conducted before project installation and found that this project does not have any negative environmental and socio-economic impacts. Thus, this is not applicable for this project activity.

2.2 Local Stakeholder Consultation

The project proponent organized a stakeholder meeting to clarify any queries or misgivings the local inhabitants in the region may have about the project.

CLP conducted a consultation meeting with the local stakeholders at the project sites at the time of project registration. Stakeholders comprised of villagers from nearby villages, employees of CLP Wind Farms (India) Pvt. Ltd. and those of O&M contractor working at the site. The stakeholders were invited by letters sent and through public notice. Evidence of the consultation meeting (signed attendance of the stakeholders and photographs) was presented to DoE. Details of the stakeholders consultations at each sites are mentioned below:

Samana, Gujarat

The meeting for the wind power project at Samana site, Gujarat was held in Jamnagar on 25/10/2007. The meeting was well attended, by various stakeholders, including Representatives from Gram Panchayat (mostly village heads - Sarpanches), local residents, and representatives of Equipment suppliers. The stakeholders were invited through personal invitation letters dated 01.10.2007 with the help of representatives of WWIL (Enercon), well in advance of the planned meeting.

The meeting was initiated by a representative of the project proponent giving a brief on the project activity. This was followed by an introduction to climate change and its local as well as global effects. The relation of anthropogenic GHG emissions and climate change was also addressed and the contribution of the said project activity in mitigating these threats was explained.

In an open house session that followed the speeches, two of the Sarpanchs came forward on behalf of all the villagers and other Sarpanchs to thank the project proponent and offered continuous support in the development of the project.

These queries were duly acknowledged by the project proponent and the answers given in response to these queries are presented below:

Queries raised by Participants Clarifications by CLPWFPL & WWIL

- 1) Is the project proponent going to implement any new technology in Samana?
 - The project proponent clarified that they have bought WEGs from WWIL India Limited and are implementing the wind farm project.
- 2) What kind of employment opportunities does this project offer to the local villagers?
 - Local villagers are given preference for the manpower requirement of construction work as well as requirements during the operational life of the project.
- 3) Village roads near to the wind farm are getting damaged due to heavy vehicles and what is the corrective action planned?
 - Maintenance of roads at periodic intervals will be done by WWIL

The stakeholders present were satisfied with these responses and were appreciative of the efforts by the project proponent in undertaking the said project.

Saundatti, Karnataka

The meeting for the wind power project at Saundatti site, Karnataka was held in Hubli on 12 Mar 2009. The meeting was well attended, with a turnout of around forty five stakeholders, including representatives from Gram Panchayat (mostly village heads - Sarpanches), Local residents, representatives of KPTCL and equipment supplier. The stakeholders were invited through personal invitation letters dated 24 Feb 2009 with the help of representatives of WWIL, well in advance of the planned meeting.

The meeting was initiated by a representative of the project proponent giving a brief on the project activity. This was followed by an introduction to climate change and its local as well as global effects. The relation of anthropogenic GHG emissions and climate change was also addressed and the contribution of the said project activity in mitigating these threats was explained.

In an open house session that followed the presentation, the Superintending Engineer of Karnataka Power Transmission Limited, Mr. R.P. Chavate, gave a detailed lecture on the power scenario in India (deficit status of Karnataka), subsidies, energy theft and contribution of renewables in capacity additions to the grid. Further, Mr. Chavate enlightened the audience on transmission losses, significance of carbon credits and benefits that would accrue, once the project activity is in place. All the stakeholders encouraged the upcoming of the project activity and provided their responses in writing in the questionnaires provided to them.

The issues and concerns raised by the stake holders and the clarifications provided by CLPWFPL and Wind World India Limited (previously known as Enercon India Limited) are summarized below:

Queries raised by Participants	Clarifications by CLPWFPL & WWIL
How is the project useful for the local villagers?	The project proponent clarified that the implementation of the project activity would entail direct and indirect employment opportunities. Further small business opportunities would lead to overall development of the villages. Furthermore, the local grid would be strengthened thereby ensuring availability of reliable power in the villages.
Will there be employment opportunities for skilled labour available locally?	The project proponent clarified that Local villagers will be given preference for the manpower requirement of construction work as well as requirements during the operational life of the project. However, they would have to go through a proper selection procedure.
Will the installation of machines create noise and disturb the surroundings?	The WWIL personnel clarified that they have already implemented WEGs in various villages in the neighbouring Gadag district Area and no such problem has been reported anywhere owing to advanced machine design that ensures minimal noise.
Will the implementation of the project activity have any impact on grazing of animals 4-5 years down the line?	The project proponent clarified that there will be no impact of the wind farm on the grazing activity in the area.

The stakeholders present were satisfied with these responses and were appreciative of the efforts by the project proponent in undertaking the said project.

On the whole, the stakeholders were appreciative of the project being undertaken and were in agreement the beneficial effects of the said project activity. There were no adverse comments received and the above mentioned queries were addressed by the project participant.

This stakeholder consultation was conducted during registration of the project.

Since this is the joint renewal of crediting period and verification of the project activity, hence, additional local stakeholders' consultation details are not applicable in this project activity. Further, as a part of continuous feedback from stakeholders, along with the 3rd party O&M contractor, CLP has also appointed independent Asset Managers at every site. These assets managers are responsible for site supervision and continuous day-to-day interaction with the local stakeholders e.g. local villagers, local govt. authorities and others. Based on the local requirements, CLP has initiated several CSR/sustainable development activities in the project catchment area. Further, CLP has also placed a grievance register onsite where-in, the stakeholders can put down their request/complaint/requirements. Same is continuously monitored and appropriate action are also being taken by management. Furthermore, CLP has also placed a notice board on site to communicate any necessary information/updates to local stakeholders. CLP has found this two-way communication with local stakeholders is very effective towards sustainability of the project in long run. In both the project sites, CLP has not received any complaints from the stakeholders of the project. However, all the stakeholders of the project supported these projects for uninterrupted operations.

The project proponent organized a stakeholder meeting to clarify any queries or misgivings the local inhabitants in the region may have about the project.

CLP conducted a consultation meeting with the local stakeholders at the project sites at the time of project registration. Stakeholders comprised of villagers from nearby villages, employees of CLP Wind Farms (India) Pvt. Ltd. and those of O&M contractor working at the site. The stakeholders were invited by letters sent and through public notice. Evidence of the consultation meeting (signed attendance of the stakeholders and photographs) was presented to DoE. Details of the stakeholders consultations at each sites are mentioned below:

Since this is the consecutive periodic verification under second crediting period of the project activity, hence, local stakeholders' consultation details are not applicable in this project activity. Further, the local stakeholder meetings were carried out at sites of the project activity and the details of the same can be referred from the registered VCS PD. As a part of continuous feedback from stakeholders, along with the 3rd party O&M contractor, CLP has also appointed independent Asset Managers at every site. These assets managers are responsible for site supervision and continuous day-to-day interaction with the local stakeholders e.g. local villagers, local govt. authorities and others. Based on the local requirements, CLP has initiated several CSR/sustainable development activities in the project catchment area. Further, CLP has also placed a grievance register onsite where-in, the stakeholders can put down their request/complaint/requirements. Same is continuously monitored and appropriate action are also being taken by management. Furthermore, CLP has also placed a notice board on site to communicate any necessary information/updates to local stakeholders. CLP has found this two-

way communication with local stakeholders is very effective towards sustainability of the project in long run.

2.3 AFOLU-Specific Safeguards

This section is not applicable for this project activity.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

Implementation Status

All the WTGs of the Project have been commissioned and the Project is fully implemented. The commissioning dates of the individual WTGs have been provided in section 1.7.

Events that may impact the GHG emission reductions or removals and monitoring.

No such events took place during the monitoring period that may impact the GHG emission reductions for the project activity. The project activity has been exporting electricity continuously since commissioning. There were neither major breakdowns nor other events for the project activity during the monitoring period that may impact the GHG emission reductions for the project activity.

3.2 Deviations

3.2.1 Methodology Deviations

There are no deviations related to methodology.

3.2.2 Project Description Deviations

No deviation has considered in this periodic verification.

In previous verification under first crediting period, below deviations have been considered

- It is observed that the meters installed at Samana site are not calibrated in line with the frequency as defined in the registered monitoring plan and hence calibration delay is identified. The project proponent has considered this case as project deviation in the current monitoring period. Since the installation and calibration of meters is completely under control of state utility (DISCOM), hence the approach is justified.
- In Samana project, the meters installed at the project metering point are under the custody of state DISCOM. State DISCOM is altering the metering position time to time as per latest requirement and all project developers connected to the same substation have to follow the same system. From commissioning of this project, WTGs under Sadodar substation previously connected to 5 feeders where 5 main meters were installed

respectively. However, on 11/11/2015, DISCOM changed the electrical connectivity and installed two new main meters as billing meters and subsequently previous meters are now considered as check meters.

- Similarly, in Saundatti project, during meter calibration it was found that meter display were not working properly. Thus, Hubli Electricity Supply Company Limited has replaced the billing meters on 14/08/2014 and on 10/04/2015 for Line -1 and on 14/08/2014 and on 15/04/2015 for Line -2 to maintain the appropriateness in electricity monitoring in line with section 4.3 of registered PD.

Thus, same change in energy meters have been accounted as Project Description deviations in line with VCS standard. However, this project deviation doesn't have an adverse impact in the applicability of the methodology, additionally or the appropriateness of the baseline scenario.

3.3 Grouped Projects

The project is not a grouped project.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	EF _{Integrated,grid,OM,y}
Data unit	tCO ₂ e/MWh
Description	Operating Margin emission factor for Integrated Indian grid
Source of data	Referred from CO ₂ Baseline Database for the Indian Power Sector prepared by Central Electricity Authority Version 16.0.
Value applied	0.9568
Justification of choice of data or description of measurement methods and procedures applied	Calculated it as CEA sourced data 3 years vintage data (2017-18, 2018-19 and 2019-20) and option of ex ante calculation based on Simple Operating Margin Method. Computed once during PDD finalization.
Purpose of Data	To calculate the baseline emission calculation
Comments	This value is determined and fixed ex-ante.

Data / Parameter	EF _{Integrated,grid,BM,y}
Data unit	tCO ₂ e/MWh
Description	Build Margin emission factor for Integrated Indian grid

Source of data	Referred from CO ₂ Baseline Database for the Indian Power Sector prepared by Central Electricity Authority Version 16.0.
Value applied	0.8682 tCO ₂ e/MWh
Justification of choice of data or description of measurement methods and procedures applied	Calculated as per CEA sourced data for the year 2019-20. The build margin is calculated in this database as the average emissions intensity of the 20% most recent capacity additions in the grid based on net generation and option of ex ante calculation. Computed once during PD finalization.
Purpose of Data	To calculate the baseline emission calculation
Comments	This value is determined and fixed ex-ante.

Data / Parameter	EF _{Integrated,grid,CM,y}
Data unit	tCO ₂ e/MWh
Description	Combined Margin CO ₂ emission factor for Integrated Indian grid
Source of data	Estimated figure based on 75% of OM and 25% of BM values
Value applied	0.9346 tCO ₂ e/MWh
Justification of choice of data or description of measurement methods and procedures applied	CEA has calculated it as per ACM0002 with 3 years vintage data and option of ex ante calculation based on 75% of OM and 25% of BM values approach. Computed once during PDD finalization.
Purpose of Data	To calculate the baseline emission calculation
Comments	This value is determined and fixed ex-ante.

4.2 Data and Parameters Monitored

Site 1: Samana

Data / Parameter	EG _{Samana,WTG,i}
Data unit	MWh
Description	Quantity of electricity generated by ith WTG at Samana site
Source of data	LCS meter data
Description of measurement methods and procedures to be applied	The quantity of electricity generated by ith WTG at Samana site is measured and recorded by the LCS meter at the WTG controller end.
Frequency of monitoring/recording	Measured continuously and recorded daily
Value monitored	28,372.04 MWh
Monitoring equipment	LCS meter at the WTG controller end would be used for monitoring and LCS meters do not require calibration.

QA/QC procedures to be applied	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 WTGs. In case there is any mismatch in the energy values recorded by the LCS meter and the energy values calculated by the inverting system; the machine will stop working and generate the error report.
Purpose of the data	Calculation of baseline emissions
Calculation method	Not applicable
Comments	The data will be kept for two years after the end of the crediting period or the last issuance of VCUs for this project activity, whichever occurs later.

Data / Parameter	EG _{Samana, facility, y}
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project activity to the Integrated Indian grid in year y
Source of data	Joint Meter Reading Sheets and WTG Controller End Data
Description of measurement methods and procedures to be applied	Net electricity generated by the wind farm is monitored using a main meter at the grid interconnection point in the substation maintained by Wind World India Limited (previously known as Enercon (India) Limited). There are numerous WTGs apart from those included in this project that are connected to the main meter. The net electricity delivered by the Samana sub-project would be calculated by proportionally dividing the metered net generation among the connected WTGs on the basis of the prorata readings taken at the WTG controller end. The net electricity supplied by the wind farm to the Integrated Indian grid is determined as the difference between the quantity of electricity supplied by the wind farm to the grid and the quantity of electricity delivered to the wind farm from the grid. Joint meter readings for the net energy generation by the wind farm are taken in the presence of Wind World India Limited (previously known as Enercon (India) Limited) and grid officials every month.
Frequency of monitoring/recording	Measured continuously and recorded monthly
Value monitored	27,587.13 MWh
Monitoring equipment	Main meter is installed at the grid interconnection point in the substation maintained by Wind World India Limited (previously known as Enercon (India) Limited). The serial number of bi-directional energy meters which are L&T make with an accuracy class of 0.2 s is provided below: GJ-2458-A (Main meter) GJ-2459-A (Check Meter). The details of the same are provided in Appendix 1.
QA/QC procedures to be applied	Calibration of the main meter shall be done once every three years.

Purpose of the data	Calculation of baseline emissions
Calculation method	$EG_{\text{Integrated, facility, y}} = \text{Net wind farm generation} * (\text{Electricity generation by project WTGs} / \text{Electricity generation by wind farm WTGs})$
Comments	The data will be kept for two years after the end of the crediting period or the last issuance of VCUs for this project activity, whichever occurs later.

Site 2: Saundatti

Data / Parameter	$EG_{\text{Saundatti, WTG, i}}$
Data unit	MWh
Description	Quantity of electricity generated by ith WTG at Saundatti site
Source of data	LCS meter data
Description of measurement methods and procedures to be applied	LCS meter at the WTG controller end would be used for monitoring.
Frequency of monitoring/recording	Measured continuously and recorded daily
Value monitored	110,783.28 MWh
Monitoring equipment	LCS meter at the WTG controller end would be used for monitoring and LCS meters do not require calibration.
QA/QC procedures to be applied	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 WTGs. In case there is any mismatch in the energy values recorded by the LCS meter and the energy values calculated by the inverting system; the machine will stop working and generate the error report.
Purpose of the data	To calculate Baseline Emissions calculation
Calculation method	Not applicable
Comments	The data will be kept for two years after the end of the crediting period or the last issuance of VCUs for this project activity, whichever occurs later.

Data / Parameter	$EG_{\text{Saundatti, facility, y}}$
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project activity to the Integrated Indian grid in year y
Source of data	Joint Meter Reading Sheets and WTG Controller End Data
Description of measurement methods	Net electricity generated by the wind farm is monitored using a main meter at the grid interconnection point in the substation maintained by Wind World

and procedures to be applied	India Limited (previously known as Enercon (India) Limited). There are numerous WTGs apart from those included in this project that are connected to the main meter. The net electricity delivered by the Saundatti sub-project would be calculated by proportionally dividing the metered net generation among the connected WTGs on the basis of the prorata readings taken at the WTG controller end. The net electricity supplied by the wind farm to the Integrated Indian grid is determined as the difference between the quantity of electricity supplied by the wind farm to the grid and the quantity of electricity delivered to the wind farm from the grid. Joint meter readings for the net energy generation by the wind farm are taken in the presence of Wind World India Limited (previously known as Enercon (India) Limited) and grid officials every month.								
Frequency of monitoring/recording	Measured continuously and recorded monthly								
Value monitored	108,208.99 MWh								
Monitoring equipment	Main and check meters are installed at the grid interconnection point in the substation maintained by Wind World India Limited (Enercon (India) Limited). The serial number bi-directional meters which are L&T make with an accuracy class of 0.2 s are provided below Transformer 1 <table> <tr> <td>Main Meter</td><td>21006810</td></tr> <tr> <td>Check Meter</td><td>21006811</td></tr> </table> Transformer 2 <table> <tr> <td>Main Meter</td><td>21006802</td></tr> <tr> <td>Check Meter</td><td>21006822</td></tr> </table> The details of the same are provided in Appendix 1.	Main Meter	21006810	Check Meter	21006811	Main Meter	21006802	Check Meter	21006822
Main Meter	21006810								
Check Meter	21006811								
Main Meter	21006802								
Check Meter	21006822								
QA/QC procedures to be applied	Calibration of the main and check meters shall be done once every three years.								
Purpose of the data	Calculation of baseline emissions								
Calculation method	$EG_{\text{Saundatti, facility, y}} = \text{Net wind farm generation} * (\text{Electricity generation by project WTGs} / \text{Electricity generation by wind farm WTGs})$								
Comments	The data will be kept for two years after the end of the crediting period or the last issuance of VCUs for this project activity, whichever occurs later.								

4.3 Monitoring Plan

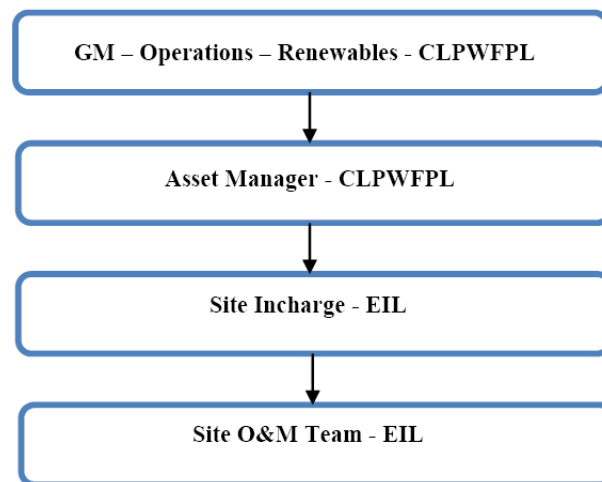
The monitoring plan is being devised as per approved consolidated monitoring methodology ACM0002 Version 20.0.0 - “Grid-connected electricity generation from renewable sources”.

The electricity exported to and imported from the grid would be measured using bi-directional main and check meters of accuracy class 0.2s installed at the sub-station. The consumption

registered by the main meter alone will hold good for the purpose of estimation of the emission reductions as long as the error in the main meter is within the permissible limits.

To ensure trouble free operations and efficient generations through all the wind turbines, CLPWFPL has entered into a comprehensive Operation and Maintenance agreement with the manufactures of the turbines. The contractor, Wind World India Limited (previously known as Enercon (India) Limited (EIL)), under the O&M contract with CLPWFPL would be responsible for the operation and maintenance of the project activity for the entire crediting period.

The responsibility of project management as well as registration, monitoring, measurement and reporting lies with CLPWFPL. CLPWFPL has envisaged a Project Team to ensure proper and continuous monitoring of the performance of turbines and generation of power. The same has been outlined as follows:



The O&M personnel are qualified engineers and are trained at the WTG manufacturing facility of Wind World India Limited (previously known as Enercon (India) Limited) at Daman for operating and ensuring best performance of the WTGs.

Metering Equipment: Metering equipment shall be bidirectional electronic meters of accuracy class 0.2s required for the Project (both main and check meter).

Meter Readings: The monthly meter readings (both main and check meters) at the sub-station shall be taken jointly by the grid authority and WWIL.

Meter Test Checking: Main and check meters shall be tested for accuracy once every three years. The meters shall be deemed to be working satisfactorily if the errors are within specifications for meters of 0.2s accuracy class.

Records: O&M Contractor WWIL will maintain an accurate and up-to-date operating log at the wind farm. All the records will be preserved for 2 years beyond the crediting period.

Emergency procedures: The Samana site has four main meters installed at the grid interconnection point in the substation maintained by Wind World India Limited (previously known

as Enercon (India) Limited). In case any meter becomes defective, the load would be switched to the other operational meters so that there is no lapse in recording of electricity generation data. The Saundatti site has two main and two check meters installed at the grid interconnection point in the substation. In case a main meter becomes defective, the readings of the check meter would be used for the purpose of billing and calculation of emission reductions.

Apportioning of electricity: In case dates of monitoring period do not match with the dates of Joint Meter Readings the following apportioning formula would be used to estimate the electricity generation for calculating emission reductions:

X = Electricity generation recorded at LCS Meter by project activity WTGs between start/end date of monitoring period and date of billing cycle

Y = Electricity generation recorded at LCS Meter by project activity WTGs in the particular month for which Joint Meter Reading has been taken

Z = Net energy exported from project activity WTGs

Electricity Generation = $(X/Y) * Z$.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

The baseline emissions are calculated as follows:

$$BE_y = EG_{PJ,y} \cdot EF_{\text{Integrated grid,CM, y}}$$

Where:

BE_y = Baseline emissions in year y (tCO₂)

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

$EF_{\text{grid,CM,y}}$ = Combined margin CO₂ emission factor for Integrated Indian grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system”

Since the project activity is the installation of a new grid-connected renewable power plant/ unit at a site where no renewable power plant was operated prior to the implementation of the project activity, therefore:

$$EG_{PJ,y} = EG_{\text{facility,y}}$$

Where:

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

Baseline emissions for Samana Site:

Vintage Period	Net Electricity Export (MWh)	Emission Factor (tCO ₂ /MWh)	Baseline Emissions (tCO ₂)	Project Emissions (tCO ₂)	Leakage (tCO ₂)	Emission Reductions (tCO ₂)
2021 (01/06/2021 to 31/12/2021)	12,013.90	0.9346	11,228	0	0	11,228
2022 (01/01/2022 to 30/09/2022)	15,573.23	0.9346	14,555	0	0	14,555
	27,587.13		25,783	0	0	25,783

Baseline emissions for Saundatti Site:

Vintage Period	Net Electricity Export (MWh)	Emission Factor (tCO ₂ /MWh)	Baseline Emissions (tCO ₂)	Project Emissions (tCO ₂)	Leakage (tCO ₂)	Emission Reductions (tCO ₂)
2021 (01/06/2021 to 31/12/2021)	49,066.80	0.9346	45,859	0	0	45,859
2022 (01/01/2022 to 30/09/2022)	59,142.19	0.9346	55,276	0	0	55,276
	108,208.99		101,135	0	0	101,135

Baseline emissions for Project activity:

Vintage Period	Baseline Emissions (tCO ₂)	Project Emissions (tCO ₂)	Leakage (tCO ₂)	Emission Reductions (tCO ₂)
2021 (01/06/2021 to 31/12/2021)	57,087	0	0	57,087
2022 (01/01/2022 to 30/09/2022)	69,831	0	0	69,831
	126,918	0	0	126,918

5.2 Project Emissions

The project activity involves harnessing of wind energy and its conversion to electricity. Hence according to ACM0002 Version 20.0.0, there will be no project emissions in the project activity $PE_y = 0$

5.3 Leakage

As per ACM0002 Version 20.0.0, no leakage has been considered for the calculation of emission factor.

5.4 Net GHG Emission Reductions and Removals

According to the approved methodology ACM0002 (Version 20.0.0) Emission Reductions are calculated as

$$ER_y = BE_y - PE_y$$

Where:

ER_y Emission reductions in year y (tCO₂e/yr)

BE_y Baseline Emissions in year y (tCO₂e/yr)

PE_y Project Emissions in year y (tCO₂e/yr)

Thus,

$$ER_y = 126,918 - 0 \text{ tCO}_2\text{e}$$

$$= 126,918 \text{ tCO}_2\text{e}$$

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2021 (01/06/2021 to 31/12/2021)	57,087	0	0	57,087
2022 (01/01/2022 to 30/09/2022)	69,831	0	0	69,831
Total	126,918	0	0	126,918

<u>Ex-ante emissions reductions/removals</u>	<u>Achieved emissions reductions/removals</u>	<u>Percent difference</u>	<u>Justification for the difference</u>
145,380	126,918	-14.5%	The actual emission reductions for the current monitoring period are 14.5% lower than estimated emission reductions which are mainly due to poor availability of wind at site. Wind availability is a natural phenomenon which is beyond the control of CLP.

APPENDIX 1: CALIBRATION DETAILS OF METERS

Samana Site:

Sl. No.	Meter Type	Meter Identification No	Meter Make	Accuracy Class	Calibration Date	Calibration Expiry Date
01	Main Meter	GJ-2458-A	L&T	0.2s	16/06/2021	15/06/2024
02		GJ-2459-A	L&T	0.2s	16/06/2021	15/06/2024

Saundatti Site:

Sl. No.	Transformer No	Meter Type	Meter Identification No	Meter Make	Accuracy Class	Calibration Date	Calibration Expiry Date
1	Transformer -1	Old Main Meter	14194656	L&T	0.2s	10/12/2019	09/12/2022
		New Main Meter	21006810	L&T	0.2s	03/03/2022	02/03/2025
		Old Check Meter	14194675	L&T	0.2s	10/12/2019	09/12/2022
		New Check Meter	21006811	L&T	0.2s	03/03/2022	02/03/2025
2	Transformer -2	Old Main Meter	14194483	L&T	0.2s	10/12/2019	09/12/2022
		New Main Meter	21006802	L&T	0.2s	03/03/2022	02/03/2025
		Old Check Meter	14194487	L&T	0.2s	10/12/2019	09/12/2022
		New Check Meter	21006822	L&T	0.2s	03/03/2022	02/03/2025