



GRID CONNECTED WIND ENERGY PROJECT IN GUJARAT

Document Prepared by Apraava Energy Private Limited¹

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¹ The name of the company has been changed from the CLP India Private Limited to Apraava Energy Private Limited (AEPL) with effect from 29/09/2021.

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1. PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

Apraava Energy Private Limited (AEPL) (formerly known as CLP India Private Limited)² has installed a wind project which is located at Sidhpur project site in Devbhoomi Dwarka district in the state of Gujarat, India. During project registration, the project activity has been planned to be implemented with capacity of 250.8 MW (114*2.2 MW) which would use Siemens Gamesa (SG122) make wind turbine. During project implementation, PP had decided to change the equipment supplier from Siemens Gamesa to Suzlon due to certain business exigencies. The envisaged capacity of project changed to 252 MW (120*2.1 MW) which is now using Suzlon make S120 Wind Turbine Generators of 2.1 MW each at Sidhpur project site. During the current monitoring period of 07-April-2023 to 31-December-2023 (both days inclusive), there are 66 wind turbine generators (WTG) have been commissioned and remaining 54 WTGs are expected to be commissioned by 31-March-2024.

The project activity utilizes wind power to generate clean power with a view to bring in greenhouse gas emission reductions.

The Project activity is a new facility (Greenfield) and utilizing wind energy to generate electricity and supply it to distribution licensees which is a part of the NEWNE (Northern, Eastern, Western and North-Eastern) grid of India. In the absence of Project activity, quantity of the electricity that has been delivered to the NEWNE grid, would have been sourced from the existing grid-connected fossil fuel-based power plants to meet the growing electricity requirements. Hence, generation mix of Integrated Indian Grid (NEWNE grid is now merged with Integrated Indian Grid) is considered as the baseline scenario. Thus, the project activity reduces the dependency on fossils fuels which are pre-dominantly used for electricity generation in India and helps reduction of climate change impacts.

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 project activity is currently under commissioning. Presently, 138.6 MW out of 252 MW has been commissioned under five phases. The first machine under this project activity was commissioned on 07-April-2023 and last machine of 138.6 MW was commissioned on 28-September-2023.

During this monitoring period the project activity has exported 271.636 GWh of energy to the Integrated Grid of India. The total emission reductions achieved during the monitoring period from 07-April-2023 to 31-December-2023 (both days inclusive) is 2,54,468 tCO₂.

1.2 Audit History

Audit type	Period	Program	Validation/verification body name	Number of years
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² The name of the company has been changed from the CLP India Private Limited to Apraava Energy Private Limited (AEPL) with effect from 29/09/2021.

Validation	NA	VCS	LGAI Technological Center, S.A. (Applus+ Certification)	NA
Verification	7-April-2023 to 31-December-2023	VCS	EcoLance Private Limited	0.74 years (8 Months 24 days)
Total	07-April-2023 to 31-December-2023			9months

1.3 Sectoral Scope and Project Type

Sectoral scope ³	1- Energy Industries (renewable -/ non renewable sources)
Project activity type	Project Type: I, Renewable energy project (Wind).

1.4 Project Proponent

Organization name	Apraava Energy Private Limited
Contact person	Raghavendra Madaiah
Title	Manager – Carbon & Sustainability
Address	7 th Floor, FULCRUM, Sahar Road, Andheri (East), Mumbai – 400 099. India
Telephone	+ 91 22 6758 8888
Email	carbongroup@apraava.com

1.5 Other Entities Involved in the Project

Organization name	Not Applicable
Role in the project	Not Applicable
Contact person	Not Applicable
Title	Not Applicable
Address	Not Applicable
Telephone	Not Applicable

³ Projects, activities, or methodologies may be developed under any of the 16 VCS sectoral scopes: <https://verra.org/programs/verified-carbon-standard/vcs-program-details/#sectoral-scopes>

Email	Not Applicable
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1.6 Project Start Date

Project start date	07-April-2023
Justification	It is the date of commissioning of the first batch of WTGs under first phase turbine installed under the project activity.

1.7 Project Crediting Period

Crediting period	☒ <i>Seven years, twice renewable</i> ☐ <i>Ten years, fixed</i> ☐ <i>Other (state the selected crediting period and justify how it conforms with the VCS Program requirements)</i>
Start and end date of first or fixed crediting period	07-April-2023 to 06-April-2030 (both days inclusive).

1.8 Project Location

The project activity has been implemented in phases. The project activity has been installed at Khakharda, Bhopalka, Khijdad, Chapar, Sidhpur, Bhatiya Kenedi, Nandana and Rann villages in Devbhoomi Dwarka district in the state of Gujarat, India.

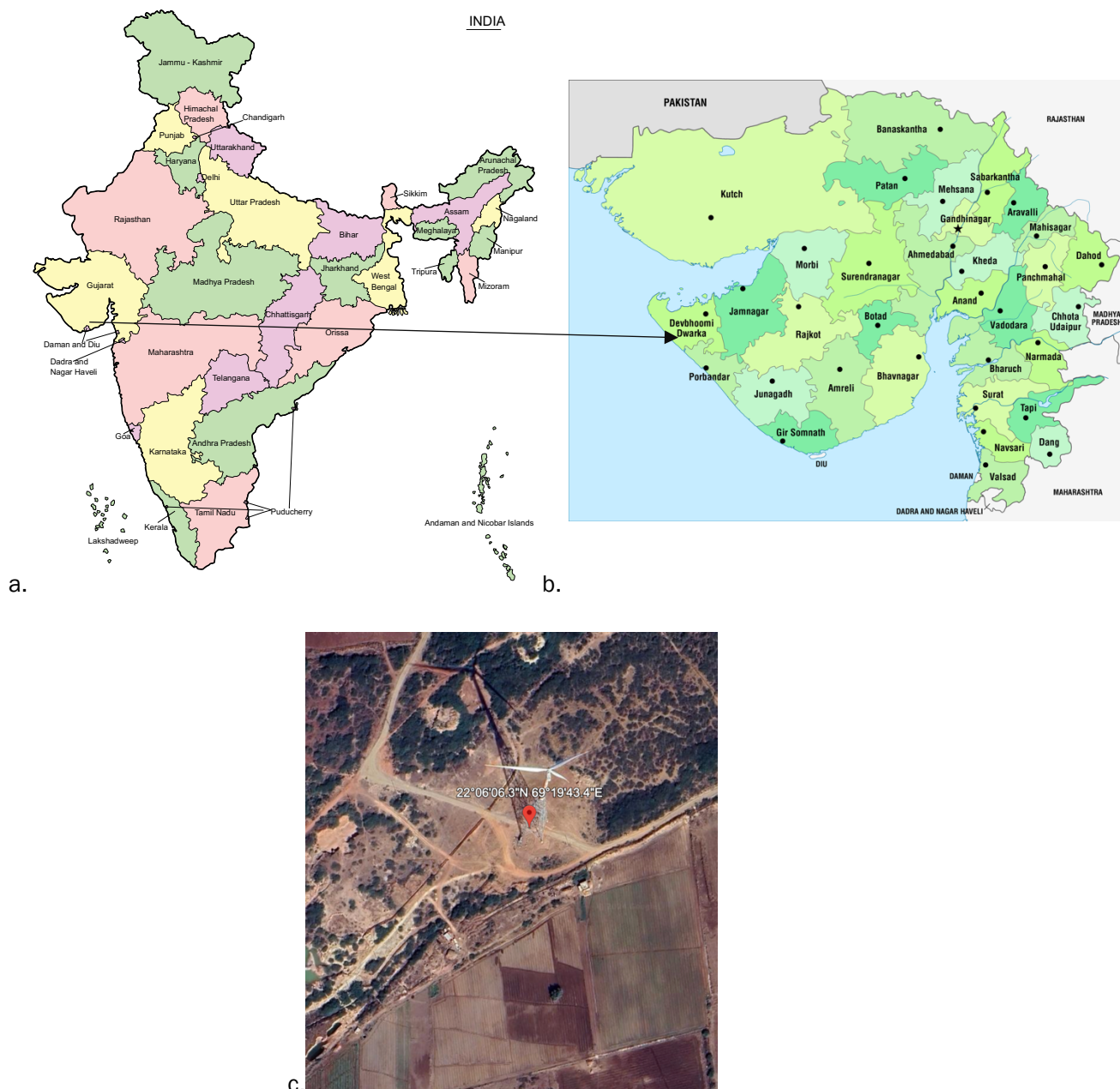


Fig. (a) Map of India, (b) Map of Gujarat, showing Devbhumi Dwarka district and (c) Satellite image showing 1st WTG

The location details (highlighted section indicated commissioned locations) of project activity are given in below table:

Sr. No.	WTG Location ID	Village	District	Latitude	Longitude
1	DWK 215	Khakharda	Devbhumi Dwarka	22° 6' 6.3"	69° 19' 43.37"
2	DWK 218	Khakharda	Devbhumi Dwarka	22° 6' 59.85"	69° 21' 8.84"

3	DWK 219	Khakharda	Devbhumi Dwarka	22° 7' 8.52"	69° 21' 44.15"
4	DWK 220	Khakharda	Devbhumi Dwarka	22° 5' 33.7"	69° 21' 37.66"
5	DWK 221	Khakharda	Devbhumi Dwarka	22° 5' 4.38"	69° 20' 59.34"
6	DWK 223	Khakharda	Devbhumi Dwarka	22° 4' 42.2"	69° 20' 58.69"
7	DWK 224	Khakharda	Devbhumi Dwarka	22° 4' 30.82"	69° 21' 15.2"
8	DWK 225	Khakharda	Devbhumi Dwarka	22° 5' 15.25"	69° 21' 28.68"
9	DWK 238	Khijdad	Devbhumi Dwarka	22° 3' 10.59"	69° 24' 27.1"
10	DWK 017	Bhopalka	Devbhumi Dwarka	22° 7' 42.7"	69° 23' 41.14"
11	DWK 019	Bhopalka	Devbhumi Dwarka	22° 7' 45.53"	69° 21' 31.11"
12	DWK 020	Bhopalka	Devbhumi Dwarka	22° 7' 12.36"	69° 21' 02.06"
13	DWK 021	Bhopalka	Devbhumi Dwarka	22° 7' 31.08"	69° 21' 05.14"
14	DWK 023	Bhopalka	Devbhumi Dwarka	22° 8' 03.47"	69° 21' 33.95"
15	DWK 024	Bhopalka	Devbhumi Dwarka	22° 7' 21.79"	69° 21' 30.28"
16	DWK 025	Bhopalka	Devbhumi Dwarka	22° 7' 24.40"	69° 21' 54.03"
17	DWK 026	Bhopalka	Devbhumi Dwarka	22° 8' 06.49"	69° 20' 22.78"
18	DWK 027	Bhopalka	Devbhumi Dwarka	22° 8' 15.82"	69° 20' 39.59"
19	DWK 028	Bhopalka	Devbhumi Dwarka	22° 8' 12.59"	69° 23' 24.32"
20	DWK 213	Khakharda	Devbhumi Dwarka	22° 7' 04.74"	69° 19' 45.18"
21	DWK 241	Khijdad	Devbhumi Dwarka	22° 2' 55.22"	69° 24' 32.81"
22	DWK 022	Bhopalka	Devbhumi Dwarka	22° 8' 2.729"	69° 21' 5.223"
23	DWK 214	Khakharda	Devbhumi Dwarka	22° 6' 52.462"	69° 19' 23.128"
24	DWK 242	Khijdad	Devbhumi Dwarka	22° 2' 42.33"	69° 24' 48.23"
25	DWK 243	Khijdad	Devbhumi Dwarka	22° 2' 55.23"	69° 25' 17.81"
26	DWK 090	Chapar	Devbhumi Dwarka	22° 4' 34.966"	69° 29' 30.786"
27	DWK 091	Chapar	Devbhumi Dwarka	22° 4' 30.793"	69° 29' 1.425"
28	DWK 092	Chapar	Devbhumi Dwarka	22° 4' 0.629"	69° 30' 0.465"
29	DWK 093	Chapar	Devbhumi Dwarka	22° 4' 14.386"	69° 30' 11.365"
30	DWK 094	Chapar	Devbhumi Dwarka	22° 4' 16.893"	69° 28' 54.609"
31	DWK 096	Chapar	Devbhumi Dwarka	22° 4' 2.605"	69° 29' 31.162"
32	DWK 097	Chapar	Devbhumi Dwarka	22° 4' 12.337"	69° 29' 39.326"
33	DWK 208	Kenedi	Devbhumi Dwarka	22° 3' 2.03"	69° 20' 12.18"
34	DWK 233	Khijdad	Devbhumi Dwarka	22° 3' 42.704"	69° 26' 39.325"
35	DWK 234	Khijdad	Devbhumi Dwarka	22° 3' 32.243"	69° 26' 46.829"
36	DWK 237	Khijdad	Devbhumi Dwarka	22° 4' 0.631"	69° 25' 35.598"
37	DWK 239	Khijdad	Devbhumi Dwarka	22° 4' 25.686"	69° 26' 32.446"
38	DWK 244	Khijdad	Devbhumi Dwarka	22° 3' 51.822"	69° 26' 22.92"
39	DWK 245	Khijdad	Devbhumi Dwarka	22° 3' 40.038"	69° 25' 37.804"
40	DWK 018	Bhopalka	Devbhumi Dwarka	22° 7' 30.588"	69° 23' 45.191"
41	DWK 107	Sidhpur	Devbhumi Dwarka	22° 6' 22.242"	69° 29' 15.207"
42	DWK 108	Sidhpur	Devbhumi Dwarka	22° 5' 51.605"	69° 28' 30.989"
43	DWK 109	Sidhpur	Devbhumi Dwarka	22° 5' 30.563"	69° 28' 53.219"
44	DWK 110	Sidhpur	Devbhumi Dwarka	22° 5' 13.24"	69° 29' 11.167"
45	DWK 112	Sidhpur	Devbhumi Dwarka	22° 5' 41.908"	69° 29' 5.995"

46	DWK 113	Sidhpur	Devbhumi Dwarka	22° 5' 46.092"	69° 28' 47.967"
47	DWK 114	Sidhpur	Devbhumi Dwarka	22° 5' 30.747"	69° 29' 18.974"
48	DWK 116	Sidhpur	Devbhumi Dwarka	22° 6' 7.236"	69° 29' 8.56"
49	DWK 117	Sidhpur	Devbhumi Dwarka	22° 4' 46.984"	69° 29' 14.462"
50	DWK 216	Khakharda	Devbhumi Dwarka	22° 6' 20.7"	69° 20' 4.938"
51	DWK 217	Khakharda	Devbhumi Dwarka	22° 6' 42.28"	69° 20' 12.214"
52	DWK 176	Bhatiya	Devbhumi Dwarka	22° 6' 38.35"	69° 17' 39.75"
53	DWK 177	Bhatiya	Devbhumi Dwarka	22° 6' 36.53"	69° 17' 57.68"
54	DWK 210	Kenedi	Devbhumi Dwarka	22° 6' 22.19"	69° 19' 18.52"
55	DWK 211	Kenedi	Devbhumi Dwarka	22° 6' 15.68"	69° 18' 28.67"
56	DWK 222	Khakharda	Devbhumi Dwarka	22° 3' 59.81"	69° 20' 17.59"
57	DWK 169	Bhatiya	Devbhumi Dwarka	22° 6' 38.05"	69° 15' 6.24"
58	DWK 170	Bhatiya	Devbhumi Dwarka	22° 7' 0.26"	69° 15' 32.67"
59	DWK 171	Bhatiya	Devbhumi Dwarka	22° 6' 26.53"	69° 15' 13.65"
60	DWK 172	Bhatiya	Devbhumi Dwarka	22° 6' 48.41"	69° 15' 18.61"
61	DWK 174	Bhatiya	Devbhumi Dwarka	22° 6' 22.68"	69° 14' 33.86"
62	DWK 173	Bhatiya	Devbhumi Dwarka	22° 6' 25.57"	69° 16' 19.65"
63	DWK 179	Bhatiya	Devbhumi Dwarka	22° 7' 2.28"	69° 15' 5.41"
64	DWK 006	Ran	Devbhumi Dwarka	22° 9' 39.1"	69° 18' 37.52"
65	DWK 011	Ran	Devbhumi Dwarka	22° 10' 12.86"	69° 19' 11.15"
66	DWK 031	Nandana	Devbhumi Dwarka	22° 10' 14.47"	69° 17' 20.85"
67	DWK 034	Nandana	Devbhumi Dwarka	22° 10' 15.35"	69° 16' 41.26"
68	DWK 035	Nandana	Devbhumi Dwarka	22° 8' 58.08"	69° 14' 54.44"
69	DWK 181	Bhatiya	Devbhumi Dwarka	22° 4' 34.16"	69° 15' 50.44"
70	DWK 182	Bhatiya	Devbhumi Dwarka	22° 3' 58.46"	69° 16' 4.02"
71	DWK 183	Bhatiya	Devbhumi Dwarka	22° 4' 20.07"	69° 15' 36.67"
72	DWK 184	Bhatiya	Devbhumi Dwarka	22° 4' 2.64"	69° 15' 34.23"
73	DWK 185	Bhatiya	Devbhumi Dwarka	22° 4' 42.75"	69° 15' 10.43"
74	DWK 187	Bhatiya	Devbhumi Dwarka	22° 4' 29.12"	69° 15' 12.5"
75	DWK 188	Bhatiya	Devbhumi Dwarka	22° 4' 10.89"	69° 16' 1.36"
76	DWK 189	Bhatiya	Devbhumi Dwarka	22° 4' 38.49"	69° 15' 26.76"
77	DWK 002	Ran	Devbhumi Dwarka	22° 12' 0.194" N	69° 21' 44.335" E
78	DWK 003	Ran	Devbhumi Dwarka	22° 11' 40.223" N	69° 21' 0.629" E
79	DWK 004	Ran	Devbhumi Dwarka	22° 11' 36.8" N	69° 21' 19.41" E
80	DWK 010	Ran	Devbhumi Dwarka	22° 10' 48.344" N	69° 18' 55.415" E
81	DWK 012	Ran	Devbhumi Dwarka	22° 11' 24.401" N	69° 20' 52.837" E
82	DWK 013	Ran	Devbhumi Dwarka	22° 7' 59.833" N	69° 19' 32.635" E
83	DWK 016	Ran	Devbhumi Dwarka	22° 10' 23.261" N	69° 20' 4.394" E
84	DWK 029	Bhopalka	Devbhumi Dwarka	22° 8' 0.383" N	69° 23' 30.228" E
85	DWK 030	Nandana	Devbhumi Dwarka	22° 10' 1.837" N	69° 16' 49.784" E
86	DWK 033	Nandana	Devbhumi Dwarka	22° 9' 40.211" N	69° 18' 1.877" E
87	DWK 036	Nandana	Devbhumi Dwarka	22° 7' 19.675" N	69° 15' 51.413" E
88	DWK 099	KESHAVPUR	Devbhumi Dwarka	22° 0' 26.151" N	69° 21' 40.123" E

89	DWK 100	KESHAVPUR	Devbhumi Dwarka	22° 0' 45.172" N	69° 22' 11.597" E
90	DWK 118	BAKODI	Devbhumi Dwarka	22° 0' 18.009" N	69° 20' 29.162" E
91	DWK 119	MALETA	Devbhumi Dwarka	21° 59' 19.417" N	69° 19' 33.224" E
92	DWK 123	MALETA	Devbhumi Dwarka	21° 59' 31.65" N	69° 19' 31.229" E
93	DWK 124	MALETA	Devbhumi Dwarka	21° 59' 38.013" N	69° 21' 40.943" E
94	DWK 125	MALETA	Devbhumi Dwarka	21° 59' 39.584" N	69° 18' 41.899" E
95	DWK 126	MALETA	Devbhumi Dwarka	21° 59' 35.462" N	69° 21' 1.843" E
96	DWK 127	MALETA	Devbhumi Dwarka	21° 59' 42.123" N	69° 21' 20.516" E
97	DWK 128	MALETA	Devbhumi Dwarka	21° 58' 57.736" N	69° 21' 46.455" E
98	DWK 180	Bhatiya	Devbhumi Dwarka	22° 4' 52.7196" N	69° 15' 58.327" E
99	DWK 190	Bhatiya	Devbhumi Dwarka	22° 3' 29.134" N	69° 17' 33.667" E
100	DWK 191	Bhatiya	Devbhumi Dwarka	22° 3' 10.961" N	69° 17' 29.338" E
101	DWK 192	Bhatiya	Devbhumi Dwarka	22° 3' 2.393" N	69° 17' 37.485" E
102	DWK 193	Bhatiya	Devbhumi Dwarka	22° 2' 41.857" N	69° 17' 44.943" E
103	DWK 202	Kenedi	Devbhumi Dwarka	22° 2' 21.368" N	69° 18' 19.473" E
104	DWK 203	Kenedi	Devbhumi Dwarka	22° 2' 0.384" N	69° 18' 5.404" E
105	DWK 204	Kenedi	Devbhumi Dwarka	22° 2' 48.78" N	69° 18' 22.497" E
106	DWK 205	Kenedi	Devbhumi Dwarka	22° 2' 34.026" N	69° 18' 33.733" E
107	DWK 206	Kenedi	Devbhumi Dwarka	22° 2' 18.418" N	69° 19' 6.004" E
108	DWK 207	Kenedi	Devbhumi Dwarka	22° 6' 6.211" N	69° 19' 24.069" E
109	DWK 209	Kenedi	Devbhumi Dwarka	22° 3' 44.852" N	69° 17' 47.098" E
110	DWK 212	Kenedi	Devbhumi Dwarka	22° 3' 5.786" N	69° 18' 7.322" E
111	DWK 351	Ran	Devbhumi Dwarka	22° 10' 36.138" N	69° 17' 51.659" E
112	DWK 354	Nandana	Devbhumi Dwarka	22° 7' 0.7284" N	69° 16' 0.977" E
113	DWK 355	Bhatiya	Devbhumi Dwarka	22° 3' 52.2792" N	69° 15' 46.213" E
114	DWK P05	Ran	Devbhumi Dwarka	22° 10' 37.51" N	69° 17' 30.40" E
115	DWK P07	Ran	Devbhumi Dwarka	22° 10' 58.56" N	69° 18' 17.37" E
116	DWK P14	Khakharda	Devbhumi Dwarka	22° 6' 22.17" N	69° 21' 16.49" E
117	DWK P15	Khakharda	Devbhumi Dwarka	22° 6' 5.57" N	69° 21' 53.41" E
118	DWK P72	Ran	Devbhumi Dwarka	22° 10' 52.788" N	69° 17' 52.498" E
119	DWK P80	Bhatiya	Devbhumi Dwarka	22° 3' 38.7828" N	69° 15' 45.313" E
120	DWK P88	Nandana	Devbhumi Dwarka	22° 8' 41.3988" N	69° 15' 14.594" E

1.9 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Methodology	ACM0002	Grid-connected electricity generation from renewable sources	19.0

Tool	NA	Tool to calculate the emission factor for an electricity system	7.0
Tool	NA	Tool for the demonstration and assessment of additionality	7.0
Guideline	NA	Methodological tool for Investment analysis	9.0

1.10 Double Counting and Participation under Other GHG Programs

1.10.1 No Double Issuance

Is the project receiving or seeking credit for reductions and removals from a project activity under another GHG program?

☐ Yes ☒ No

1.10.2 Registration in Other GHG Programs

Was the project registered or seeking registration under any other GHG programs?

☐ Yes ☒ No

1.11 Double Claiming, Other Forms of Credit, and Scope 3 Emissions

1.11.1 No Double Claiming with Emissions Trading Programs or Binding Emission Limits

Are project reductions and removals or project activities also included in an emissions trading program or binding emission limit?

☐ Yes ☒ No

1.11.2 No Double Claiming with Other Forms of Environmental Credit

Has the project activity sought, received, or is planning to receive credit from another GHG-related environmental credit system?

☐ Yes ☒ No.

1.11.3 Supply Chain (Scope 3) Emissions

Do the project activities affect the emissions footprint of any product(s) (goods or services) that are part of a supply chain?

☐ Yes☒ No

The Project Activity is a wind power project and does not involve any supply chain involved in the project such as manufacturers, wholesalers, distributors and retailers. So, no indirect upstream and downstream GHG emissions are not involved in the project activity. Thus, the Scope 3 emissions are not applicable in this project activity.

1.12 Sustainable Development Contributions

The contribution of this project activity towards in terms of these four indicators is provided below:

1. Social Well Being:

- The project activity has led to the development of supporting infrastructure such as road network etc., in the wind park location, which also provides access to the local population.
- The project activity leads to alleviation of poverty by establishing direct and indirect benefits through employment generation and improved economic activities by strengthening of local grid of the state electricity utility.
- Use of a renewable source of energy reduces the dependence on imported fossil fuels and associated price variation thereby leading increased energy security.

2. Environmental Well Being:

- The project activity involves use of renewable energy source for electricity generation instead of fossil fuel-based electricity generation which would have emitted gaseous, liquid and/or solid effluents/wastes.
- Being a renewable resource, using wind energy to generate electricity contributes to resource conservation. Thus, the project causes no negative impact on the surrounding environment contributing to environmental well-being.

3. Economic Well Being:

- The project activity requires temporary and permanent, skilled and semi-skilled manpower at the wind park; thus, project activity has created additional employment opportunities.
- The generated electricity is being fed into the Western regional grid through local grid, thereby improving the grid frequency and availability of electricity to the local consumers (villagers & sub-urban habitants) which has provided new opportunities for industries and economic activities to be setup in the area thereby resulting in greater local employment, ultimately leading to overall development.

4. Technological Well Being:

Increased interest in wind energy projects will further push R&D efforts by technology providers to develop more efficient and better machinery in future.

Table 1: Sustainable Development Contributions

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
1)	7.2	7.2.1: Renewable energy share in the total final energy consumption	Implemented activities to increase	About 271.636 GWh renewable electricity has been supplied to Indian grid during the reported period that helps to increase the renewable energy share.	Overall, 8145.75 GWh renewable electricity to be supplied to Indian grid throughout the project lifetime that helps to increase the renewable energy share in the energy mix
2)	8.6	Quality of Employment	Implemented activities to increase	One 'Permit to Work (PTW) Training' was conducted on 20 September 2023 at PSS, Sidhpur during first verification period for the safety protocols, work procedure, risk assessment, welfare facilities, etc. The training is to enhance the work quality and efficiency of the workers which contributes to SDG 8.6	Overall, at least 10 Trainings annually to be provided. The training will be organized for staff on the technology, plant operation, emergency and safety procedure to enhance the work quality and efficiency.
3)	13.0	Tonnes of greenhouse gas emissions avoided or removed	Implemented activities to increase	By supplying 271.636 GWh of clean electricity to Indian grid, the project avoided release of 2,54,468 tCO₂e in to the atmosphere during the reporting period.	Overall prevented the release of 763,123 tCO₂e into the atmosphere since project commissioning.

1.13 Commercially Sensitive Information

The project activity involves installation of wind power project. Hence, there is no commercially sensitive information so this section is not applicable.

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

Stakeholder Identification	Following stakeholders have been identified for this project activity a) Representatives from service provider b) Representatives from WTG supplier c) Employees of AEPL. d) Villagers from nearby villages
Legal or customary tenure/access rights	The project activity involves installation of wind power project and it will not involve any legal or customary tenure/access rights to territories and resources. So, this section is not applicable
Stakeholder diversity and changes over time	Stakeholders identified for this project activity are diverse in nature – in terms of socio-economic status, age and gender wise and the diversity is unlikely to change over time.
Expected changes in well-being	Expected changes 1. Economic well-being – the project activity is likely to provide employments to the locality thus economic well beings are expected 2. Environmental well-being – as this project activity reduces the dependence on fossil fuels and conserves natural resources which are on the verge of depletion. Due to its zero emission the Project activity also helps in avoiding

	significant amount of GHG emissions and specific pollutants like SO _x , NO _x , and SPM associated with the conventional thermal power generation facilities.
Location of stakeholders	Location of stakeholders Village: Khakharda, Devbhumi Dwarka State: Gujarat
Location of resources	Not applicable.

2.1.2 Stakeholder Consultation and Ongoing Communication

Ongoing consultation	Stakeholders' consultation is a continuous process and hence a feedback register is kept at the project site office where any stakeholder can come and share his/her feedback. The feedback irrespective of the type is taken care by PP with utmost priority.
Date(s) of stakeholder consultation	23/09/2019
Communication of monitored results	The meeting was outlined towards making aware local stakeholders including local community, local administration representatives, NGOs working for environmental cause etc., about the project activity that involves waste water treatment and electricity generation with the primary objective of reducing emissions of GHG emission in compared to pre-project or baseline scenario. The feedbacks/comments received from stakeholders were quite positive and no negative comments were received. The questions asked by stakeholders were only on process and these ere explained by PP representatives.
Consultation records	Stakeholder consultation documents/MoM/Grievance register
Stakeholder input	Local villagers from nearby village appreciated the project activity. They expressed their gratitude towards the project developers and project proponents for providing different facilities. They also anticipating such positive initiatives would be taken by PP in the region. Other villagers mentioned about the job opportunities in local area due to

	the project activity. They also expecting positive development in their villages in terms of infrastructure, employment and environment in near future.
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2.1.3 Free, Prior, and Informed Consent

Consent	The project activity is greenfield wind power project, in which all the approvals and prior consent to operate have been taken from the local authorities and there was no objection from their side.
Outcome of FPIC	The project activity involves the installation of wind power project which has not encroached any kind of land from the local and government authorities.

2.1.4 Grievance Redress Procedure

Grievances received	Resolution and outcome
No grievance received during the current monitoring period.	The project has not received any negative comments from the stakeholders. Hence, it is not applicable.

The grievance mechanism process could be illustrated as below:

As part of organizational policy, there are continuous interactions undertaken by Project Participant's officials with local community stakeholders. During these discussions, local villagers share their observations and comments. Common queries raised and the suggestions given by villagers have been presented below for reference:

- Whether Project Participant is going to enhance the drinking water facility for more schools going students in the vicinity of project site?
- Project Participant should work more on enhancing the health van services for more villages falling in the vicinity of project site.

All the observations, comments and queries raised during discussion have been adequately responded to. Some of the suggestions have also been incorporated in the overall vision and stakeholder engagement action plan of the organization.

2.1.5 Public Comments

Summary of comments received	Actions taken
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The project was registered under VCS standard 3, hence public comments were not invited during the monitoring period as per VCS rule. No comments from stakeholder during current monitoring period.	No action requires as no comments were received.
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2.2 Risks to Stakeholders and the Environment

2.2.1 Management Experience

The PP is Independent Power Producer (IPP) and has been in the renewable energy business for more than 20 years. PP has been actively involved in design or implementation of project activity. The management is experienced and well educated as per the understanding of the carbon market. The field staff has been trained well and annual trainings are provided to keep them up to date.

2.2.2 Risk assessment

	Risk identified	Mitigation or preventative measure taken
Natural and human-induced risks to stakeholders' wellbeing	No risk identified	Project activity involves the installation of WTG which are consider as nature friendly and placed far away from human interference, hence no risk to human and nature.
Risks to stakeholder participation	No risk identified	Project activity only has benefits for the stakeholders as it provided clean energy with zero risk to human and nature.
Working conditions	No risk identified	Project activities create indirect livelihood opportunities for local people. The working conditions are inline with government norms.
Safety of women and girls	No risk identified	PP has Health, Safety, Security and Environment (HSSE) Policy and Prevention of Sexual Harassment at Work policies are stated as per the safety of both women and girls (Apraava Energy HSSE Policy, https://www.apraava.com/getmedia/cd8c962d-c86b-42db-8976-15c1d494b54d/Apraava-Energy-HSSE-Policy.pdf)

		Prevention of Sexual Harassment at Workplace https://www.apraava.com/getmedia/b485f4e1-aaf3-49ae-9864-ea38aefbb18e/Handbook-on-Prevention-of-Sexual-Harassment-at-Workplace-Oct-2023.pdf
Safety of minority and marginalized groups, including children	No risk identified	PP has followed all the regulations and safety protocols provided to the minority and marginalized groups. (Ref Apraava Energy Annual Integrated Report FY 2022-23)
Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials)	No risk identified	The project activity involves installation of wind power project, which do not emit any kind of air, water, soil, and hazardous material.

2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

Discrimination	PP is committed to providing an environment free from sexual harassment. PP follows company policy on 'Prevention of Sexual Harassment at the Workplace Policy' which protects from sexual harassment by vendors, contractors, and third parties. (Ref Human Rights Policy, https://www.apraava.com/getmedia/c5d64657-fa1d-4fad-a803-a8ca9727c2fa/Human-Rights-Policy.pdf Prevention of Sexual Harassment at Workplace https://www.apraava.com/getmedia/b485f4e1-aaf3-49ae-9864-ea38aefbb18e/Handbook-on-Prevention-of-Sexual-Harassment-at-Workplace-Oct-2023.pdf
Sexual harassment	The PP is Independent Power Producer (IPP) and has been in the renewable energy business for more than 20 years. PP has been actively involved in design or implementation of project activity. PP has policies in place to inform management and employees about the avoidance of corruption, code of conduct, and business ethics.
Gender equity in labor and work	The PP is Independent Power Producer (IPP) and has been in the renewable energy business for more than 20 years. The PP has

	policies in place to ensure fair opportunity and equal pay for work done to both men and women.
Forced labor	The PP is Independent Power Producer (IPP) and has been in the renewable energy business for more than 20 years. PP has policies which prohibits child labor or forced, involuntary or trafficked labor in any form. All employees shall treat one another with respect, dignity and common courtesy.
Child labor	The PP is Independent Power Producer (IPP) and has been in the renewable energy business for more than 20 years. PP has policies which prohibits child labor or forced, involuntary or trafficked labor in any form. All employees shall treat one another with respect, dignity and common courtesy.
Human trafficking	The PP is Independent Power Producer (IPP) and has been in the renewable energy business for more than 20 years. PP has policies which prohibits child labor or forced, involuntary or trafficked labor in any form. All employees shall treat one another with respect, dignity and common courtesy.

2.3.2 Human Rights

Risks identified	Mitigation or preventative measure(s) taken
No risk identified	The project does not violate the human rights of indigenous people.

2.3.3 Indigenous Peoples and Cultural Heritage

Risks identified	Mitigation(s) or preventative measure taken
No risk identified	The project does not affect the indigenous people and their cultural heritage.

2.3.4 Property Rights

Risks identified	Mitigation or preventative measure(s) taken
No risk identified	This project does not infringe with property rights and resources. Hence, there is no need to implement any measures to protect and preserve the property rights of stakeholders, IPs, LCs, and customary rights holders.

2.3.5 Benefit Sharing

Summary of the benefit sharing plan	Project activity is a greenfield wind power project where the benefit sharing is not applicable.
Benefit sharing during the monitoring period	Not applicable because the project activity does not have any impacts property right.

2.4 Ecosystem Health

	Risk identified	Mitigation or preventative measure taken during the monitoring period
Impacts on biodiversity and ecosystems	No risk identified	Since the project activity is wind power plant, there is no impact on biodiversity and ecosystem.
Soil degradation and soil erosion	No risk identified	Since the project activity is wind power plant, there is no soil erosion and degradation are likely to be caused.
Water consumption and stress	No risk identified	Since the project activity is wind power plant, there is no water consumption and stress is likely to be caused.

2.4.1 Rare, Threatened, and Endangered species

Species or habitat	After installation or during the install of WTGs there is no impact to the rare, threatened or endangered species of the surroundings.
Areas needed for habitat connectivity	Not Applicable

Risks identified	Mitigation or preventative measure(s) taken
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Habitats for rare, threatened, and endangered species	No risk identified	Not Applicable
Areas for habitat connectivity	No risk identified	Not Applicable

2.4.2 Introduction of species

This project activity neither involve any planting activities nor introduction of species. Hence, not applicable.

Species introduced	Classification	Justification for use	Adverse effects and mitigation
Not Applicable	Not Applicable	Not Applicable	Not Applicable

This project activity does not involve introduction of any species which may be invasive in nature.

Existing invasive species	Mitigation measures to prevent the spread or continued existence of invasive species
Not Applicable	Not Applicable

	Risks identified	Mitigation or preventative measure(s) taken
Invasive species	Not Applicable	Not Applicable

2.4.3 Ecosystem conversion

This project activity does not involve ARR, ALM, WRC or ACoGS activities. Hence, not applicable.

	Risks identified	Mitigation or preventative measure(s) taken
Ecosystem conversion	NA	NA

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The project activity is currently under commissioning. Presently, 138.6 MW out of 252 MW has been commissioned under five phases. The first machine under this project activity was commissioned on 07-April-2023 and last machine of 138.6 MW was commissioned on 28-September-2023. The commissioning dates for all the machines installed in the project activity are given in appendix 2 of this report. Details of the WTG are as given below:

Specification	Details
Rated Power (MW)	2.1
Cut-In Wind Speed (m/s)	3.0
Rated Wind Speed (m/s)	9.5
Cut-Out Wind Speed 3s Avg. (m/s)	26.1
Rotor Diameter (m)	120
Swept Area (sq. m)	11,225
Frequency (Hz)	50
Generator Type	Slip ring asynchronous generator
Tower Hub Height Options (m)	120

The Project activity is operated by O&M contractor at Sidhpur project site and managed by the Apraava Energy Private Limited (AEPL). The operational and maintenance contracts for the project activity are with Suzlon Infrastructure Services Limited which is an ISO 9001 certified company. O&M contractors follow the documentation practices to ensure the reliability and availability of the data for all the activities as required from the identification of the site, wind resource assessment, logistics, finance, construction, commissioning and operation of the wind power project.

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

As per VCS Standard Version 4.6, there is no impact on applicability of approved methodologies ACM 0002 version 19.0. Hence, there are no deviations related to applied methodology.

3.2.2 Project Description Deviations

As per revised VCS PD version 2, dated: 22-May-2024, below deviation considered:

During project implementation, PP had decided to change the equipment supplier from Siemens Gamesa to Suzlon due to certain business exigencies. Hence, there has been a deviation in selection of equipment supplier. The project has now installed the WTGs of Suzlon's S120 wind turbine generators of 2.1 MW each at project site with total installed capacity of 252 MW.

As per VCS standard version 4.6, the baseline of project activity will remain same as it will continue to supply electricity to Indian grid. Hence there is no change in baseline of the project activity. Due to change in WTG supplier, there are changes in Project Cost, PLF and O&M cost due to revised investment decision. There is no change in other input parameters which were considered during initial investment decision.

Due to change in project installed capacity there is no impact on additionality of the project, the detailed analysis of the revised VCS PD version 2 (dated: 22-May-2024).

Due to change in project installed capacity there is no change in the applicability eligibility criteria of applied methodology ACM0002: Grid-connected electricity generation from renewable sources, version 19.0.

3.3 Grouped Projects

The project is not a grouped project; hence this is not applicable.

3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes ☒ No

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	EF _{grid,CM,y}
Data unit	tCO ₂ /MWh
Description	Combined margin emission factor for Indian grid connected power generation in year y calculated using the latest version of "Tool to calculate the emission factor for an electricity system"
Source of data	CO ₂ baseline database (Version 14.0) published by CEA on Dec-2018 (http://cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf)
Value applied	0.9368

Justification of choice of data or description of measurement methods and procedures applied	This value is calculated using OM and BM values as per Version 7.0 of methodological tool to calculate the emission factor for an electricity system and using data base of CEA.
Purpose of Data	For the calculation of Emission Factor of the grid
Comments	This parameter is fixed ex-ante for the entire crediting period.

Data / Parameter	$EF_{grid,OM,y}$
Data unit	tCO ₂ /MWh
Description	Simple operating margin emission factor for Indian grid
Source of data	CO2 baseline database (Version 14.0) published by CEA on Dec-2018 (http://cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf)
Value applied	0.9610
Justification of choice of data or description of measurement methods and procedures applied	This value is calculated by taking weighted average of Simple Operating Margin of recent three years for Indian grid as per the “Tool to calculate the emission factor for an electricity system”, version 07.0.0
Purpose of Data	For the calculation of Emission Factor of the grid
Comments	This parameter is fixed ex-ante for the entire crediting period.

Data / Parameter	$EF_{grid,BM,y}$
Data unit	tCO ₂ /MWh
Description	Simple build margin emission factor for Indian grid
Source of data	CO2 baseline database (Version 14.0) published by CEA in Dec-2018 (http://cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf)
Value applied	0.8644
Justification of choice of data or description of measurement methods and procedures applied	This value is calculated by taking weighted average of Simple build Margin of recent three years for Indian grid as per the “Tool to calculate the emission factor for an electricity system”, version 07.0.0
Purpose of Data	For the calculation of Emission Factor of the grid
Comments	This parameter is fixed ex-ante for the entire crediting period.

4.2 Data and Parameters Monitored

Data / Parameter	EG _{PJ,y}							
Data unit	MWh							
Description	Quantity of net electricity generation supplied by the project to the grid in year y							
Source of data	Electricity Share Certificate issued by state utility							
Description of measurement methods and procedures to be applied	Data Type : Measured Monitoring equipment : Energy Meters are used for monitoring Recording Frequency: Continuous monitoring and Monthly recording from Energy Meters, Summarized Annually Archiving Policy: Paper & Electronic Calibration frequency: 5 years Accuracy class: 0.2s Electricity exported/imported to the grid is in kWh. However, for the calculation purpose electricity exported is converted in MWh. The Net electricity supplied to the grid by the project activity will be calculated as a difference of electricity exported to the grid and electricity imported from the grid obtained from joint meter reading report notes issued by state utility as per below equation: $EG_{PJ,y} = EG_{Export} - EG_{Import}$ The calculation is done by state utility and AEPL has no say in the calculation. Based on the joint meter reading report, AEPL will raise the invoice. Export readings of Main and Check meters shall be taken on monthly basis by authorized officer of state utility in the presence of AEPL or representative of AEPL. Cross Checking: Quantity of net electricity supplied to the grid will be cross checked from the invoices raised by the AEPL to the SECI.							
Frequency of monitoring/recording	Continuous monitoring, hourly measurement and monthly recording							
Value monitored	2,71,636.20 MWh							
Monitoring equipment	Meter installed details are mentioned below: <table border="1"> <tr> <td></td><td>Main Meter</td><td>Check Meter</td></tr> <tr> <td>Serial Number</td><td>2249-A</td><td>2248-A</td></tr> </table>			Main Meter	Check Meter	Serial Number	2249-A	2248-A
	Main Meter	Check Meter						
Serial Number	2249-A	2248-A						

	Type	Electronic tri-vector meters	Electronic tri-vector meters
	Accuracy Class	0.2s	0.2s
QA/QC procedures to be applied	- The energy meter reading would be taken on monthly basis - Energy meters will be calibrated once in a five year in line with guidance stipulated by Central Regulatory Authority, Govt. of India and faulty meters will be duly replaced immediately - All the energy meters would be under the control of state utility and calibration/testing of energy meters would also be under the jurisdiction of state utility The Net electricity exported to the grid will be cross checked against the invoice raised by the AEPL towards the SECI		
Purpose of the data	Calculation of Baseline emissions		
Calculation method	The net electricity generation is calculated based on Export – Import to the meters connected at the project sub-station. The generation details are directly submitted to RLDC (Regional Load Dispatch Center) by online mechanism. Based on this RLDC provides the REA Statement. The REA statement issued by WRPC contains the information of the Scheduled Power, Actual Power, and the Deviation between actual & scheduled power. Thus, value of net electricity supplied is directly sources from the REA statement. Hence, the actual value obtained in the REA statement is the value calculated based on the (export – import) value. The same has been used for the ER Calculations. The calculation of net electricity generation is in the hand of electricity board/CEA and the project owner has no role to play in the same.		
Comments	Data will be archived electronically for a period of 2 years beyond the end of crediting period.		

4.3 Monitoring Plan

Suzlon Infrastructure Services Limited is the O&M contractors for project site respectively. O&M contractors is responsible for the maintaining all the monitoring data on behalf of state utility in respect of the project activity. O&M contractors have implemented the management structure for managing the monitored data.

The approved monitoring methodology requires monitoring of the following:

Net electricity supplied from the project activity

While Emission factor of the project activity is fixed ex ante, hence no further monitoring of this parameter is required. As per ACM0002 leakage need not be considered hence leakage has not

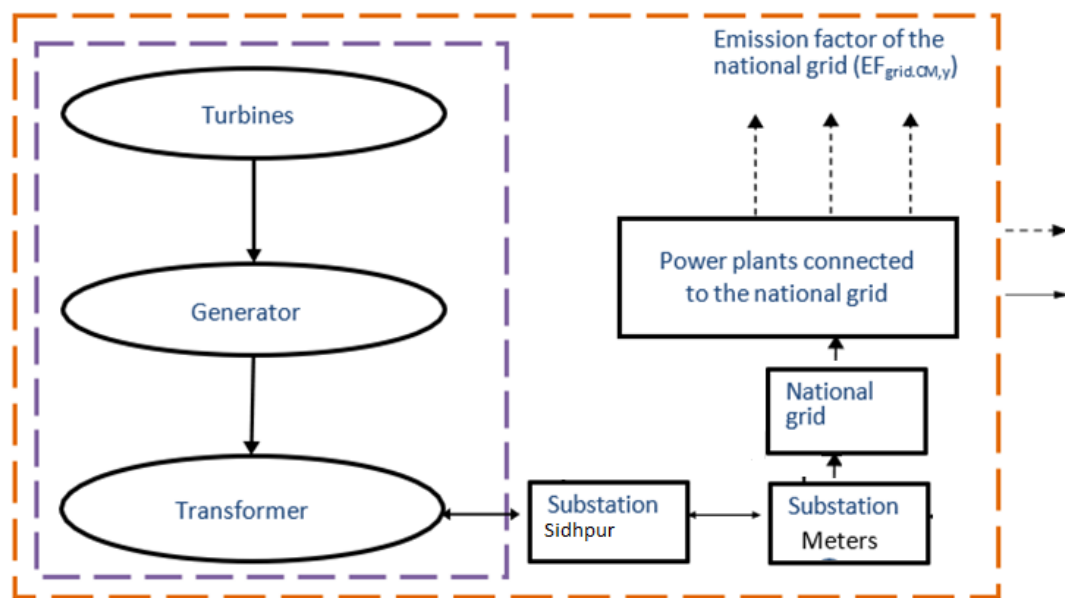
been considered for the project activity. Hence, the sole parameter for monitoring is the net electricity supplied by the project activity to the grid.

The Project activity is operated by O&M contractor for the project activity and managed by the AEPL. The operational and maintenance contracts for the project activity are with Suzlon Infrastructure Services Limited which are an ISO 9001 certified company. O&M contractors follow the documentation practices to ensure the reliability and availability of the data for all the activities as required from the identification of the site, wind resource assessment, logistics, finance, construction, commissioning and operation of the wind power project.

Monitoring Procedure:

WTGs installed under this project activity are connected to different feeders at project sites. A particular feeder comprises of group of WTGs belonging to same owners (AEPL) and O&M service provider. At the Sidhpur PSS sub-station, the total export & import to this feeder is monitored using the main meter & check meter, which are electronic tri-vector meters. The total export at this meter is generally arrived at by multiplying the monthly meter reading to the multiplying factor of the meter concerned. The monthly meter reading is arrived at as the difference between the current meter reading and the previous meter reading. The period between these two readings is usually a period of 30 days. In a similar fashion, total import at this meter is also calculated.

The substation for grid connectivity is dedicated for this project only. Thus, the ABT meters installed at the sub-stations continuously monitor the electricity generated from this project activity only. These billing meters continuously monitor, hourly measure and monthly record the electricity export to the Indian Grid. The Single line diagram of the meters connected to WTGs and the substation energy meters is provided below:



As the grid sub-station is 100% dedicated for this project activity. Thus, apportioning of the electricity is not required for this project. Post receiving generation details from billing meter, the State Load Dispatch Centre (SLDC) (https://www.sldcguj.com/EnergyAccount/Energy_Block_New.asp) issue certificate of electricity generated which provide net electricity exported to grid by all WTGs of AEPL only and this forms basis of emission reduction calculations. The REA statement issued by WRPC (Western Regional Power Committee) contains the information of the Scheduled Power, Actual Power and the Deviation between actual & scheduled power. The scheduled power being feed into the grid can be cross-checked from the monthly Invoices raised by the project owner. For ER calculations, the values of Actual power will be considered. The net electricity supplied by the project activity would be taken directly from the certificate of share issued on monthly basis.

QA/QC Procedure

All the meters are calibrated/ tested once in five years. The calibration is done by the officials of the state utility. The accuracy of monitoring parameter is ensured by adhering to the calibration and testing of the metering equipment once in five years. QA/QC procedures have been as implemented by Discom/ State utility pursuant to the provisions of the power purchase agreement. Suzlon Infrastructure Services Limited provides the daily generation report to the Project participant. In case the main meter(s) is found to operate outside the permissible limits, the main meter will be either replaced or calibrated immediately. Whenever a main meter goes defective, the consumption recorded by the Check meter will be referred. The project participant, is monitoring the data for electricity generation and calibration reports post project implementation. Suzlon Infrastructure Services Limited is O&M contractor who has responsibility of maintaining electricity generation records, calibration records and maintenance of the WTGs (Wind Turbine Generators). The project participant also maintains the records of daily generation report and joint meter report.

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 turbine, it is extremely essential, that the engineers and technicians understand the machines and keep them in good health. In order to ensure, that O&M contractor's service staffs is deft at handling technical snags on top of the turbine, the necessity of ensuring that they are capable of climbing the tower with absolute ease and comfort has been established. The training is contemporary, which results in imparting focused knowledge leading to value addition to the attitude and skills of all trainees. This ultimately leads to creativity in problem solving.

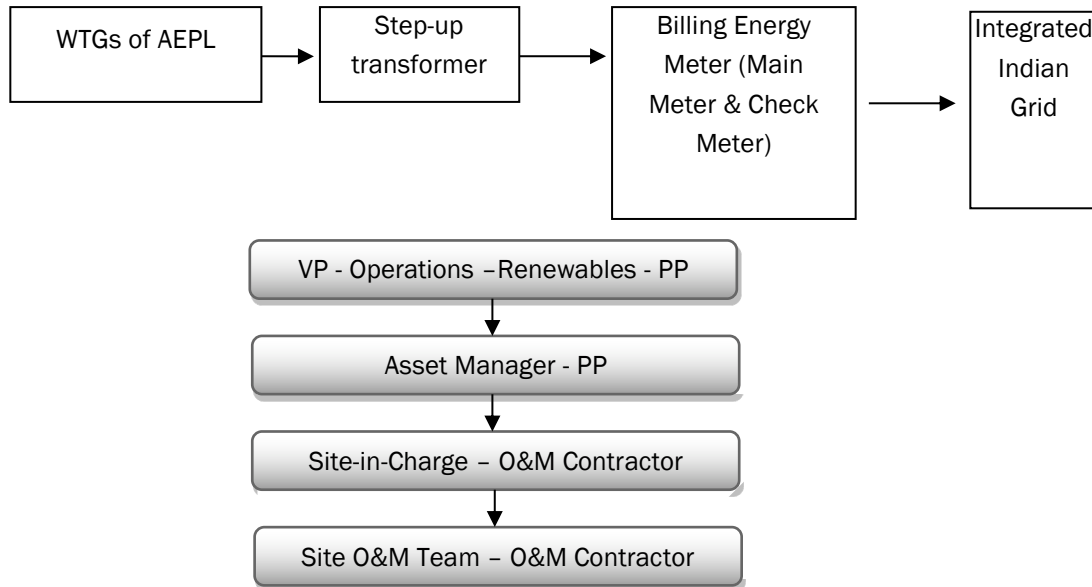
Monitoring roles and responsibilities

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

The Project activity is operated by O&M contractor for the project activity and managed by the AEPL. O&M contractor follows the documentation practices to ensure the reliability and availability of the data for all the activities as required from the identification of the site, wind

resource assessment, logistics, finance, construction, commissioning and operation of the wind power project. The data for the project is compiled by the O&M Contractor and subsequently stored by AEPL. The roles and responsibilities for the project are described as below;

Monitoring equipment line diagram at project Site is detailed as below: -



The responsibilities of the team members comprise of the following members:

Responsibilities of VP – Operation:

- Overall supervision of the project and to meet yearly generation targets

Responsibilities of Asset Manager:

- Overall functioning and maintenance of the project activity and overall responsibility of compliance with the CDM Monitoring Plan.

Responsibilities of Shift In-charge:

- Responsible for maintaining the data records, ensures completeness of data, and reliability of data.
- Regularly verifying the monthly energy generation date with energy sales receipt or installed meters reading for identification of any discrepancies in data collection and taking suitable action to rectify them

Responsibilities of O&M Team:

- Responsible for day to day data collection and maintains day to day log book for monitored data
- Responsible for monthly and annual report generation and quality assurance of the data/reports and preliminary check of data for any discrepancies.

Calibration Details for the project activity are mentioned below;

Sl. No.	Meter Identification No	Meter Make	Accuracy Class	Current Calibration Date	Calibration Validity Date
1	2249-A (Main Meter)	Schneider Electric	0.2s	05-February-2022	04-February-2027
2	2248-A (Check Meter)	Schneider Electric	0.2s	05-February-2022	04-February-2027

Data Recording

The state utility and representative of AEPL shall jointly read the metering system every month at the delivery point.

Meter readings taken jointly will be signed by the representatives of state utility and AEPL. If AEPL's representative would not present for joint meter reading then the meter reading would taken by state utility shall be considered as final; provided a signed copy of the meter reading is sent to the Power Purchase / Developer within twenty four (24) hours of such reading of the main metering system or back up metering system as the case may be.

AEPL would install main meter and check meter of static type 0.2s class accuracy of ABT Meters at the Interconnection Point as per the norms specified in the Metering Code by CEA. The main meter and check meter shall consist of a pair of export and import parameters with facility for recording meter readings using meter recording instrument.

Calibration Frequency

The main and backup meters shall be calibrated once in a five year in line with notification issued by Central Electricity Authority, Govt of India dated the 17th March, 2006. The meters installed at both the sites were tested by any accredited laboratory in the presence of the parties (State Electricity Board, Project investor and the O&M Contractor) involved. Both parties shall seal main and check meters. Defective meters shall be replaced immediately. As per the schedule, calibration of all energy meter, instruments and equipment will be carried out once in five year and recorded in calibration reports.

Description of calibration of WTG Controller

The controller used for the WTGs which is an LCS Controller is a micro-processor based intelligent controller which has been specially designed for control of wind turbines. In case there is any mismatch in the energy values recorded by the controller panel meter and the energy values calculated by the inverting system; the WTG machine will stop working and generate the error report automatically. Then the O&M team at the project site will replace the controller panel meter immediately. Hence calibration of the controller panel meter is not required.

Emergency Preparedness

In case of any abrupt breakdown, the fault will be immediately identified by the O&M personnel. All minor faults shall be taken care of by the O& M personnel, In case of any major faults, the grid personnel will be informed and replacement of the equipment shall be made within 24 hours.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

The emission factor value has been fixed Ex-ante and the same shall be used for the monitoring period. Net Electricity Generated is obtained by deducting total import (from grid) from total export (to grid). These values are taken from the “Certificate for Share of Electricity Generated by Wind Farm” issued by state electricity board. This statement is issued on a monthly basis.

Baseline emissions are calculated by multiplying the Net electricity exported to the grid with net baseline emission factor, as given in the registered VCS PD.

As per the equation 6 (para 42) of the methodology ACM0002 (Version 19.0),

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

Where:

BE_y : Baseline emissions in year y (tCO₂e/yr)

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

$EF_{grid, CM, y}$: Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system” (tCO₂e/MWh), version 5.0

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

Baseline emissions (BE_y) are calculated as follows:

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

Baseline emissions for Project:

Vintage Period	Net Electricity Export (MWh)	Emission Factor (tCO ₂ /MWh)	Baseline Emissions (tCO ₂)
2023 (07-April-2023 to 31-December-2023)	2,71,636.20	0.9368	2,54,468
Total	271,636.20		2,54,468

5.2 Project Emissions

The project activity is a renewable energy project which generates electricity using wind power and hence does not result in project emissions as per the applicable methodology ACM0002, version 19. Since, for the project activity, the electricity generation is based on wind resources, which does not involve in combustion or generation of emissions from fossil fuels. Hence, these emission sources are neglected. Thus,

$$PE_y = 0$$

5.3 Leakage Emissions

According to paragraph 56 of CDM approved methodology ACM0002 (version 19.0), no leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, and transport). Hence, no leakage has been considered for the calculation of emission factor.

$$LE_y = 0$$

5.4 GHG Emission Reductions and Carbon Dioxide Removals

According to the approved methodology ACM0002 (Version 19) 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,

$$\begin{aligned} ER_y &= 2,54,468 - 0 \text{ tCO}_2\text{e} \\ &= 2,54,468 \text{ tCO}_2\text{e} \end{aligned}$$

The actual emission reductions for the current monitoring period are 57.08 % lower than estimated emission reductions which are mainly due to partial commissioning of WTGs and low wind availability

leading to low PLF at site during current monitoring period. Availability of wind is a natural phenomenon which is beyond the control of AEPL.

Vintage period	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Reduction VCUs (tCO ₂ e)	Removal VCUs (tCO ₂ e)	Total VCUs (tCO ₂ e)
2023 (07-April-2023 to 31-December-2023)	2,54,468	0	0	2,54,468	0	2,54,468
Total	2,54,468	0	0	2,54,468	0	2,54,468

Vintage period	Ex-ante estimated reductions/removals	Achieved reductions/removals	Percent difference	Explanation for the difference
2023 (07-April-2023 to 31-December-2023)	5,92,894	2,54,468	57.08 %	Partial commissioning of WTGs and low wind availability leading to low PLF at site during current monitoring period. Availability of wind is a natural phenomenon which is beyond the control of project proponent.

APPENDIX 1: COMMERCIALY SENSITIVE INFORMATION

The project activity involves installation of wind power project, there are no commercially sensitive information so this section is not applicable

APPENDIX 2: COMMISSIONING DETAILS

Sr. No.	Commissioning Date	WTG Location ID	33 Kv. Feeder No.	Village	Taluka	District	State
1	07-Apr-23	DWK 215	3	Khakharda	Kalyanpur	Devbhumi Dwarka	Gujarat
2	07-Apr-23	DWK 218	3	Khakharda	Kalyanpur	Devbhumi Dwarka	Gujarat
3	07-Apr-23	DWK 219	3	Khakharda	Kalyanpur	Devbhumi Dwarka	Gujarat
4	07-Apr-23	DWK 220	3	Khakharda	Kalyanpur	Devbhumi Dwarka	Gujarat
5	07-Apr-23	DWK 221	3	Khakharda	Kalyanpur	Devbhumi Dwarka	Gujarat
6	07-Apr-23	DWK 223	3	Khakharda	Kalyanpur	Devbhumi Dwarka	Gujarat
7	07-Apr-23	DWK 224	3	Khakharda	Kalyanpur	Devbhumi Dwarka	Gujarat
8	07-Apr-23	DWK 225	3	Khakharda	Kalyanpur	Devbhumi Dwarka	Gujarat
9	07-Apr-23	DWK 238	2	Khijdad	Kalyanpur	Devbhumi Dwarka	Gujarat
10	07-Apr-23	DWK 017	10	Bhopalka	Kalyanpur	Devbhumi Dwarka	Gujarat
11	07-Apr-23	DWK 019	10	Bhopalka	Kalyanpur	Devbhumi Dwarka	Gujarat
12	07-Apr-23	DWK 020	10	Bhopalka	Kalyanpur	Devbhumi Dwarka	Gujarat
13	07-Apr-23	DWK 021	10	Bhopalka	Kalyanpur	Devbhumi Dwarka	Gujarat
14	07-Apr-23	DWK 023	10	Bhopalka	Kalyanpur	Devbhumi Dwarka	Gujarat
15	07-Apr-23	DWK 024	10	Bhopalka	Kalyanpur	Devbhumi Dwarka	Gujarat
16	07-Apr-23	DWK 025	10	Bhopalka	Kalyanpur	Devbhumi Dwarka	Gujarat
17	07-Apr-23	DWK 026	8	Bhopalka	Kalyanpur	Devbhumi Dwarka	Gujarat
18	07-Apr-23	DWK 027	10	Bhopalka	Kalyanpur	Devbhumi Dwarka	Gujarat
19	07-Apr-23	DWK 028	10	Bhopalka	Kalyanpur	Devbhumi Dwarka	Gujarat
20	07-Apr-23	DWK 213	8	Khakharda	Kalyanpur	Devbhumi Dwarka	Gujarat
21	07-Apr-23	DWK 241	2	Khijdad	Kalyanpur	Devbhumi Dwarka	Gujarat
22	07-Apr-23	DWK 022	10	Bhopalka	Kalyanpur	Devbhumi Dwarka	Gujarat
23	07-Apr-23	DWK 214	8	Khakharda	Kalyanpur	Devbhumi Dwarka	Gujarat
24	07-Apr-23	DWK 242	4	Khijdad	Kalyanpur	Devbhumi Dwarka	Gujarat
25	07-Apr-23	DWK 243	4	Khijdad	Kalyanpur	Devbhumi Dwarka	Gujarat
26	06-May-23	DWK 090	5	Chapar	Kalyanpur	Devbhumi Dwarka	Gujarat
27	06-May-23	DWK 091	4	Chapar	Kalyanpur	Devbhumi Dwarka	Gujarat
28	06-May-23	DWK 092	4	Chapar	Kalyanpur	Devbhumi Dwarka	Gujarat
29	06-May-23	DWK 093	4	Chapar	Kalyanpur	Devbhumi Dwarka	Gujarat
30	06-May-23	DWK 094	4	Chapar	Kalyanpur	Devbhumi Dwarka	Gujarat
31	06-May-23	DWK 096	5	Chapar	Kalyanpur	Devbhumi Dwarka	Gujarat
32	06-May-23	DWK 097	5	Chapar	Kalyanpur	Devbhumi Dwarka	Gujarat
33	06-May-23	DWK 208	3	Kenedi	Kalyanpur	Devbhumi Dwarka	Gujarat
34	06-May-23	DWK 233	4	Khijdad	Kalyanpur	Devbhumi Dwarka	Gujarat
35	06-May-23	DWK 234	4	Khijdad	Kalyanpur	Devbhumi Dwarka	Gujarat
36	06-May-23	DWK 237	4	Khijdad	Kalyanpur	Devbhumi Dwarka	Gujarat
37	06-May-23	DWK 239	4	Khijdad	Kalyanpur	Devbhumi Dwarka	Gujarat

38	06-May-23	DWK 244	4	Khijdad	Kalyanpur	Devbhumi Dwarka	Gujarat
39	06-May-23	DWK 245	4	Khijdad	Kalyanpur	Devbhumi Dwarka	Gujarat
40	27-May-23	DWK 018	10	Bhopalka	Kalyanpur	Devbhumi Dwarka	Gujarat
41	27-May-23	DWK 107	5	Sidhpur	Khambhaliya	Devbhumi Dwarka	Gujarat
42	27-May-23	DWK 108	5	Sidhpur	Khambhaliya	Devbhumi Dwarka	Gujarat
43	27-May-23	DWK 109	5	Sidhpur	Khambhaliya	Devbhumi Dwarka	Gujarat
44	27-May-23	DWK 110	5	Sidhpur	Khambhaliya	Devbhumi Dwarka	Gujarat
45	27-May-23	DWK 112	5	Sidhpur	Khambhaliya	Devbhumi Dwarka	Gujarat
46	27-May-23	DWK 113	5	Sidhpur	Khambhaliya	Devbhumi Dwarka	Gujarat
47	27-May-23	DWK 114	5	Sidhpur	Khambhaliya	Devbhumi Dwarka	Gujarat
48	27-May-23	DWK 116	5	Sidhpur	Khambhaliya	Devbhumi Dwarka	Gujarat
49	27-May-23	DWK 117	5	Sidhpur	Khambhaliya	Devbhumi Dwarka	Gujarat
50	27-May-23	DWK 216	3	Khakharda	Kalyanpur	Devbhumi Dwarka	Gujarat
51	27-May-23	DWK 217	3	Khakharda	Kalyanpur	Devbhumi Dwarka	Gujarat
52	16-Sep-23	DWK 176	9	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
53	16-Sep-23	DWK 177	9	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
54	16-Sep-23	DWK 210	6	Kenedi	Kalyanpur	Devbhumi Dwarka	Gujarat
55	16-Sep-23	DWK 211	9	Kenedi	Kalyanpur	Devbhumi Dwarka	Gujarat
56	16-Sep-23	DWK 222	3	Khakharda	Kalyanpur	Devbhumi Dwarka	Gujarat
57	16-Sep-23	DWK 169	9	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
58	16-Sep-23	DWK 170	9	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
59	16-Sep-23	DWK 171	9	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
60	16-Sep-23	DWK 172	9	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
61	16-Sep-23	DWK 174	9	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
62	28-Sep-23	DWK 173	9	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
63	28-Sep-23	DWK 179	9	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
64	28-Sep-23	DWK 006	8	Ran	Kalyanpur	Devbhumi Dwarka	Gujarat
65	28-Sep-23	DWK 011	8	Ran	Kalyanpur	Devbhumi Dwarka	Gujarat
66	28-Sep-23	DWK 031	8	Nandana	Kalyanpur	Devbhumi Dwarka	Gujarat
67	Under commissioning	DWK 034	8	Nandana	Kalyanpur	Devbhumi Dwarka	Gujarat
68	Under commissioning	DWK 035	8	Nandana	Kalyanpur	Devbhumi Dwarka	Gujarat
69	Under commissioning	DWK 181	6	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
70	Under commissioning	DWK 182	6	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
71	Under commissioning	DWK 183	6	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
72	Under commissioning	DWK 184	6	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
73	Under commissioning	DWK 185	6	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
74	Under commissioning	DWK 187	6	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
75	Under commissioning	DWK 188	6	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat

76	Under commissioning	DWK 189	6	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
77	Under commissioning	DWK 002	11	Ran	Kalyanpur	Devbhumi Dwarka	Gujarat
78	Under commissioning	DWK 003	11	Ran	Kalyanpur	Devbhumi Dwarka	Gujarat
79	Under commissioning	DWK 004	11	Ran	Kalyanpur	Devbhumi Dwarka	Gujarat
80	Under commissioning	DWK 010	11	Ran	Kalyanpur	Devbhumi Dwarka	Gujarat
81	Under commissioning	DWK 012	11	Ran	Kalyanpur	Devbhumi Dwarka	Gujarat
82	Under commissioning	DWK 013	8	Ran	Kalyanpur	Devbhumi Dwarka	Gujarat
83	Under commissioning	DWK 016	11	Ran	Kalyanpur	Devbhumi Dwarka	Gujarat
84	Under commissioning	DWK 029	10	Bhopalka	Kalyanpur	Devbhumi Dwarka	Gujarat
85	Under commissioning	DWK 030	8	Nandana	Kalyanpur	Devbhumi Dwarka	Gujarat
86	Under commissioning	DWK 033	8	Nandana	Kalyanpur	Devbhumi Dwarka	Gujarat
87	Under commissioning	DWK 036	9	Nandana	Kalyanpur	Devbhumi Dwarka	Gujarat
88	Under commissioning	DWK 099	2	KESHAVPUR	Kalyanpur	Devbhumi Dwarka	Gujarat
89	Under commissioning	DWK 100	2	KESHAVPUR	Kalyanpur	Devbhumi Dwarka	Gujarat
90	Under commissioning	DWK 118	2	BAKODI	Kalyanpur	Devbhumi Dwarka	Gujarat
91	Under commissioning	DWK 119	2	MALETA	Kalyanpur	Devbhumi Dwarka	Gujarat
92	Under commissioning	DWK 123	2	MALETA	Kalyanpur	Devbhumi Dwarka	Gujarat
93	Under commissioning	DWK 124	2	MALETA	Kalyanpur	Devbhumi Dwarka	Gujarat
94	Under commissioning	DWK 125	2	MALETA	Kalyanpur	Devbhumi Dwarka	Gujarat
95	Under commissioning	DWK 126	2	MALETA	Kalyanpur	Devbhumi Dwarka	Gujarat
96	Under commissioning	DWK 127	2	MALETA	Kalyanpur	Devbhumi Dwarka	Gujarat
97	Under commissioning	DWK 128	2	MALETA	Kalyanpur	Devbhumi Dwarka	Gujarat
98	Under commissioning	DWK 180	6	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
99	Under commissioning	DWK 190	7	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
100	Under commissioning	DWK 191	7	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
101	Under commissioning	DWK 192	7	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
102	Under commissioning	DWK 193	7	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
103	Under commissioning	DWK 202	7	Kenedi	Kalyanpur	Devbhumi Dwarka	Gujarat
104	Under commissioning	DWK 203	7	Kenedi	Kalyanpur	Devbhumi Dwarka	Gujarat

105	Under commissioning	DWK 204	7	Kenedi	Kalyanpur	Devbhumi Dwarka	Gujarat
106	Under commissioning	DWK 205	7	Kenedi	Kalyanpur	Devbhumi Dwarka	Gujarat
107	Under commissioning	DWK 206	7	Kenedi	Kalyanpur	Devbhumi Dwarka	Gujarat
108	Under commissioning	DWK 207	7	Kenedi	Kalyanpur	Devbhumi Dwarka	Gujarat
109	Under commissioning	DWK 209	7	Kenedi	Kalyanpur	Devbhumi Dwarka	Gujarat
110	Under commissioning	DWK 212	7	Kenedi	Kalyanpur	Devbhumi Dwarka	Gujarat
111	Under commissioning	DWK 351	11	Ran	Kalyanpur	Devbhumi Dwarka	Gujarat
112	Under commissioning	DWK 354	9	Nandana	Kalyanpur	Devbhumi Dwarka	Gujarat
113	Under commissioning	DWK 355	6	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
114	Under commissioning	DWK P05	11	Ran	Kalyanpur	Devbhumi Dwarka	Gujarat
115	Under commissioning	DWK P07	11	Ran	Kalyanpur	Devbhumi Dwarka	Gujarat
116	Under commissioning	DWK P14	11	Khakharda	Kalyanpur	Devbhumi Dwarka	Gujarat
117	Under commissioning	DWK P15	11	Khakharda	Kalyanpur	Devbhumi Dwarka	Gujarat
118	Under commissioning	DWK P72	11	Ran	Kalyanpur	Devbhumi Dwarka	Gujarat
119	Under commissioning	DWK P80	6	Bhatiya	Kalyanpur	Devbhumi Dwarka	Gujarat
120	Under commissioning	DWK P88	8	Nandana	Kalyanpur	Devbhumi Dwarka	Gujarat