21.8 MW WIND POWER PROJECT AT JANGI VANDHIYA, GUJARAT BY POWERICA LIMITED

Document Prepared By: POWERICA LIMITED

Project Title	21.8 MW Wind Power Project at Jangi Vandhiya, Gujarat by Powerica Limited
Version	02
Date of Issue	12-December-2018
Prepared By	Mr. Pradeep Gupta
Contact	Powerica Limited, Sector 11, CBD Belapur , 601 Dakshina Building, Navi Mumbai-400614, Maharashtra, India.

Table of Contents

1 PROJECT DETAILS

1.1 Summary Description of the Project

The project activity involves installation and operation of 11 WTGs of 2.0 MW comprising a total capacity of 22.0 MW. The project activity utilised V100 model of WTGs supplied of Vestas. All the WTGs involved in the project are commissioned at Bhachau Taluka of Kutch district of Gujarat. The project aims at providing electricity to the state of Gujarat by effective utilization of renewable resources. The electricity generated from the project activity is supplied to NEWNE regional grid of India. Powerica Limited has developed this project keeping in consideration of the funding available under the Clean Development Mechanism (CDM) of the United Nations Framework Convention on Climate Change (UNFCCC). This is because the project activity qualifies as a CDM project as it is feeding clean power to the electricity grid (North-East-West-North East or NEWNE grid, India) thereby helping in significant reduction of GHG emissions.

Existing Scenario

The regional (NEWNE) grid into which the electricity generated from the project would be fed is dominated by the carbon intensive fossil fuel based thermal power plants. The project is utilizing wind energy for generating electricity which otherwise would have been generated through alternate fuels (most likely - fossil fuel) based power plants, contributing to reduction in specific emissions (emissions of pollutant) including GHG emissions. The generated electricity displaces equivalent electricity (generated majorly from fossil sources) that may have been supplied by the Gujarat Energy Transmission Corporation Limited (GETCO).

Baseline scenario

Since the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario for the project as per the applicable baseline methodology, ACM0002, ver. 15.0 is defined as, “Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources”.

Therefore, it could be considered that the both the existing scenario and baseline scenario for the project activity are same.

Estimated Emission Reduction

The project activity is expected to generate and export 51,494.8 MWh of electricity per annum to the NEWNE Grid. It is estimated that the project activity will contribute to GHG emission reduction of about 50,207 tCO_2e annually and 502,070 tCO_2e over ten years of the crediting period.

Contribution to sustainable Development

The National CDM Authority (NCDMA), which is the Designated National Authority (DNA) for the Government of India (GOI) under the Ministry of Environment and Forests (MoEF) has mentioned four indicators for the sustainable development. The project participant’s view on the contribution of this project activity towards sustainable development is explained below:

Social well being:

- Generating Local Employment: The installation of wind power project in rural areas will result in generating local employment opportunities and capacity building of the local employees. The project activity would create both direct and indirect employment throughout the life-cycle of the project activity.
- Encouragement to entrepreneurs: The project will provide encouragement to other entrepreneurs to invest into renewable energy sources.
- New business Opportunity: The project activity would provide business opportunities to the local population contributing to poverty alleviation of the local community.

Economic well being:

- Rural Development: The installation of wind power project will result in rural and infrastructural development in the surrounding rural areas
- Economic Development: The generation of wind power will result in improvising the reliability of the NEWNE Grid and thereby enhance economic development in the region.

Environment well being:

- Reduction in the consumption of fossil fuels: The installation of power plant generating electricity through renewable resource such as wind power, would lead to reduction in usage of fossil fuels e.g. Coal, oil, natural gas.
- Reduction in GHG emission: The reduction in usage of fossil fuels for electricity generation will result in reduction of the release of associated GHG emissions (CO_2 and CH_4 emissions).
- Improvement of Air Quality: The use of renewable energy for power generation will avoid the emission of air pollutants such as Suspended Particulate Matter (SPM), Sulphur Dioxide (SO2) and Nitrogen Oxides (NOx) thereby improvising the surrounding air quality
- Conservation of Natural Resources: Installation of wind power plant will result in conserving fast depleting natural resources such as coal, oil etc.

Technological well being:

- Advanced Technology: The project activity involves installation and operation of state-of-art wind turbine generators (WTGs) of Vestas make. The implementation of these new technologies will help in increasing reliability of renewable energy generation and encourage development of even better technology in the future.
- Safe and Sound Technology: The project activity deploys the technology, which is environmentally safe and sound, as it does not produce greenhouse gases and any toxic or radioactive waste.

Details of commissioning date of all WTGs:

Sl. No	WTG	Capacity of WTG (MW)	Commissioning Date*
1	VWT/2000/14-15/3444	2	12/06/2014
2	VWT/2000/14-15/3447	2	12/06/2014
3	VWT/2000/14-15/3448	2	12/06/2014
4	VWT/2000/14-15/3449	2	12/06/2014
5	VWT/2000/14-15/3450	2	12/06/2014
6	VWT/2000/14-15/3445	2	14/06/2014
7	VWT/2000/14-15/3452	2	14/06/2014
8	VWT/2000/14-15/3451	2	14/06/2014

9	VWT/2000/14-15/3442	2	25/06/2014
10	VWT/2000/14-15/3443	2	25/06/2014
11	VWT/2000/14-15/3446	2	08/07/2014

1.2 Sectoral Scope and Project Type

Project type: Renewable energy projects

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

1.3 Project Proponent

Organization name	Powerica Limited
Contact person	Pradeep Gupta
Title	Head of Wind Energy
Address	Sector 11, CBD Belapur, 601 Dakshina Building, Navi Mumbai- 400614, Maharashtra, India.
Telephone	+91-22-66562525
Email	powerica@powericaltd.com

1.4 Other Entities Involved in the Project

Organization name	EKI Energy Services Limited
Role in the project	Project Consultant
Contact person	Mr. Ramkrishna Patil
Title	GM – Operations
Address	Office No. 201, EnKing Embassy, Plot No. 48, Scheme No. 78, Part II, Vijay Nagar INDORE – 452010, India.
Telephone	+91 9096562065
Email	ramkrishna.patil@enkingint.org

1.5 Project Start Date

The start date of the project activity is the earliest date of commissioning of the WTG involved in the project activity i.e. 12-06-2014.

1.6 Project Crediting Period

The crediting period of the project activity is for 10 years (fixed).

The crediting period from 12-06-2014 to 11-06-2024.

1.7 Project Scale and Estimated GHG Emission Reductions or Removals

The project falls under Project category since the emission reductions are less than 300,000 tCO_{2e} per annum

Project Scale	
Project	√
Large project	

Year	Estimated GHG emission reductions or removals (tCO_2e)
Year 1	50,207
Year 2	50,207
Year 3	50,207
Year 4	50,207
Year 5	50,207
Year 6	50,207
Year 7	50,207
Year 8	50,207
Year 9	50,207
Year 10	50,207
Total estimated ERs	502,070
Total number of crediting years	10
Average annual ERs	50,207

1.8 Description of the Project Activity

Not Applicable

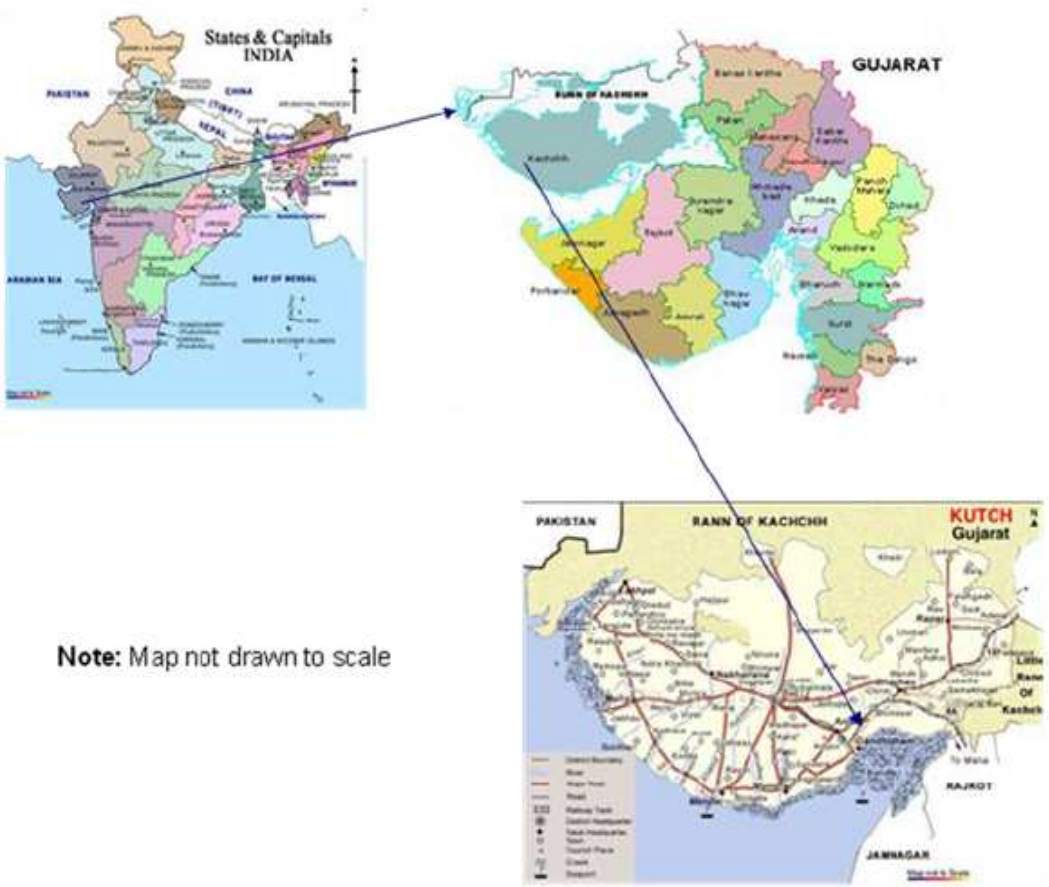
1.9 Project Location

The project activity is located at Bhachu, District Kutch Gujarat state. The latitude and longitude of each WTG are as follows:

Sr No.	WTG	Village	Latitude	Longitude
1	VWT/2000/14-15/3444	Jangi	N23 12 41.3	E70 34 28.8
2	VWT/2000/14-15/3447	Jangi	N23 13 05.5	E70 32 15.6
3	VWT/2000/14-15/3448	Lakhapar	N23 12 46.6	E70 38 00.0
4	VWT/2000/14-15/3449	Vadhiya	N23 12 18.3	E70 35 59.7
5	VWT/2000/14-15/3450	Lakhdhirgadh	N23 14 52.2	E70 35 41.2

6	VWT/2000/14-15/3445	Godpar	N23 13 06.3	E70 36 58.4
7	VWT/2000/14-15/3452	Lakhdhirgadh	N23 14 49.6	E70 34 59.9
8	VWT/2000/14-15/3451	Lakhdhirgadh	N23 14 26.6	E70 35 07.8
9	VWT/2000/14-15/3442	Lakhdhirgadh	N23 15 10.3	E70 35 56.3
10	VWT/2000/14-15/3443	Vandhiya	N23 14 23.1	E70 36 26.9
11	VWT/2000/14-15/3446	Vandhiya	N23 14 24.5	E70 37 02.3

The project activity is located in Gujarat state of India. The project location is attached in the figure below.



Note: Map not drawn to scale

1.10 Conditions Prior to Project Initiation

This is a Greenfield project. The project activity replaces the carbon intensive grid electricity. The proposed project activity effectively utilises renewable wind energy to generate electricity which will be feed into the coal intensive NEWNE Grid. Thereby the project activity reduces the dependence on fossil fuel based generation units and as there are no associated emissions with this project it contributes to the reduction of greenhouse gases (GHG) emissions.

Please refer section B.4 of the registered CDM PDD. The web link for the same is mentioned below:
http://cdm.unfccc.int/Projects/DB/RWTUV1411994965.49/view

1.11 Compliance with Laws, Statutes and Other Regulatory Frameworks

The project activity is not mandatory by any local or national laws. However the project complies with technical, engineering and commissioning regulations. Please refer section B.5 of the PDD of UNFCCC registered CDM project with Ref No: 10042.

1.12 Ownership and Other Programs

1.12.1 Project Ownership

For the ownership details of the project any of the following may be referred to:

1. Power Purchase Agreement between the project promoters and State Utility
2. Commissioning certificates
3. Purchase order of WTGs

1.12.2 Emissions Trading Programs and Other Binding Limits

India is Non-annex1 country and there is no compliance with an emission trading program or to meet binding limits on GHG emissions for this project activity. The project is registered under CDM and UNFCCC (Registration ID 10042[1]). The project is also approved by the DNA and a copy of the approval is also submitted to the DOE. Project Proponent has submitted undertaking that they will not claim same GHG emission reductions of the project from CDM and VCS. PP would not use net GHG emission reductions by the projects for compliance with emission trading program to meet binding limits on GHG emissions.

1.12.3 Other Forms of Environmental Credit

Project has been registration with UNFCCC under Clean Development Mechanism program. Registration reference number is 10042[2]. Project Proponent has submitted undertaking for not availing other forms of environmental credit for the same crediting period under consideration.

1.12.4 Participation under Other GHG Programs

Project has been registration with UNFCCC under Clean Development Mechanism program, Registration reference number is 10042[3]. PP also submitted undertaking for Project neither has not intends to generate any form of GHG related environmental credit for GHG emission reductions or removals claimed under the VCS program.

[1] http://cdm.unfccc.int/Projects/DB/RWTUV1411994965.49/view
[2] http://cdm.unfccc.int/Projects/DB/RWTUV1411994965.49/view
[3] http://cdm.unfccc.int/Projects/DB/RWTUV1411994965.49/view

1.12.5 Projects Rejected by Other GHG Programs

The project is not rejected by any other GHG program. Project has been registration with UNFCCC under Clean Development Mechanism program, Registration reference number is 10042[4]

1.13 Additional Information Relevant to the Project

Eligibility Criteria

The project does not fall under AFOLU category, hence not applicable.

Leakage Management

Project does not involve any leakage emissions as this is wind power project, Hence Leakage Management Plan and risk mitigation measures are not required.

Commercially Sensitive Information

There is no commercially sensitive information accounted for the determination of baseline, net GHG removals and for demonstration of additionality for the present project activity.

Sustainable Development

The National CDM Authority (NCDMA), which is the Designated National Authority (DNA) for the Government of India (GoI) in the Ministry of Environment and Forests (MoEF), has stipulated four indicators for sustainable development in the interim approval guidelines for Clean Development Mechanism (CDM) projects in India[5]. The Project Participant believes that the project activity has contributed to sustainable development in terms of the four indicators as follows:

Social well-being:

There are several activities associated with the erection and commissioning of WTGs and this has resulted in generating employment for both skilled and unskilled manpower. People have been employed in both onsite and offsite activities thus creating direct and indirect employment opportunities that contribute up to some extent in poverty alleviation of the local community. The project activity also contributes in meeting the electricity deficit in India and hence improves quality of life of the people. Thus, the project activity has contributed to social well- being.

Economic well-being:

The project activity requires temporary and permanent, skilled and semi-skilled manpower at the wind power project site. Hence, this will create additional employment opportunities. It will also provide business opportunities for local vendors, contractors and suppliers.

[4] http://cdm.unfccc.int/Projects/DB/RWTUV1411994965.49/view

[5] http://envfor.nic.in/division/clean-development-mechanism-interim-approval-criteria

Environmental well-being:

The project activity reduces the emissions of local and global pollutants. It also conserves the non-renewable energy resources as the project activity does not consume any non-renewable resource for generating the electricity. There is no solid waste from the project activity that generally happens in the case of most of the other sources of power. Thus, the project activity contributes to environmental well-being without causing any negative impact on the surrounding environment.

Technical well-being:

The investment in renewable technologies like wind will boost the sector and propel R&D in this field thus helping in evolution of better and more efficient technologies.

Thus, the project activity contributes towards the sustainable development of the region.

Further Information

There are no information or incidents that will have bearing on the eligibility of the project, the net GHG emission reductions or removals, or the quantification of the project's net GHG emission reductions or removals.

2 APPLICATION OF METHODOLOGY

2.1 Title and Reference of Methodology

Not Applicable

2.2 Applicability of Methodology

Please refer to section B.2 of the PDD of UNFCCC registered CDM project with Ref No: 10042. The web link for the same is given below:

http://cdm.unfccc.int/Projects/DB/RWTUV1411994965.49/view

2.3 Project Boundary

Please refer to section B.3 of the PDD of UNFCCC registered CDM project with Ref No: 10042. The web link for the same is given below:

http://cdm.unfccc.int/Projects/DB/RWTUV1411994965.49/view

2.4 Baseline Scenario

Please refer to section B.4 of the PDD of UNFCCC registered CDM project with Ref No: 10042. The web link for the same is given below:

http://cdm.unfccc.int/Projects/DB/RWTUV1411994965.49/view

2.5 Additionality

Please refer to section B.5 of the PDD of UNFCCC registered CDM project with Ref No: 10042. The web link for the same is given below:

http://cdm.unfccc.int/Projects/DB/RWTUV1411994965.49/view

2.6 Methodology Deviations

Not Applicable

3 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

3.1 Baseline Emissions

Not Applicable

3.2 Project Emissions

Not Applicable

3.3 Leakage

Not Applicable

3.4 Net GHG Emission Reductions and Removals

Not Applicable

4 MONITORING

4.1 Data and Parameters Available at Validation

Not Applicable

4.2 Data and Parameters Monitored

Not Applicable

4.3 Monitoring Plan

Not Applicable

5 SAFEGUARDS

5.1 No Net Harm

Not Applicable

5.2 Environmental Impact

Not Applicable

5.3 Local Stakeholder Consultation

Not Applicable

5.4 Public Comments

Not Applicable