Validation report form for CDM project activities

(Version 04.0)

BASIC INFORMATION	
Title of the project activity	Renewable Energy Power project by DDWL
Scale of the project activity	☒ Large-scale ☐ Small-scale
Version number of the validation report	02
Completion date of the validation report	01/09/2020
Version number of the PDD to which this report applies	05
Date when PDD was uploaded for global stakeholder consultation	24/12/2016
Project participants	Dev-Dwarka Windproject Limited
Host Party	India
Applied methodologies and standardized baselines	ACM0002- Grid-connected electricity generation from renewable sources --- Version 20.0 Standardized Baseline: Not Applicable
Mandatory sectoral scopes	Sectoral Scope 1: Energy Industries (renewable - /non-renewable sources)
Conditional sectoral scopes, if applicable	NA
Estimated amount of annual average GHG emission reductions or GHG removals by sinks	59,407 tCO_2e / annum
Name and UNFCCC reference number of the DOE	LGAI Technological Center, S.A. (Applus+ Certification) UNFCCC Ref. No.: E-0032
Name, position and signature of the approver of the validation report	Mr. Juan Sendín Caballero *Applus+ Certification Business Unit Managing Director* Signature: 

SECTION A. Executive summary

The main purpose of this project activity is to generate clean form of electricity through renewable wind energy source. Dev-Dwarka Windproject Limited (DDWL) is the promoter of the project activity. The project activity involves installation of 30 MW wind power project at Villages: Beraja & Datrana, Dist- Dev Bhoomi Dwarka, Gujarat, India. The project will replace anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 59,407 tCO_2e per year, thereon displacing 63,072 MWh/year amount of electricity from the generation-mix of power plants connected to the Indian grid, which is mainly dominated by thermal/fossil fuel based power plant. The power generated from the project activity will be sold to grid.

The details of the project and the state of installation are mentioned in the table:

Project Promoters' Name	Capacity in MW	Commissioning Date	Connection with Grid	State	Usage of Electricity
Dev-Dwarka Windproject Limited	30 MW	29/06/2016 (10 MW), 09/01/2017 (6 MW), 21/01/2017 (8 MW) & 30/01/2017 (6 MW)	Indian Grid	Gujarat	Sell to Grid

The project activity is the installation of an environmentally safe and sound technology since there are no GHG emissions associated with the electricity generation. The design lifetime of the wind project is 25 years (As per the Manufacturer specifications). The same is acceptable to the assessment team.

Validation Scope: The scope is defined as an independent and objective review of the project design document (PDD). The PDD is reviewed against the criteria stated in Article 12 of the Kyoto Protocol, the CDM modalities and procedures as agreed in the Marrakech Accords and the relevant decisions by the CDM Executive Board, including the approved baseline and monitoring methodology ACM0002/ Version 20.0, "Grid-connected electricity generation from renewable sources". The validation was based on the requirements in the CDM Validation and Verification Standard for the project activities, Version 02.0

The validation is not meant to provide any consulting towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the project design document.

Once Applus+ Certification receives the PDD, it has been made publicly available on the UNFCCC website, which initiates a 30 days global stakeholder consultation (GSC) process. However, the project was made available for GSC by Earthood Services Private Limited[1]. The details of the GSC are included in this report.

Validation Process: The project assessment is based on the "CDM Project Cycle Procedure for project activities, version 02.0 and is conducted using standard auditing techniques to assess the correctness of the information provided by the project participants. Before the assessment begins, members of the team covering the technical scope(s), sectoral scope(s), and relevant host country experience for evaluating the CDM project activity are appointed.

Once the project is made available for the global stakeholder consultation process, the members of the assessment team carried out:

I A desk review of the project design documentation;
II Follow-up interviews with project stakeholders;
III The resolution of outstanding issues and the issuance of the final validation report and opinion.

The prepared validation report and other supporting documents then undergo an internal quality control at the HQ (Accredited office) before being submitted to the CDM-EB.

Appointment of the assessment team

According to the sectoral scope / technical area and experience in the sectoral or national business environment, LGAI Technological Center S.A. (Applus+ Certification) has composed a project assessment

[1] https://cdm.unfccc.int/Projects/Validation/DB/BEZKN6CZPEW51VCITJ8SGTUJ2QN623/view.html

team in accordance with the appointment rules in the internal Quality Management System of LGAI Technological Center S.A. (Applus+ Certification).
The composition of audit team shall be approved by the LGAI Technological Center S.A. (Applus+ Certification) ensuring that the required skills are covered by the team.
The four qualification levels for team members that are assigned by formal appointment rules are as present ed below:

- Lead Auditor (LA).
- Auditor (A) / Auditor in Training (AiT).
- Technical Expert (TE).
- Technical Reviewer (TR).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

The detail regarding the assessment team is provided below in Appendix 2/B.1 and B.2 of this report

Document review

The Project Design Document submitted by the Client was reviewed against the approved methodology and other relevant criteria to verify the correctness, credibility, and interpretation of the presented information. Furthermore, a cross-check between information provided and information from other sources has been done. A complete list of all documents and evidence material reviewed is included in Appendix 3 of this report.

Follow-up interviews

A site visit is conducted by Applus+ Certification performed interviews, telephone conferences, and physical site inspection with project stakeholders to confirm selected information and to resolve issues identified in the document review. The detail is provided in section C.2 and C.3 of this report

Resolution of Clarification and Corrective Action Request

The objective of this phase of the validation was to resolve the requests for corrective actions and clarification and any other outstanding issues which need to be clarified for Applus+ Certification positive conclusion on the project design document. The Corrective Action Requests and Clarification Requests raised by Applus+ Certification were resolved during communications between the Client and Applus+ Certification to guarantee the transparency of the validation process, the concerns raised and responses given are summarized in Appendix 4 below.

The final PDD version 05 submitted by PP serves as the basis for the final assessment presented. Additional changes to the project during the validation process are not considered to be significant with respect to the main CDM objectives. The two CDM main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country

Internal quality control

As final step of a validation of the final documentation including the validation report and the checklist have to undergo an internal quality control by the technical review committee, i.e. each report has to be finally approved either by the head of the technical review committee or the deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one to avoid any conflict of Interest.

After confirmation of the PP the validation opinion and relevant documents are submitted to the EB through the UNFCCC web-platform

Conclusion

Applus+ Certification has performed a validation of the “Renewable Energy Power project by DDWL”. The validation was performed on the basis of UNFCCC criteria and host country criteria, as well as criteria, e.g. ACM0002 version 20.0, given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided Applus+ Certification with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project will hence be recommended by Applus+ Certification for registration with the UNFCCC.

Applus+ Certification has received a confirmation from the host Party that the project activity assists it in achieving sustainable development.

By displacing fossil fuel-based electricity with electricity generated from a renewable source, the project results in reductions of CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change. An analysis of the investment demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of annual emission reductions of 59,407 tCO_2e per year, thereon displacing 63,072 MWh/year amount.

The validation has been performed following the requirements of the latest version of the "CDM Validation and Verification standard for project activities version 02.0 and on the basis of the contractual agreement. The single purpose of this report is its use during the registration process as part of the CDM/UNFCCC project cycle.

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Validation findings
1.	LA/TE	OR	Takarkhede	Atul	TRUE QUALITY CERTIFICATION PRIVATE LIMITED	YES	YES	YES	YES

B.2. Technical reviewer and approver of the validation report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	EI	Xue	Denny	Applus+ Certification
2.	Approver	IR	Caballero	Juan Sendin	Applus+ Certification

SECTION C. Means of validation

C.1. Desk/document review

The details of the document observed during the validation process are listed below in Appendix 3 of this report.

C.2. On-site inspection

Duration of on-site inspection: 29/06/2019				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	Assessment team checked the implementation of the project, Baseline emission, and emission reduction calculation, technical description of the project and Onsite Monitoring practice.	Villages: Beraja & Datrana, Dist-Dev Bhoomi Dwarka, Gujarat, India	29/06/2019	Atul Takarkhede

C.3. Interviews

No.	**Interviewee**			**Date**	**Subject**	**Team member**
	Last name	**First name**	**Affiliation**			
1.	Mr. Sharma	Pranav	PP Representative	29/06/2019	As explained in C.2 above	Atul Takarkhede
2.	Mr. Joshi	Rahul	Site In-charge		Project implementation, Calibration, O&M etc.	
3.	Shri. Mehadia	Krishna	Villager		Local Stakeholder consultation	

C.4. Sampling approach

The assessment team didn't apply any sampling approach for the project activity. The site visit was conducted for the complete wind project implemented in the locations/site as mentioned in the PDD

C.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of validation findings	**No. of CL**	**No. of CAR**	**No. of FAR**
Demonstration of prior consideration of the CDM	00	00	00
Identification of project type	00	00	00
Description of project activity	00	02	00
Application and selection of methodologies and standardized baselines	00	00	00
- Application of methodologies and standardized baselines	00	01	00
- Deviation from methodology and/or methodological tool	00	00	00
- Clarification on applicability of methodology, tool and/or standardized baseline	00	00	00
- Project boundary, sources and GHGs	00	00	00
- Baseline scenario	00	00	00
- Demonstration of additionality	00	02	00
- Estimation of emission reductions or net anthropogenic removals	00	01	00
- Monitoring plan	00	00	00
Start date, crediting period type and duration	00	00	00
Environmental impacts	00	00	00
Local stakeholder consultation	00	00	00
Sustainable development co-benefits	00	00	00
Approval	00	00	00
Authorization	00	00	00
Modalities of communication	00	00	00
Global stakeholder consultation	00	01	00
Others (please specify) - 1. ODA declaration	00	00	00
Total	**00**	**07**	**00**

SECTION D. Validation findings

D.1. Demonstration of prior consideration of the CDM

Means of validation	Assessment team checked UNFCCC web site and also the acknowledgement

	email as received by project participant from UNFCCC regarding receivable of prior consideration notification and publication of the same.
Findings	No finding raised on the section.
Conclusion	Assessment team checked the UNFCCC web site for prior consideration notification and found that the same was uploaded on UN web site dated 16/08/2016. https://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html?s=40 Moreover, assessment team also checked the acknowledgement email dated 14/09/2016 sent by UNFCCC to project participant regarding receivable of prior consideration notification and publication of the same. Assessment team also checked the email notification dated 16/08/2016 sent to DNA by project participant regarding prior consideration for the present CDM project activity. As per Section 4.1 of the "CDM Project Cycle Procedure for project activities version 02.0, if the start date of the project is after 02/08/2008, "*the project participants shall notify the designated national authority (DNA) of the host Party of the project activity, if the DNA exists, and the secretariat in writing of the commencement of the project activity and their intention to seek the CDM status for the project activity, or, through a DOE, publish the PDD for global stakeholder consultation within 180 days of the start date of the project activity*" The Start date of the project activity is 22/03/2016 (date of EPC (=Engineering, Procurement, Construction) Contract with Vestas Ltd. as per the glossary of CDM terms and in accordance to start date definition for CDM project activity), and the prior notification is dated 16/08/2016 which is within 180 days of project start date. Hence, assessment team confirm that the prior consideration clause as per Section 4.1 of the "CDM Project Cycle Procedure for project activities version 02.0 has been fulfilled.

D.2. Identification of project type

Means of validation	Assessment team checked the UNFCCC web site/Glossary of CDM terms regarding project type definition for CDM project activity.
Findings	No findings raised during the course of Validation
Conclusion	The project activity is power generated from the Wind power project and the output will be utilized for sell to grid. Since the project is renewable energy generation and hence falls under following: Sectoral Scope : 01 - Energy industries (renewable / non-renewable sources) **Project Type: Type-I - Renewable Energy Projects** Project Category: ACM0002: Grid-connected electricity generation from renewable sources- Version 20.0 The project activity aims to harness wind energy through installation of WTGs with total installed capacity of 30 MW. Assessment team observed that the capacity of the project is above 15 MW Type I small scale project activity and thus assessment team confirms that the project is large scale project activity. The technology being employed is well proven, safe & sound. No technology transfer to host party is envisaged due to project activity.

D.3. Description of project activity

Means of validation	Assessment team checked the Initial PDD as received for GSC period, EPC contract with the Manufacturer, Commissioning Certificate (3rd party document), PPA to confirm the description of the project activity.
Findings	CAR 01 and CAR 03 was raised during the validation process. Please refer Appendix 4 of this report for the detailed closure of the CAR.
Conclusion	The main purpose of this project activity is to generate clean form of electricity through renewable wind energy source. Dev-Dwarka Windproject Limited (DDWL) is the promoter of the project activity. The project activity involves installation of 30 MW wind power project at Villages: Beraja & Datrana, Dist- Dev Bhoomi Dwarka, Gujarat, India. The project will replace anthropogenic emissions of greenhouse

gases (GHG's) estimated to be approximately 59,407 tCO_2e per year, thereon displacing 63,072 MWh/year amount of electricity from the generation-mix of power plants connected to the Indian grid, which is mainly dominated by thermal/fossil fuel based power plant. The power generated from the project activity will be sold to grid.

The details of the project and the state of installation are mentioned in the table:

Project Promoters' Name	Capacity in MW	Connection with Grid	State	Usage of Electricity
Dev-Dwarka Windproject Limited	30 MW	Indian Grid	Gujarat	Sell to Grid

The project activity is the installation of a new grid-connected renewable power plant/unit and this is not a CPA that has been excluded from a registered CDM PoA as a result of erroneous inclusion of CPAs.

The technical details were checked by the assessment team from the technical manual as available with the PP from the manufacturers (2nd party) and also during the onsite physical verification. The details are as below:

The technical specifications of project activity of 30 MW by Dev-Dwarka Windproject Limited are as follows[2]:

Particulars	Details
Make	Vestas
Rated power	2000 kW
Cut-in wind speed	3 m/s
Cut-out wind speed	22 m/s
Survival wind speed	52.5 m/s
Generator	Variable Speed Multi Pole Synchronous
Rotor Diameter	110 m
Swept area	9503 m^2
Speed Range	9 to 17.3 rpm
Hub Height	80 m
Design	Tubular, Four Sections
Foundation Type	Floating
Control of Output	Pitch Regulation
Speed Control	Variable, micro controller based
Low Voltage Ride Through (LVRT)	3 seconds
Primary Brake system	Aerodynamic
Pitch System	Electromechanical
Remote Monitoring	VPN
Wind Turbine type class	IEC III A
Design Lifetime	25 years[3]

The detail of commissioning is below:

Project Promoters' Name	Capacity in MW	Commissioning Date	Grid	State	Usage of Electricity
Dev-Dwarka Windproject Limited	30 MW	29/06/2016 (10 MW), 09/01/2017 (6 MW), 21/01/2017 (8 MW) & 30/01/2017 (6 MW)	Indian Grid	Gujarat	Sell to Grid

[2] Technical specifications have been sourced from WTG manufacturer; Vestas.
[3] Technical lifetime has been sourced from WTG manufacturer; Vestas

Assessment team also checked that the Geographical coordinates using GPS meter and Google earth Software during onsite visit and found that Latitude and Longitude as mentioned in the PDD are correct. The details are as below:

WTG ID	Latitude (N)	Longitude (E)	Village	Commissioning Date
VWL/2000/16-17/3851	22°15'34.4"	69°29'32.0"	Beraja & Datrana	29/06/2016
VWL/2000/16-17/3852	22°20'20.4"	69°30'45.0"		
VWL/2000/16-17/3853	22°09'09.6"	69°45'26.8"		
VWL/2000/16-17/3854	22°15'15.6"	69°54'30.8"		
VWL/2000/16-17/3860	22°17'15.5"	69°32'32.8"		
VWL/2000/16-17/4020	22°17'34.4"	69°32'32.0"	Nana Asota	09/01/2017
VWL/2000/16-17/4021	22°17'20.4"	69°32'45.0"		
VWL/2000/16-17/4022	22°18'09.6"	69°32'26.8"		
VWL/2000/16-17/4023	22°18'15.6"	69°32'30.8"	Beraja & Datrana	21/01/2017
VWL/2000/16-17/4024	22°16'15.5"	69°31'32.8"		
VWL/2000/16-17/4025	22°16'35.5"	69°32'19.8"		
VWL/2000/16-17/4026	22°16'35.8"	69°32'17.7"		
VWL/2000/16-17/4027	22°16'35.2"	69°32'16.6"		30/01/2017
VWL/2000/16-17/4028	22°16'39.2"	69°32'14.8"		
VWL/2000/16-17/4029	22°16'32.8"	69°32'21.8"		

Assessment team checked the timeline of the project activity. The detail are as below:

Sr No.	Particulars	Date	Documents check
1.	Offer letter	01/03/2016	Offer letter for 40 MW from Vestas dated 01/03/2016 is checked by the assessment team
2.	Board Decision (=Investment decision date) for the Project activity	04/03/2016	Board note for 40 MW dated 04/03/2016 to confirm the investment decision date
3.	Stakeholder Consultation	18/03/2016	Local stakeholder consultation documents (Attendance sheet, Minutes of Meeting etc are checked)
4.	Contract between DDWL and Vestas for project development	22/03/2016	EPC contract is checked.
5.	PPA signed for	10/06/2016	PPA signed between PP and

	10 MW capacity		GUVNL
6.	PPA signed for 20 MW capacity	26/10/2016	PPA signed between PP and GUVNL
7.	Publication of PDD for Global Stakeholder Consultation	24/12/2016	DOE uploaded for GSC process
8.	Commission of the WTGs	29/06/2016, 09/01/2017, 21/01/2017, 30/01/2017	Commissioning certificates issued by GEDA
9.	Host Country Approval	08/02/2017	HCA as received from Host country DNA is checked.

The project activity description, capacity limitation and de-bundling criteria are checked and found correct by the assessment team. The PDD mentions all the criteria of CDM requirements and PDD template requirements for Large scale project activity properly and thus assessment team confirms that the description as mentioned in the PDD version 05 is correct and appropriate.

D.4. Application and selection of methodologies and standardized baselines

D.4.1. Application of methodologies and standardized baselines

Means of validation	The assessment team has validated the documentation referred to in the PDD and verified the documentation content for verifying the justification of the applicability of the methodology and confirmed that the documentation referred to in the PDD is correctly quoted and interpreted. The assessment team has also cross-checked the information provided in the PDD with the documentation other than from the PDD based on the local and sectoral knowledge of the assessment team. Following documentation has been reviewed by the assessment team: 1. Site visit 2. Interview with the concerned person mentioned in this report 3. Technical detail analysis of the power plant from the documents submitted by the manufacturer. The assessment of the project's compliance with the applicability criteria of ACM0002 version 20.0 are documented in detail in section B.2 of the PDD.
Findings	CAR 02 was raised during the course of validation and closed successfully. Please refer Appendix 4 of this report for the detail closure of the CAR.
Conclusion	Assessment team checked that during the GSC period ACM0002 version 17.0 was used in the Initial PDD version 01 as it was the latest version of the Methodology available at that time. However during validation process, version 17 have been expired[4] and thus, PP used the latest version available of the Methodology i.e. ACM0002 version 20.0. in PDD version 05 which forms the final document for the validation team. All the sections fulfil the requirement of ACM0002 version 20.0 and thus the same is acceptable to the assessment team. The detail of the applicability condition is as below: All the tools/methodology are mentioned as per the latest version available in UN web page and found correct. The detail applicability condition is described below: Applicability 1: The project activity is installation of a new grid connected wind power plant (Option 1 (A)) at a site where no renewable power plant was operated prior to the implementation of the project activity (Greenfield plant) and hence this criterion is applicable. Applicability 2: The proposed project activity is an installation of a new grid connected wind power plant and hence this condition is met. The option (a) of applicability criteria 2 is applicable as project is renewable energy power plant/unit.

[4] Requests for registration can be submitted until 21 Dec 2018.

	Applicability 3: The project is installation of new wind energy-based electricity generation plants (not a hydro power plant). Hence this criterion is not applicable. Applicability 4: The project is wind power project and thus the criterion is not applicable to this project activity. Applicability 5: The project is wind power project and thus the criterion is not applicable to this project activity. Applicability 6: The project is wind power project and thus the criterion is not applicable to this project activity. Applicability 7: The project activity is installation of a new grid connected wind power project and does not involve switching from fossil fuel to renewable energy and hence this criterion is not relevant to the project activity. & This is a wind power plant and not a biomass fired plant and hence this applicability criterion is not applicable to the project activity. Applicability 8: The project activity is a new grid connected wind power plant and not a retrofits, replacement or capacity additions and therefore this criterion is not applicable to the project activity. Applicability 9: Please refer below **Applicability conditions of "Tool to calculate the emission factor for an electricity system"** • OM, BM and CM are estimated using the tool for calculating baseline emissions. • The project activity is grid connected and thus emission factor is calculated and thus OM, BM and CM are estimated using the tool for calculating baseline emissions. • The project activity is located in India, a non-Annex I country. Therefore, tool is applicable for the project activity. • The project is a wind power project and there is no involvement of biofuels. Therefore, this criterion is not applicable for the project activity. LGAI Technological Center S.A. (Applus+ Certification) confirms that the application of the baseline methodology is transparent and conservative and confirms that the chosen baseline and monitoring methodology i.e. ACM0002 Version 20.0 is applicable to the project activity. The project activity involves installation of Greenfield grid connected Wind project and power generated from the project activity is being used for sell to grid. Based upon the above justifications the Validation team confirmed the applicability of methodology ACM 0002 version 20.

D.4.2. Deviation from methodology and/or methodological tool

Means of validation	Assessment team checked the initial PDD version 01 and revised PDD version 05.
Findings	No findings raised during the course of Validation
Conclusion	No deviation from methodology and/or methodological tool is envisaged for the project activity.

D.4.3. Clarification on applicability of methodology, tool and/or standardized baseline

Means of validation	ACM0002 version 20.0 and PDD version 05 is checked by the assessment team
Findings	No NC (= Non conformity) was raised during the validation process
Conclusion	No clarification on applicability of the methodology, tool and/or Standardized baseline is envisaged for the project activity.

D.4.4. Project boundary, sources and GHGs

Means of validation	The project boundary as depicted in the PDD version 05 is checked during the

	validation site visit and also during the interview with the plant official.
Findings	No NC (= Non conformity) was raised during the validation process
Conclusion	The spatial extent of project boundary diagram (including the metering system) referred by the methodology is now mentioned in the PDD as per the requirement of applied methodology and thus the same is acceptable to the assessment team. The proposed project activity is connected & will evacuate power to the INDIAN grid. Thus, the project boundary includes the wind turbine generator, sub-stations, grid and all power plants connected to grid. Single line diagram, Revised PDD depicting project boundary, commission certificates and sample JMR is also being checked as a supporting evidence to justify the above statement and based upon this, assessment team confirm that the project is grid connected project. The below table mentions the emission source:

Source		Gas	Included?	Justification/Explanation
Baseline	Grid connected electricity generation.	CO_2	Yes	Main emission source
		CH_4	No	Minor emission source
		N_2O	No	Minor emission source
		Other	No	No other emissions are emitted from the project
Project	Greenfield Wind Power Project Activity.	CO_2	No	No CO_2 emissions are emitted from the project
		CH_4	No	Project activity does not emit CH_4
		N_2O	No	Project activity does not emit N_2O
		Other	No	Project activity does not emit other forms of GHG emissions

D.4.5. Baseline scenario

Means of validation	The baseline scenario as depicted in the initial PDD version 01 and final PDD version 05 is checked during the validation site visit and also during the interview with the plant official.
Findings	No NC (= Non conformity) was raised during the validation process
Conclusion	Assessment team confirms that being a grid connected wind energy generation project, PP developed the project based on the Methodology ACM0002 version 20.0. As per methodology *if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:* 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, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system". The project activity involves setting up of wind projects to harness the power of wind to produce electricity and supply to the grid. In the absence of the project activity, the equivalent amount of power would have been supplied by the Indian grid, which is fed mainly by fossil fuel fired plants. In the absence of the project activity, the equivalent amount of power would have been drawn from the Indian grid. Hence, the baseline for the project activity is the equivalent amount of power from the Indian grid. As per CDM Validation and Verification Standard for project activities, version 02, "where the baseline scenario is not prescribed in the approved methodology, the DOE shall assess the list of identified credible alternatives to the project activity in the PDD selected to determine the most realistic baseline scenario." Thus, PDD should mention the credible alternatives to the project activity in order to determine the most realistic baseline scenario. As the selected large-scale methodology clearly mention the baseline scenario and the same has been opted in this project,

	therefore, no further analysis on baseline is required. Validation Team, therefore, concludes that the PDD conforms to the guidance given by EB via CDM Validation and Verification Standard for project activities, version 02 and thus acceptable to the assessment team.

D.4.6. Demonstration of additionality

Means of validation	The cost of WTGs, electricity tariff, O&M cost, depreciation, salvage value and tax rate have been checked with DPR, purchase order, tariff order, Income Tax Act 1961, Power purchase agreement, third party PLF report and financial analysis sheet. During the validation site visit validation team interviewed the personal and confirms that the input parameters considered is appropriate and correct.
Findings	CAR 04 & CAR 05 was raised during the validation process and closed successfully. For detail regarding the CAR, please refer APPENDIX 4.
Conclusion	During conceptualization of the project activity, board of directors of the project proponents dated 04/03/2016 considered the CDM revenue to improve the project financials. During the board meeting for board of Directors decided that they would consider CDM revenue for their project activity. In continuation to the board decision, PP issued the respective purchase order for the supply of wind plant. Further, project was envisaged for capacity of 40 MW. Accordingly offer letter was submitted by supplier and PP has taken decision to go ahead during board meeting dated 04/03/2016 for 40 MW. Accordingly contract for EPC done on 22/03/2020. PPA was signed for 20 MW capacity on 10/06/2016 for 10 MW on 26/10/2016. PDD was web-hosted for global stakeholder's consultation on 24/12/2016. Project was commissioned phase-wise on 29/06/2016, 09/01/2017, 21/01/2017 & 30/01/2017. However, due to difficulty in execution of the total 40 MW capacity, project was downsized to 30 MW. In India, approval was taken by wind farm developer for entire capacity and then assets (WTGs) sold to individual customers. Further, initially PP have opt for 40 MW accordingly offer invited by PP and after board approval, EPC contract signed by PP with wind farm developer. Afterwards PPA was signed first for 10 MW in June 2016 & machines commissioned in last week of June 2016. Next PPA was signed for 20 MW in October 2016 and machines commissioned in Jan 2017. However, due to some administrative issues 10 MW PPA couldn't signed and hence PP decided to downsize the capacity of the proposed project activity. It does not require any statutory approval as per the host country regulations and decision taken by PP management internally. This is an voluntary project by PP and no obligatory contract was signed by PP with state electricity board. Further, as PPA for remaining 10 MW was not signed hence no further approval required. The chronology of events is already provided in D.3 above. Further, there will be no change in tariff rate as per PPA signed for installed capacity. However there will be impact on other input assumptions and the same have been crosschecked by the validation team and the comparison has been reflected in the Final Validation Report as well. Thus the project activity is still additional considering the changes in project cost and other input parameters, since the equity IRR of the project activity is still below the benchmark value for capacity mentioned in the GSC PDD as well as actual 30 MW project capacity. The 40 MW is inline with the investment guidelines and crosscheck is already done with SERC order and actual project cost as well. **Thus, to adhere the applicable guidance from the UNFCCC to demonstrate additionality, same was demonstrated on 40 MW (initial capacity) as well as 30 MW (actual capacity) as the project was downsized to 30 MW during commissioning period.** In line with CDM Validation and Verification Standard for project activities, version 02.0., the additionality of the Project activity is ascertained in line with the applicable guidance from the UNFCCC. The demonstration of additionality for the proposed Project activity is being carried out in accordance with the additionality tool provided by the UNFCCC i.e. "Tool for demonstration and assessment of Additionality" Version 07.0.0. The tool provides a step-wise approach to demonstrate additionality which is displayed below:

	Step 0: Demonstration whether the proposed project activity is the first-of-its-kind The proposed project activity is not the first-of-its-kind. Hence not applicable. **Step 1**: Identification of alternatives to the project activity consistent with current laws and regulations Alternative 1: The proposed project activity without CDM benefit; Alternative 2: Continuation of the current situation, i.e., electricity will continue to be generated by the existing generation mix operating in the grid. Having regard to the fact that the project activity under consideration is a wind power project, validation team is convinced that there are no other realistic and credible alternatives. Both the alternatives are in compliance with all applicable legal and regulatory requirements as; the implementation of project activity is a voluntary initiative and is not mandatory or a legal requirement; the applicable environmental regulations do not restrict the use of wind energy; and There is no legal requirement on the choice of a particular technology. Assessment team noted that the project fulfils the norms put down by Central Pollution Control Board. As per Central Pollution Control Board (Ministry of Environment & Forests, Govt. of India), final document on revised classification of Industrial Sectors under Red, Orange, Green and White Categories (29/02/2016). The newly introduced White category of industries pertains to those industrial sectors which are practically non-polluting such as Biscuit trays etc. from rolled PVC sheet (using automatic vacuum forming machines), Cotton and woollen hosiers making (Dry process only without any dying/washing operation), Electric lamp (bulb) and CFL manufacturing by assembling only, Scientific and mathematical instrument manufacturing, Solar power generation through photovoltaic cell, wind power and mini hydel power (less than 25 MW). There shall be no necessity of obtaining the “Consent to Establish/Operate’’ for White category of industries. Intimation to concerned SPCB / PCC is sufficient. Being a renewable power project it falls under the category of White and thus these projects do not need clearance for Consent to operate and only needs to inform the relative State pollution control board. The same is done for the project and thus it can be confirmed that it follows the local laws of the host country. Due to above categorization of white category and being the renewable in nature, the project activity does not emit any emissions. Thus there is no any other surplus regulatory requirement for the project activity. This is found to be accepted by assessment team. However, of the two alternatives identified, alternative (i) cannot be considered realistic as further analysis in the following paragraph reveals that it is not economically feasible option. Hence, alternative (ii) alone could be justified as realistic, credible and plausible alternative to the PP. Validation team is therefore, convinced that the project developer has taken into consideration all realistic and credible alternatives (having regard to the governing methodologies) including the project being undertaken as a non-CDM activity and continuation of current scenario. The identification of alternatives is in conformity with the guidance given by the tool. Outcome of Sub-step 1a: All the realistic alternatives for the project activity have been enlisted above. Sub-step 1b: Consistency with mandatory laws and regulations: The alternative(s) shall be in compliance with all applicable legal and regulatory requirements, even if these laws and regulations have objectives other than GHG reductions, e.g. to mitigate local air pollution. (This sub-step does not consider

national and local policies that do not have legally-binding status.)

Both the alternatives are in compliance with all applicable legal and regulatory requirements as;

The implementation of project activity is a voluntary initiative and is not mandatory or a legal requirement;
The applicable environmental regulations do not restrict the use of wind energy; and
There is no legal requirement on the choice of a particular technology.

Moreover, Outcome of Sub-step 1b: Hence, both the alternatives enlisted above are found to comply with the mandatory laws and regulations taking into account the enforcement of the legislations in the region or country and EB decisions on national and/or sectoral policies and regulations. However, Alternative 2 has been selected as the appropriate baseline alternative for this project activity.

Step 2: Investment analysis

Determine whether the proposed project activity is economically or financially less attractive than at least one other alternative, identified in step 1, without the revenue from the sale of emission reductions credits. To conduct the investment analysis, use the following sub-steps:

Sub-step 2a: Determine appropriate analysis method and Sub-step 2b (Option III): Apply benchmark analysis

a) Suitability of investment analysis, financial indicator and benchmark:
Project developer had demonstrated that the financial returns of the proposed CDM project activity would be insufficient to justify the required capital investment as per CDM Validation and Verification Standard for project activities, version 02.0. In the PDD Version 05, PP has adopted a conservative approach to identify the benchmark for the project activity. The project is generating revenue in terms of power generated from the Wind power plant being used for sell to grid. Thus simple cost analysis (Option I) is not appropriate. Hence out of 2 options, investment comparison analysis (Option II) benchmark analysis (Option III), benchmark analysis is used for the project activity as per project type and decision-making context. Therefore, the Expected return on equity is considered appropriate benchmark. Accordingly, the post-tax Equity IRR has been considered as the relevant financial indicator for the project activity which is acceptable to the assessment team. Moreover, the financial indicator selected by the PP is correct based on the fact that tool do not restrict the PP to either use project IRR or Equity IRR. This is under the prerogative of the PP to select appropriate indicator based on his preferences to know the IRR based on his equity investment or debt investment. The same is thus acceptable to the assessment team. Assessment team however checked the Equity IRR calculation and found that input assumptions used for the calculation of Equity IRR are applicable at the time of investment decision of the project and thus is in accordance with the relevant guideline of the tool.

“In situations where an investment analysis is carried out in nominal terms and the available IRR benchmarks are in real terms, project participants shall convert the real term values of benchmarks to nominal values by adding the inflation rate. The inflation rate shall be obtained from the inflation forecast of the central bank of the host country for the duration of the crediting period. If this information is not available, the target inflation rate of the central bank shall be used. If this information is also not available, then the average forecasted inflation rate for the host country published by the IMF (International Monetary Fund World Economic Outlook) or the World Bank for the next five years after the start of the project activity shall be used”.

The investment analysis has been carried out in Nominal terms. Accordingly, default value has been adjusted by adding suitable forecasted inflation rate taken from RBI (Central Bank, India). Project Participant has calculated Benchmark based on WPI

	mean inflation rate. As per the Tool for the determination and assessment of additionality version 07, available to the PP at the time of Investment decision[5], the inflation forecast should be for the duration of the crediting period. However, since RBI provides forecast inflation only for 5 & 10 years, the project investor has calculated benchmark using 10 years durations and the same is considered as Benchmark for the project activity[6]. As per the Tool for the determination and assessment of additionality version 07 the cost of equity is determined by selecting the values provided in the Appendix, i.e. Default values for cost of equity (expected return on equity) is presented below: Appendix A specifies default value of expected return on equity in real terms for Energy Industries (Group 1) in India = 9.79% (PP referred Methodological Tool Investment analysis version 09.0 (EB 101, Annex 11) for default value as a conservative approach) The Required return on equity (benchmark) was computed in the following manner: Nominal Benchmark7 = {(1+Real Benchmark) x (1+Inflation rate)}-1 Where: - Default value for Real Benchmark = 9.79% (as per Appendix of EB 101, Annex 11) - Inflation Rate forecast by Reserve Bank of India (RBI) (i.e. Central Bank of India) for India & in case where RBI Inflation forecast was not available, average Inflation rate forecast for India has been sourced from IMF web site. **Benchmark estimation:** Tool for the determination and assessment of additionality, specifies default value of expected return on equity in real terms for Energy Industries (Group 1) in India = 9.79% Since RBI publishes the inflation forecast for 5 years and 10 years, PP has considered the maximum 10 year inflation considering the renewable crediting period to be 7 years. The detail is as below Inflation Forecast for India as per RBI website[8]:

[5] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-27-v9.0.pdf
It is to be noted here that at the time of investment making decision, Methodological Tool for Investment Analysis version 07 & 08 was applicable; however Request for Registration can be submitted only till 28/06/2018 for version 7 and for version 8 the registration request could be submitted till 26/07/2019 and version 09 RFR submission valid till 24/07/2020. Hence PP has used Methodological Tool for Investment Analysis version 10. Moreover, it is to be noted that assessment team compared the detail of version 7, 8, 9 and version 10 of the methodological tool and observed that there is no major difference in both the version except for the change of default value for benchmark calculation. The default value as mentioned in version 07 was 11.06%, version 08 was 10.73 % for group 1 project in India and Value as mentioned in version 09 is 9.79% for group 1 project in India and 10.24% for group 1 project in India and Value as mentioned in version 10. Version 09 default value, which is clearly more conservative than version 7, 8, 10 value. In addition, as described above since version 08 RFR submission is valid until 26/07/2019, version 09 RFR submission valid until 24/07/2020, PP followed version 10 for Investment analysis. However, version 09 default value is used which is appropriate and more conservative for benchmark calculation. It is to be noted that PP has followed the latest TOOL 27: Methodological tool for Investment Analysis, Version 10 for additionality. Though default value as per latest version 10 is 10.24% and as per version 07 (available at the time of decision made) 11.06%, PP considered default value (lower value) from version 09 i.e 9.79% as a conservative approach

[6] Since RBI provides inflation forecast only for 5 years and 10 years, hence inflation forecast for 10 years is being considered keeping in view length of crediting period to be 7 years.

[7] As per Fisher Equation, https://en.wikipedia.org/wiki/Fisher_equation

[8] https://rbi.org.in/Scripts/PublicationsView.aspx?id=16731

Project Investor	Inflation Forecast WPI Median value from RBI	Benchmark
Dev-Dwarka Windproject Limited.	3.60%	13.74%

Thus benchmark of 13.74% has been selected for this project activity

b) Parameters and assumptions used:
The project activity is a renewable source of grid connected electricity generation and uses the generated electricity for selling purpose. The key parameters which determine the Equity IRR of the project activity are project cost, PLF and profitability estimates.

Input values used in all investment analysis shall be valid and applicable at the time of the investment decision taken by the project participant which can be clearly validated by the DOE, thus it complies with version 10 of Investment analysis. Key assumptions used for calculating post-tax Equity IRR applicable at the time of investment decision, which is in line with are set out below: In the revised PDD Version 05, the project cost is based on the offer letter. The details of the offer letter are as below:

Project cost as per the Offer Letter

Name of the Investor	Project Capacity (MW)	Project Cost (In Million)	Offer letter Date
Dev-Dwarka Windproject Limited	40 MW	2,285.38	01/03/2016

Project cost as per GERC Tariff Order

Name of the Investor	Project Capacity (MW)	Project Cost (In Million)	Tariff Order date
Dev-Dwarka Windproject Limited	40 MW	2,424	08/08/2012

Offer letter has been submitted to validation team. The offer letter was available during decision making and financial profitability of the project was decided based on this offer letter. Validation team checked the offer letter of the project activity and found that consideration of the project cost in revised PDD Version 05 is correct and it is in line with Investment guideline as well as in compliance to CDM Validation and Verification Standard for project activities, version 02. Hence, the project cost consideration is justified. Assessment team checked the actual project cost and still the project do not breach the benchmark. The sensitivity analysis below confirms the same. Since the actual cost is considered there is no way the cost can go up and thus the same is assessed to be correct.

In India, infrastructure projects are generally entitled to a debt equity ratio of 70:30. However, depending on the relationship of the client with the bank, its credit rating and collaterals offered, banks consider higher debt equity ratio also. The debt equity ratio for the project is 70:30. Assessment team checked the order for the respective state regarding ratio of debt and equity which was available at the time of investment decision and found that the ratio of Debt to equity was considered correctly for the present validation condition.

The profitability of the project, which forms the basis for IRR calculation is based on installed capacity, PLF, electricity tariff, O&M cost, depreciation and taxation.

c) Assessment of Plant Load Factor (PLF):
PP considered the Plant load factor from a third party engineering company/offer letter, for expected electricity generation estimation. They are contracted by the PPs for this project. PP has submitted the copies of the PLFs estimation report to the assessment team.

PLF as per 3rd party PLF report/offer letter

Name of the Investor	PLF (%)= 3rd party engineering company	PLF (%)= As per tariff order	Tariff order Date
Dev-Dwarka Windproject Limited	23.5%	24.00%	08/08/2012

PLF estimation in offer letter is in line with Para 3 (b) Annex 11, EB 48 and acceptable to the assessment team. Further, as per the tariff order, PLF is 24.00% and same is used in IRR calculation being available to the PP at the time of investment making decision. Hence the value is considered correct and acceptable to the Validation team. Same PLF of 24% is used for ER estimation as consistent approach.

D) Assessment of Electricity Tariff:

Tariff rate as per Power Purchase Agreement

Site Name	Name of the Investor	Tariff Rate (as per state tariff order)	Tariff Rate (as per PPA)
Gujarat	Dev-Dwarka Windproject Limited	4.23	4.15

Validation team assessed the tariff and found that same value was available during decision making and in conformity with guidance tool for Investment analysis. Furthermore, assessment team has also checked the actual tariff as per the PPA for further substantiation as these values are available during the validation stage. IRR is still below benchmark with the consideration of PPA signed which is valid for total operational lifetime of the project.

e) Assessment of O& M cost:

O&M as per Offer letter

Name of the Investor	Project Capacity (MW)	O&M (In Million) (Without tax)	Offer letter Date
Dev-Dwarka Windproject Limited	40 MW	44.00	01/03/2016

The O&M as per GERC Tariff Order and the values are mentioned in the below table.

Name of the Investor	Project Capacity (MW)	O&M (In Million) (Without tax)	Date
Dev-Dwarka Windproject Limited	40 MW	32.00	08/08/2012

The offer letter has been used in the financial calculation as same was available during decision making and hence applicable. According to Investment guideline, the cost should be based on the input parameters available at the time of decision making and the PP has submitted offer letter supporting this consideration. Therefore, considering the above assessment, validation team concluded that the O&M cost considered from respective offer letter in the computation of financial indicator is in conformity with guidance.

F) Assessment of Tax computation:
The project developer has adopted book depreciation rates as per Schedule XIV of the Companies Act, 1956 for computing book profit and Income Tax Act 1961 stipulated for income tax calculation, which are in conformity with the accepted accounting principles adopted by the company and income tax laws in the host country. The block of assets has been computed for depreciation purpose as per the accepted accounting principles. Tax liability has been calculated as per the income tax rules and the rulings given. In computing the income tax liability, the project developers have considered Tax holiday (u/s 80IA of the Income Tax Act, 1961). Accelerated depreciation on plant and machinery is also sourced from IT act. The tax rates assumed corresponds to the tax rate prevailing at the time of taking decision

(conformity to Investment guidelines). Hence, these assumptions are appropriate during decision making context.

g) Cross checking parameters:

Name of the parameter	DOE assessment
Project Cost	The details of the proposed project activity are given below.

Name of the Investor	Project Capacity (MW)	Project Cost (In Million)	Project cost in Million per MW
Dev-Dwarka Windproject Limited	40 MW	2,285.38	57.13

The project cost has been considered from offer letter which was available at the time decision made for the project activity.
The DOE has also checked the project cost from the State Tariff Order (GERC) and found that, the increase in project cost is within the range of sensitivity analysis. Since the comparison is done with GERC Tariff Order hence, further increase of the same in future is not possible.

Name of the Investor	Project Capacity (MW)	Project Cost (In Million)- As per Tariff order	Project Cost (In Million) per MW- As per Tariff order
Dev-Dwarka Windproject Limited	40 MW	2,424	60.6

The difference in project cost for different project site is due to time difference, manufacturer, different EPC contractor, negotiation skills of individual PP etc.
The assessment team checked the respective state tariff orders and found that project cost considered for project is found to be appropriate.

Based on sectoral scope expert and local knowledge, the project cost considered as per offer letter for the proposed project activity is found to be appropriate for Wind projects. Also since the actual cost is available to DOE and IRR is still within benchmark and thus the same is acceptable.
The IRR as per the assumption from the Offer letter is as follows:

Name of the Investor	Project Capacity (MW)	Project Cost (In Million)	IRR	Benchmark
Dev-Dwarka Windproject Limited	40 MW	2,285.38	7.14%	13.74%

The IRR as per the SERC project cost is defined as below:

Name of the Investor	Project Capacity (MW)	Project cost as per SERC	IRR	Bench mark
Dev-Dwarka Windproject Limited	40 MW	2,424	6.10%	13.74%

As described above SERC project cost with benchmark, the project is still additional. Since the comparison is done with SERC project cost, the decrease of the same in future is not possible. Thus assessment team is of the opinion that project is still additional with the consideration of I

project cost for the project activity. Thus, the project activity is additional with SERC project cost.

O&M cost and Escalation in the operational expense =5.72(%)

The details of the proposed project activity are given below.

Name of the Investor	Project Capacity (MW)	O&M (In Million)
Dev-Dwarka Windproject Limited	40 MW	50.34

The O&M cost has been considered from offer letter and was available at the time decision made for the project activity.

The DOE has also checked the O&M cost as per GERC Tariff order[9] and found the changes in O&M cost is within threshold limit. Thus the project activity is additional with tariff order O&M cost.

Name of the Investor	Project Capacity (MW)	O&M (In Million) (Without tax)- As per SERC Tariff order
Dev-Dwarka Windproject Limited	40 MW	32.00

The assessment team also checked the respective state tariff orders and found that O&M cost and its escalation considered for project is found to be appropriate.
IRR value as per the assumptions from the Offer letter is as below:

Name of the Investor	Project Capacity (MW)	O&M (In Million)	IRR	Benchmark
Dev-Dwarka Windproject Limited	40 MW	50.34	7.14%	13.74%

IRR value based on the GERC Tariff is as below:

Name of the Investor	Project Capacity (MW)	O&M (In Million) (Without tax)-	IRR	Benchmark
Dev-Dwarka Windproject Limited	40 MW	32.00	8.10%	13.74%

Even after consideration of O&M cost as per SERC tariff order, the project activity is additional.
Benchmark for the project as described above along with SERC tariff order O&M value, the project is still additional.
Based on sectoral scope expert and local knowledge, the project O&M cost and its escalation considered as per Offer Letter for the proposed project activity is found to be appropriate for wind projects. Also since the O&M cost is available to DOE and IRR is still within benchmark and thus the same is acceptable.

[9] https://www.gercin.org/wp-content/uploads/document/en_1344430244.pdf

Tariff

The Tariff rate has been considered from state tariff order and the same was available at the time decision made for the project activity
The DOE has also checked the annual reports of PP and found there are no changes in actual PPA tariff rate and is within threshold limit. Thus the project activity is additional with actual Tariff rate.

Name of the Investor	Project Capacity (MW)	Tariff Rate as per PPA	Tariff Rate as per state tariff order
Dev-Dwarka Windproject Limited	40 MW	4.15	4.23

IRR value as per the SERC Tariff Order is as below:

Name of the Investor	Project Capacity (MW)	Tariff Rate (as per SERC)	IRR	Benchmark
Dev-Dwarka Windproject Limited	40 MW	4.23	7.14%	13.74%

IRR value as per the PPA signed between Individual project owners and State electricity Board is as below:

Name of the Investor	Project Capacity (MW)	Tariff Rate (as per PPA)	IRR	Benchmark
Dev-Dwarka Windproject Limited	40 MW	4.15	6.69%	13.74%

Even after consideration of Tariff Rate as per PPA, the project activity is additional.

PLF

The details of the proposed project activity are given below.

Name of the Investor	Project Capacity (MW)	PLF (%)
Dev-Dwarka Windproject Limited	40 MW	24.00%

Validation team also assessed the PLF report. PLF estimation by 3rd party engineering company is in line with Para 3 (b) Annex 11, EB 48 and acceptable to the assessment team.
The PLF has been taken from the PLF report, and the same has been checked and found that PLF considered for the project activity in within the range of sensitivity analysis and found to be appropriate.
IRR for PLF value as per the DPR = 3rd party report, Annex 11 EB 48

Name of the Investor	Project Capacity (MW)	PLF (%)	IRR	Benchmark
Dev-Dwarka Windproject Limited	40 MW	23.5%	6.65%	13.74%

IRR as per the PLF value of the Tariff orders= SERC (=**State electricity regulatory commission**) order[10]. The details link are given above:

Name of the Investor	Project Capacity (MW)	PLF (%)- As per the tariff order of State electricity regulatory commission	IRR	Bench mark
Dev-Dwarka Windproject Limited	40 MW	24.00%	7.14 %	13.74 %

Assessment team confirms that since with the value as mentioned in the

[10] https://www.gercin.org/wp-content/uploads/document/en_1344430244.pdf

	tariff order for State Electricity regulatory commission report are considered and still the IRR is still below the benchmark, hence the project is additional.
Tax Rates	

Income tax rate (%)	38.13%
MAT (Minimum Alternate tax) (%)	22.05%
Service Tax (%)	14.42%

The above table shows the tax rate considered for individual project Owner and the same is found suitable.
Assessment team noted that the project developer has adopted book depreciation rates as per Schedule XIV of the Companies Act, 1956 for computing book profit and Income Tax Act 1961 stipulated for income tax calculation, which are in conformity with the accepted accounting principles adopted by the company and income tax laws in the host country i.e. INDIA. Tax liability has been calculated as per the income tax rules and the rulings given. In computing the income tax liability, the project developers have considered Tax holiday (u/s 80IA of the Income Tax Act, 1961). Accelerated depreciation on plant and machinery is also sourced from IT act. The tax rates assumed corresponds to the tax rate prevailing at the time of taking decision. Hence, these assumptions are appropriate during decision making context and thus acceptable to the assessment team.
No further assessment is required as the Values are directly procured from Income Tax Act, 1961 which is standard guideline for Tax value in India.
Further, As GBI benefits are not availed by the PP, same have been not considered during IRR calculations.

Sensitivity analysis:
The Guidance on Investment analysis requires the robustness of the conclusion arrived at to be proved through a sensitivity analysis by varying the critical assumptions to a reasonable variation. The project developer has identified Plant Load Factor (PLF), Project cost, Electricity tariff and O&M cost as critical assumptions. These critical parameters constitute more than 20% of either total project costs or total project revenues. The sensitivity analysis reveals that even under more favourable conditions, the IRR without CDM revenue would not cross the benchmark return as given in the following table:
Sensitivity Analysis:

Equity IRR without CDM	Benchmark (Equity IRR)
7.14%	**13.74%**

Variation %	-10%	Normal	10%	Breaching Value
PLF	4.78%	7.14%	9.62%	25.55%
O&M	7.66%	7.14%	6.60%	-142.39%
Project Cost	9.33%	7.14%	5.49%	-23.74%
Tariff Rate	4.78%	7.14%	9.62%	25.55%

The results of sensitivity analysis show that even with a variation of +10% & -10% in project cost, O&M cost, PLF and Tariff Rate, Equity IRR is significantly lower than the benchmark. And it is evident from the results given above; the project remains additional even under the most favourable conditions.

Assessment team also confirmed the breaching values for individual parameters and thus confirms that the project is still additional

Name of the Investor	Project Capacity (MW)	Offer letter Project Cost	Project Cost as per SERC order	Variation in Project Cost	Breaching Value for Project cost
Dev-Dwarka Windproject Limited	40 MW	2,285.38	2,424	-6%	-23.74%

Name of the Investor	Project Capacity (MW)	O&M Cost from Offer letter with tax	O&M Cost as per SERC Order with tax	Variation in OM cost	Breaching value for OM Cost
Dev-Dwarka Windproject Limited	40 MW	50.34	36.61	-27%	-142.39%

Name of the Investor	Project Capacity (MW)	Tariff Rate as per tariff order	Actual Tariff from PPA	Variation in Tariff Rate	Breaching value for Tariff Rate
Dev-Dwarka Windproject Limited	40 MW	4.23	4.15	-1.89%	25.55 %

Name of the Investor	Project Capacity (MW)	PLF as per PLF Report	PLF as per tariff order	Variation in PLF	Breaching value for PLF
Dev-Dwarka Windproject Limited	40 MW	23.5%	24%	4.16%	25.55 %

Assessment team also assessed the additionality on the actual capacity i.e. 30 MW:

Parameters and assumptions used:
The project activity is a renewable source of grid connected electricity generation and uses the generated electricity for selling purpose. The key parameters which determine the Equity IRR of the project activity are project cost, PLF, Tariff Rate, O&M cost and profitability estimates.

Due to downsize of project activity from 40 MW to 30 MW, the project cost is calculated proportionately based on per MW cost as per offer letter. Input values used in all investment analysis were valid and applicable at the time of the investment decision taken by the project participant which can be clearly validated by the DOE, thus it complies with version 10 of Investment Analysis. Key assumptions used for calculating post-tax Equity IRR applicable at the time of investment decision, which is in line with are set out below: In the revised PDD Version 05, the project cost is based on the offer letter. The details of the offer letter are as below:

Project cost as per the Offer Letter

Name of the Investor	Project Capacity (MW)	Project Cost (In Million)	Offer letter Date
Dev-Dwarka Windproject Limited	30 MW	1714.03	01/03/2016

Actual Project cost as per CA Certificate

Name of the Investor	Project Capacity (MW)	Project Cost (In Million)	CA Certificate date
Dev-Dwarka Windproject Limited	30 MW	2,459.2	20/07/2017

Offer letter has been submitted to validation team. The offer letter was available during decision making and financial profitability of the project was decided based on this offer letter. Validation team checked the offer letter of the project activity and found that consideration of the project cost in revised PDD Version 05 is correct and it is in line with Investment guideline as well as in compliance to CDM Validation and Verification Standard for project activities, version 02. Hence, the project cost consideration is justified. Assessment team checked the actual project cost and still the project do not breach the benchmark. The sensitivity analysis below confirms the same. Since the actual cost is considered there is no way the cost can go down and thus the same is assessed to be correct.

In India, infrastructure projects are generally entitled to a debt equity ratio of 70:30. However, depending on the relationship of the client with the bank, its credit rating and collaterals offered, banks consider higher debt equity ratio also. The debt equity ratio for the project is 70:30. Assessment team checked the order for the respective state regarding ratio of debt and equity which was available at the time of investment decision and found that the ratio of Debt to equity was considered correctly for the present validation condition.

The profitability of the project, which forms the basis for IRR calculation is based on installed capacity, PLF, electricity tariff, O&M cost, depreciation and taxation.

Assessment of Plant Load Factor (PLF):
PP considered the Plant load factor from a third party engineering company/offer letter, for expected electricity generation estimation. They are contracted by the PPs for this project. PP has submitted the copies of the PLFs estimation report to the assessment team.

PLF as per 3rd party PLF report/tariff order

Name of the Investor	PLF (%)= 3rd party engineering company	PLF (%)= As per tariff order	Tariff order Date
Dev-Dwarka Windproject Limited	23.5%	24.00%	08/08/2012

PLF estimation in offer letter is in line with Para 3 (b) Annex 11, EB 48 and acceptable to the assessment team. Further, as per the tariff order, PLF is 24.00% and same is used in IRR calculation. Hence the value is considered correct and acceptable to the Validation team.

Assessment of Electricity Tariff:

Tariff rate as per Power Purchase Agreement

Site Name	Name of the Investor	Tariff Rate (as per state tariff order)	Tariff Rate (as per PPA)
Gujarat	Dev-Dwarka Windproject Limited	4.23	4.15

Validation team assessed the tariff and found that state tariff value was available during decision making and in conformity with guidance tool for Investment analysis. Furthermore, assessment team has also checked the actual tariff as per the PPA for further substantiation as these values are available during the validation stage. IRR is still below benchmark with the consideration of PPA signed which is valid for total

operational lifetime of the project.

e) Assessment of O& M cost:

O&M as per Offer letter

Name of the Investor	Project Capacity (MW)	O&M (In Million) (Without tax)	Offer letter Date
Dev-Dwarka Windproject Limited	30 MW	33.00	01/03/2016

The O&M as per O&M Agreement has also been checked and the values are mentioned in the below table.

Name of the Investor	Project Capacity (MW)	O&M (In Million) (Without tax)
Dev-Dwarka Windproject Limited	30 MW	9.00

The offer letter has been used in the financial calculation as same was available during decision making and hence applicable. According to Investment guideline, the cost should be based on the input parameters available at the time of decision making and the PP has submitted offer letter supporting this consideration. Therefore, considering the above assessment, validation team concluded that the O&M cost considered from respective offer letter in the computation of financial indicator is in conformity with guidance.

F) Assessment of Tax computation:
The project developer has adopted book depreciation rates as per Schedule XIV of the Companies Act, 1956 for computing book profit and Income Tax Act 1961 stipulated for income tax calculation, which are in conformity with the accepted accounting principles adopted by the company and income tax laws in the host country. The block of assets has been computed for depreciation purpose as per the accepted accounting principles. Tax liability has been calculated as per the income tax rules and the rulings given. In computing the income tax liability, the project developers have considered Tax holiday (u/s 80IA of the Income Tax Act, 1961). Accelerated depreciation on plant and machinery is also sourced from IT act. The tax rates assumed corresponds to the tax rate prevailing at the time of taking decision (conformity to Investment guidelines). Hence, these assumptions are appropriate during decision making context.

<table>
<tr><th>Name of the parameter</th><th>DOE assessment</th></tr>
<tr><td>Project Cost</td><td>The details of the proposed project activity are given below.
<table>
<tr><th>Name of the Investor</th><th>Project Capacity</th><th>Project Cost (In Million)</th><th>Project cost in Million per MW</th></tr>
<tr><td>Dev-Dwarka Windproject Limited</td><td>30 MW</td><td>1,714.03</td><td>57.13</td></tr>
</table>
The project cost has been considered from offer letter which was available at the time decision made for the project activity.
The DOE has also checked the actual cost of the each project site from the CA Certificate and found that, there is increase in project cost. Since the comparison is done with actual project cost hence, decrease of the same in future is not possible. Thus, the project activity is additional with actual project cost.
<table>
<tr><th>Name of the Investor</th><th>Project Capacity</th><th>Project Cost (In Million)- Actual</th><th>Project Cost (In Million) per MW- Actual</th></tr>
</table>
</td></tr>
</table>

		from CA Certificate	
Dev-Dwarka Windproject Limited	30 MW	2,459.2	81.97

The difference in actual project cost is due to time difference, manufacturer, site conditions, and negotiation skills of individual PP etc.
The assessment team also checked the respective state tariff orders and found that project cost considered for project is found to be appropriate.

Based on sectoral scope expert and local knowledge, the project cost considered as per offer letter for the proposed project activity is found to be appropriate for Wind projects. Also since the actual cost is available to DOE and IRR is still within benchmark and thus the same is acceptable.
The IRR as per the assumption from the Offer letter is as follows:

Name of the Investor	Project Capacity	Project Cost (In Million)	IRR	Benchmark
Dev-Dwarka Windproject Limited	30 MW	1,714.03	7.40%	13.74%

The IRR as per actual project cost is defined as below:

Name of the Investor	Project Capacity	Project cost as per CA Certificate	IRR	Benchmark
Dev-Dwarka Windproject Limited	30 MW	2,459.2	1.58%	13.74%

As described above even with actual project cost, the project is still additional. Since the comparison is done with actual project cost, the decrease of the same in future is not possible. Thus assessment team is of the opinion that project is still additional with the consideration of actual project cost for the project activity.

O&M cost and Escalation in the operational expense =5.72%)

The details of the proposed project activity are given below.

Name of the Investor	Project Capacity	O&M (In Million)
Dev-Dwarka Windproject Limited	30 MW	37.76

The O&M cost has been considered from offer letter and was available at the time decision made for the project activity.
The DOE has also checked the actual O&M cost as per O&M agreement and found the changes in O&M cost is within threshold limit. Thus the project activity is additional with actual O&M cost.

Name of the Investor	Project Capacity	O&M (In Million) (Without tax)- Actual
Dev-Dwarka Windproject Limited	30 MW	9.00

The assessment team also checked the respective state tariff orders and found that O&M cost and its escalation considered for project is found to be appropriate.

IRR value as per the assumptions from the Offer letter is as below:

Name of the Investor	Project Capacity	O&M (In Million)	IRR	Benchmark
Dev-Dwarka Windproject Limited	30 MW	37.76	7.40%	13.74%

IRR value based on the actual O&M cost is as below:

Name of the Investor	Project Capacity	O&M (In Million) (Without tax)-	IRR	Benchmark
Dev-Dwarka Windproject Limited	30 MW	9.00	10.91 %	13.74 %

Even after consideration of Actual O&M cost, the project activity is additional.
Benchmark for the project as described above along with actual O&M value, the project is still additional.
Based on sectoral scope expert and local knowledge, the project O&M cost and its escalation considered as per Offer Letter for the proposed project activity is found to be appropriate for wind projects. Also since the actual O&M cost is available to DOE and IRR is still within benchmark and thus the same is acceptable.

Tariff

The Tariff rate has been considered from state tariff order and the same was available at the time decision made for the project activity
The DOE has also checked the annual reports of PP and found there are no changes in PPA tariff rate and is within threshold limit. Thus the project activity is additional with actual Tariff rate.

Name of the Investor	Project Capacity	Tariff Rate as per PPA	Tariff Rate as per state tariff order
Dev-Dwarka Windproject Limited	30 MW	4.15	4.23

IRR value as per the PPA signed between Individual project owners and State electricity Board is as below:

Name of the Investor/Owner/ SPVs	Project Capacity	Tariff Rate (as per PPA)	IRR	Benchmark
Dev-Dwarka Windproject Limited	30 MW	4.15	6.93 %	13.74 %

PLF

The details of the proposed project activity are given below.

Name of the Investor	Project Capacity	PLF (%)
Dev-Dwarka Windproject Limited	30 MW	24.00%

Validation team assessed the state tariff order. The same 24% has been used in the financials and the emission reduction calculation. PLF estimation by 3rd party engineering company is in line with Para 3 (b) Annex 11, EB 48 and acceptable to the assessment team.
The PLF 23.5% has been taken from the PLF report, and the same has been checked and found that PLF considered for the project activity in within the range of sensitivity analysis and found to be appropriate.
IRR for PLF value as per the DPR = 3rd party report, Annex 11 EB 48

Name of the Investor	Project Capacity	PLF	IRR	Benchmark
Dev-Dwarka Windproject Limited	30 MW	23.5 %	6.89%	13.74%

IRR as per the PLF value of the Tariff orders= SERC (=**State electricity regulatory commission**) order. The details link are given above:

Name of the Investor	Project Capacity	PLF (%)- As per the tariff order of State electricity regulatory commission	IRR	Benchmark
Dev-Dwarka Windproject Limited	30 MW	24%	7.40 %	13.74 %

Assessment team confirms that since with the value as mentioned in the tariff order for State Electricity regulatory commission report are considered and still the IRR is still below the benchmark, hence the project is additional.

Tax Rates

Income tax rate (%)	38.13%
MAT (Minimum Alternate tax) (%)	22.05%
Service Tax (%)	14.42%

The above table shows the tax rate considered for individual project Owner and the same is found suitable.
Assessment team noted that the project developer has adopted book depreciation rates as per Schedule XIV of the Companies Act, 1956 for computing book profit and Income Tax Act 1961 stipulated for income tax calculation, which are in conformity with the accepted accounting principles adopted by the company and income tax laws in the host country i.e. INDIA. Tax liability has been calculated as per the income tax rules and the rulings given. In computing the income tax liability, the project developers have considered Tax holiday (u/s 80IA of the Income Tax Act, 1961). Accelerated depreciation on plant and machinery is also sourced from IT act. The tax rates assumed corresponds to the tax rate prevailing at the time of taking decision. Hence, these assumptions are appropriate during decision making context and thus acceptable to the assessment team.
No further assessment is required as the Values are directly procured from Income Tax Act, 1961 which is standard guideline for Tax value in India.
Further, As GBI benefits are not availed by the PP, same have been not considered during IRR calculations.

Sensitivity analysis:

The Guidance on Investment analysis requires the robustness of the conclusion arrived at to be proved through a sensitivity analysis by varying the critical assumptions to a reasonable variation. The project developer has identified Plant Load Factor (PLF), Project cost, Electricity tariff and O&M cost as critical assumptions. These critical parameters constitute more than 20% of either total project costs or total project revenues. The sensitivity analysis reveals that even under more favourable conditions, the IRR without CDM revenue would not cross the benchmark return as given in the following table:
Sensitivity Analysis:

Equity IRR without CDM	Benchmark (Equity IRR)
7.40%	13.74%

Variation %	-10%	Normal	10%	Breaching Value
PLF	4.89%	7.40%	9.89%	24.84%
O&M	7.92%	7.40%	6.87%	-138.75%
Project Cost	9.62%	7.40%	5.62%	-23.24%
Tariff Rate	4.89%	7.40%	9.89%	24.84%

The results of sensitivity analysis show that even with a variation of +10% & -10% in project cost, O&M cost, PLF and Tariff Rate, Equity IRR is significantly lower than the benchmark. And it is evident from the results given above; the project remains additional even under the most favourable conditions.

Assessment team also confirmed the breaching values for individual parameters (=Individual project owners) and thus confirms that the project is still additional

Name of the Investor/Owner/SPVs	Project Capacity	Offer letter Project Cost	Actual Project Cost	Variation in Project Cost
Dev-Dwarka Windproject Limited	30 MW	1,714.03	2,459.2	40%

Name of the Investor/Owner/SPVs	Project Capacity	O&M Cost from Offer letter	Actual O&M Cost	Variation in OM cost
Dev-Dwarka Windproject Limited	30 MW	33	9.00	-28%

Name of the Investor	Project Capacity	Tariff Rate as per tariff order	Actual Tariff from PPA	Variation in Tariff Rate
Dev-Dwarka Windproject Limited	30 MW	4.23	4.15	-1.89%

Name of the Investor	Project Capacity	PLF as per PLF Report	PLF as per tariff order	Variation in PLF
Dev-Dwarka Windproject Limited	30 MW	23.5%	24.00%	5%

Considering the above comparison with respect to initial vs actual project capacity and the impact of changes in other input parameters the project activity is still additional as the equity IRR even with actual capacity of the project, the project activity remains additional.

The validation team has further assessed the impact on equity IRR considering the actual project cost (2,459.2 Million), actual O&M cost (9 Million) and actual Tariff Rate (Rs 4.15/KWh) and found that even with an increase of more than 50% in estimated PLF of the project, the equity IRR of the project activity is still below the benchmark and thus deemed acceptable. It has been observed that with a PLF of 39%, the equity IRR of the project breaches the benchmark which is a very unlikely scenario and thus acceptable to the validation team.

Common Practice analysis for 40 MW:
The common practice analysis is proved by following points as per the requirement of Methodological tool "Common Practice", version 03.1 EB84, Annex 711:

Applicable Geographical Area (Para 9): The Gujarat state has been considered as the applicable geographical area for this project. PP had considered the state Gujarat as geo-graphical area due to regulatory regime since applicable power tariff structure for renewable energy projects is unique for all the states across national boundary of India; which is based on Electricity Act 2003 (EA 2003), section 82 which clearly mentions "Every State Government shall, within six months from the appointed date, by notification, constitute for the purposes of this Act, a Commission for the State to be known as the (name of the State) Electricity Regulatory Commission" Appropriateness of the same has been checked and confirmed from EA 2003 (http://www.cercind.gov.in/08022007/Act-with-amendment.pdf/40/).

Furthermore, following significant points on the State specific policy & regulatory framework on the renewable energy projects with special emphasis to wind power projects have been validated:

Electricity Act 2003 (EA 2003) has changed the legal and regulatory framework for the renewable energy sector in India. The EA 2003 mandates policy formulation to promote renewable sources of energy by the federal government, the State governments and the State Electricity Regulatory Commissions (=SERCs) within their jurisdictions.

The Electricity Act 2003 introduced some enabling provisions conducive to accelerated development of grid connected renewable energy sources. Under Section 61(h), promotion of cogeneration and generation of electricity from renewable sources of energy has been made the explicit responsibility of SERCs, which are bound by law to take these considerations into account while drafting their terms and conditions for tariff regulations. Nearly all SERCs have issued their tariff regulations incorporating suitable clauses, which will enable them to provide a preferential treatment to renewable energy (RE) during the tariff determination process. The SERCs determine the tariff for all renewable energy projects across the States, and the state-owned power Distribution Companies (DISCOMs) ensure grid connectivity to the renewable energy project sites.

EA 2003 has initiated the adoption of the National Tariff Policy, 2006 as one of the key policies, National Tariff Policy (2006) framed under the Section 3 of the EA 2003. As per the excerpt from National Tariff Policy, 2006; pursuant to provisions of section 86(1)(e) of the EA 2003, the Appropriate Commission shall fix a minimum percentage for purchase of energy from such sources taking into account availability of such resources in the region and its impact on retail tariffs. Such percentage for purchase of energy should be made applicable for the tariffs to be determined by the SERCs latest by 01/04/2006.

As mandated under section 86(1)(e) of the Electricity Act (2003), by 26/06/2012 SERCs had fixed quotas (in terms of % of electricity being handled by the power utility) to procure power from renewable energy sources. The mandate, which is called a Renewable Purchase Specification (RPS), varies from 0.5% to 14% in various states over varying time-scales. Few states have come out with technology specific RPSs. Besides, the state regulators determine the tariff for all RE projects in the states and ensure connectivity to the grid through extension of power evacuation from the RE project sites

At present thirteen SERCs have declared preferential feed–in tariffs (FITs) for purchase of electricity generated from wind power projects established in respective states, which varies from state to state in India. All the SERCs have adopted a 'cost plus' methodology to fix the feed–in tariff, which varies across the states depending upon the state resources, project cost and more importantly the tariff regulations of SERCs. Wind power related tariff polices in different states also has difference in

[11] https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-24-v1.pdf

regulatory and policy incentives. Several states have implemented fiscal and financial incentives for renewable energy generation, including; energy buy back (i.e. a guarantee from an electricity company that they will buy the renewable power produced); preferential grid connection and transportation charges and electricity tax exemptions

Therefore the investment climate for the renewable energy projects varies from State to State within India due to state specific local policy & regulatory framework as outlined by the State Electricity Regulatory Commissions of the respective state. This difference in investment condition leads to essential distinction among wind energy projects between different States of the host country India.

Thus, the specific geographical area i.e. state of Gujarat for the common practice analysis of the proposed project activity is considered and thus the same is acceptable to the assessment team.

Measure (Para 10): The project activity reduces greenhouse gas emissions by generating electricity using renewable energy source- wind. Therefore, the project activity falls under the following measure:

(b) Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies.

Output (Para 11): The project activity produces electricity. Therefore, electricity is considered as output of the project activity.

Different Technologies (Para 12): The project activity uses wind energy for producing electricity and hence as per Para 12(a), the technologies which use energy source/ fuel other than wind will be considered as the different technologies for the project activity.

For the concerned project activity, Common Practice Analysis has been carried out for 40 MW capacity wind Power Project at Gujarat which is developed by Dev-Dwarka Windproject

Stepwise approach for common practice analysis has been carried out as per Methodological tool “Common Practice”, version 03.1 EB84, Annex 7:

Step (1): Calculate applicable capacity or output range as +/-50% of the total design capacity or output of the proposed project activity.

Range	Capacity	Unit
+50%	60	MW
Capacity of the proposed project activity	40	MW
-50%	20	MW

Step (2): Identify similar projects (both CDM and non-CDM) which fulfil all of the following conditions:

(a) The projects are located in the applicable geographical area;
(b) The projects apply the same measure as the proposed project activity;
(c) The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the proposed project activity;
(d) The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g. clinker) as the proposed project plant;
(e) The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1;
(f) The projects started commercial operation before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of proposed project activity, whichever is earlier for the proposed project activity.

	Identification of the similar projects (CDM and non-CDM) is carried out as per sub-steps of Step (2) as follows: Assessment team noted that as the projects are located in Gujarat state of India, therefore, projects in the geographical area of Gujarat have been chosen for analysis. Each state have different policies regarding renewable energy, hence Gujarat state is considered as geographical region for common practise analysis. The distinction from choosing the state to entire geographical boundary is already explained above in the report and thus the applied geographical area is acceptable to the assessment team. Assessment team noted that the project activity is a green-field wind power project and uses measure (b) "Switch of technology with or without change of energy source including energy efficiency improvement as well as use of renewable energies". Therefore, projects applying same measure (b) are candidates for similar projects. Assessment team confirms during the site visit that the energy source used by the project activity is wind. Hence, only wind energy projects have been considered for analysis. Assessment team confirms during the site visit that the project activity produces electricity; therefore, all power plants that produce electricity are candidates for similar projects. Since the project activity is 40 MW, the output range of +/- 50% has been considered as 60 MW (Higher range for comparison) to 20 MW (Lower range for Comparison) which is assessed to be correct. The start date of the project activity is 22/03/2016. Therefore projects, which have started commercial operation before 22/03/2016, have been considered for analysis. Numbers of Similar projects identified, which fulfil above-mentioned conditioned are N_{wind}= 20 Assessment team checked the sources which are considered to determine the similar projects and found correct. Step (3): Within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number Nall. CDM project activities, which have got registered or are under validation have been excluded in this step. The list of the power plants identified is provided to the DOE. After excluding the registered and under validation projects the total number of projects. N_{all} = 2 Step (4): Within similar projects identified in Step 3, identify those that apply technologies that are different to the technology applied in the proposed project activity. Note their number N_{diff}. As per the tool on Common Practice, the project activities have been separated from the different technologies on the basis two criteria: Size of Installation – Assessment team confirms that as the proposed project activity is a large scale project and applies large scale methodology i.e. AMC0002 therefore small scale projects i.e. with capacity below or equal to 15 MW are considered as different projects. Investment climate on the date of the investment decision – The wind projects developed under different phases and different batches of National Wind Mission (NSM) can considered as different technology projects, since National Wind Mission

have different target and the investment scenario is different. For proposed project activity, there are no any different technology projects considered out of similar identified projects.

Hence, projects where either of the conditions is satisfied those projects are counted for calculating Ndiff projects.

Thus, $N_{diff} = 0$

Step (5): Calculate factor F=1-Ndiff/Nall representing the share of similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the proposed project activity.

Calculate F = 1-Ndiff/Nall
F = 1-(0/2) = 1

As per methodological tool "common practise" version 03.1, the proposed project activity is a "common practice" within a sector in the applicable geographical area if the factor F is greater than 0.2 and Nall - Ndiff is greater than 3.

Thus if both conditions are fulfilled, then project activity will be a common practise otherwise, the project activity is treated as not a common practise.

Outcome of Common Practise analysis:
As,
i. F = 1; is greater than 0.2
ii. Nall - Ndiff = 1; is not greater than 3

The project activity does not satisfy second condition. Hence, project activity is not a common practice. The above discussions show that wind power development is not a common practice and the project activity is not financially attractive; hence the project activity is additional and the assessment team considers the approach and calculations acceptable as per the requirements in the methodological tool.

Common Practice Analysis for 30 MW:
Further, as the capacity of the project activity is downsized, PP have also demonstrated common practice on 30 MW as:

N_{all}	3
N_{diff}	0
N_{all} -N_{diff}	3
F	**1**

As per the Guidelines, the proposed project activity is a "common practice" within a sector in the applicable geographical area if the factor F is greater than 0.2 and N_{all}-N_{diff} is greater than 3. The value of factor F as calculated in Step 4 is 1 which is greater than 0.2 and difference of N_{all}-N_{diff} is 3 which is not greater than 3. Hence the project activity is not a common practice.

D.4.7. Estimation of emission reductions or net anthropogenic removals

Means of validation	The emission reduction sheet, CEA database and PDD version 5 is checked by the assessment team
Findings	CAR 06 was raised during the validation process. The revision in the PDD leads to the closure of CARs. Please refer appendix 4 of this report.
Conclusion	The baseline emissions as discussed in section B.6.1 will include emissions that would have occurred in the absence of the project activity. The emission reduction calculation has been done as per the LSC methodology ACM0002 version 20.0.

Baseline Emission:
As per the approved consolidated Methodology ACM0002 Version 20.0:

Baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The methodology assumes that all project electricity generation above baseline levels would have been generated by existing grid-connected power plants and the addition of new grid- connected power plants. The baseline emissions are to be calculated as follows:

$$\mathbf{BE_y = EG_{PJ,y} \times EF_{grid,CM,y}}$$

Where:
BE_y = Baseline emissions in year y (t CO_2/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 CO_2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO_2/MWh)

The grid emission factors are calculated as the weighted average of the operating margin (0.75) & build margin (0.25) values. The value of combined margin is sourced from Baseline CO_2 Emission Database, Version 12, published by Central Electricity Authority (CEA), Government of India. This is the version available to the PP at the time of PDD submitted to DOE for web-hosting purpose. However, during registration request of the project activity, Version 15, Dec 2019[12] was available and hence, same is used for grid emission factor calculations as a conservative approach. Since emission factor based on CEA database 15 is conservative, hence EF calculation represented in PDD based on CEA database version 15 is acceptable and same is considered in final documents. CEA calculates the data based on "Tool to Calculate the Emission Factor for an Electricity System", Ver. 7.0. No further assessment is required for grid emission calculation as the ex-ante value is sourced directly from the Govt. of India database and calculations are inline with "Tool to Calculate the Emission Factor for an Electricity System", Ver. 7.0..

$EG_{PJ,y}$ is calculated based on capacity (Checked from the manufacturer specification), PLF= sourced from 3rd party offer letter thus fulfilling the requirement of Para 3 (b), Annex 11 EB 48 and 8760 (365*24) annual hours. The estimation is thus considered appropriate. Moreover, $EG_{PJ,y}$ is a monitoring parameter and the actual value will be obtained during the verification of the project activity.

Emission factor

$EF_{grid,CM,y}$= 0.9419 t CO_2/MWh. This value is fixed ex-ante for the crediting period.

BE_y = 63,072 x 0.9419 = 59,407 tCO_2

Project Emission:

As per the approved consolidated ACM0002 Version 20.0: "For most renewable energy power generation project activities, PE_y = 0. However, some project activities may involve project emissions that can be significant. These emissions shall be accounted for as project emissions by using the following equation:

$$\mathbf{PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}}$$

Where:

[12] It is to be noted that at the time of submission of PDD for GSC comments, combined margin emission factor used was 0.9777 tCO_2/MWh as per CEA database version 12, however as per CEA database version 15.0, the combined margin emission factor used is 0.9419 tCO_2/MWh which is more conservative in nature. DOE Checked both calculations and conservative EF is considered in final documents.

	PE_y = Project emissions in year y (t CO_2e/yr) $PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (t CO_2/yr) $PE_{GP,y}$ = Project emissions from the operation of dry, flash steam or binary geothermal power plants in year y (t CO_2e/yr) $PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (t CO_2e/yr) The detail is as follows: $PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (t CO_2/yr) = The project utilizes renewable fuel and thus there is no Consumption of fossil fuel envisaged for the project activity. Thus the parameter is considered zero for project emission calculation. $PE_{GP,y}$ = Project emissions from the operation of dry, flash steam or binary geothermal power plants in year y (t CO_2e/yr)= This parameter is not applicable as the proposed project is Wind power project and hence considered zero for project emission calculation. $PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (t CO_2e/yr)= This parameter is not applicable as the proposed project is Wind power project and hence considered zero for project emission calculation. As the project activity is the installation of a new grid-connected Wind power plant and does not involve any project emissions from fossil fuel, operation of dry, flash steam or binary geothermal power plants, and from water reservoirs of hydro power plants. Therefore $PE_{FF,y}$, $PE_{GP,y}$, $PE_{HP,y}$ are equal to zero and thus, $PE_y = 0$. **Leakage Emission:** Leakage emission is not applicable as per the requirement of ACM0002 Version 20.0. **Net Emission reduction:** *Emission Reductions are calculated as follows:* **$ER_y = BE_y – PE_y=$** 59,407 tCO_2 - 0= 59,407 tCO_2

D.4.8. Monitoring plan

Means of validation	Assessment team checked the monitoring practice onsite and also checked the guideline of RERC (http://rerc.rajasthan.gov.in/)
Findings	No NC (= Non conformity) was raised during the validation process.
Conclusion	Assessment team checked the monitoring practice onsite and also checked the guideline of respective State electricity regulatory commission. The detail analysis is as below: **Parameters determined ex-ante:** Baseline emission factor of INDIAN Grid is establish ex-ante based on Tool to calculate the grid emission factor, using a combined approach consisting 75 % operating margin and 25 % build margin. The emission coefficient from official data published in Central Electricity Authority (CEA) CO_2 Baseline database version 11 available to the project participant at the time of submission of PDD for global stakeholder's consultation process. However, same have been now updated to Version 15 (the emission coefficient as per latest CEA database is 0.9419 $tCO_{2e/MWh}$ which is more conservative in nature) and corrections in CEA CO_2 baseline database found correct. CEA is an official source of Ministry of Power, Government of India have worked out baseline as CO_2 baseline database. The assumption were verified by the validation team and found to be correct. **Parameters determined ex-post:** The parameters monitored ex-post involves net electricity supplied to the grid (calculated from electricity exported and imported) to the INDIAN grid by the project activity. As per the PDD Version 05, Joint Energy Meter Reading Report signed by DDWL

	as well as O&M partner will be the source of data during verification. The DOE will use the same source for verification of emission reductions. In accordance with the methodology requirement, net electricity supplied by the project activity is obtained from Share Certificates issued by GETCO and forms the basis for emission reduction calculation. Net Electricity supplied to the grid is metered by main and check tri-vector energy meters of accuracy class 0.2s at both the project site. The meter readings are taken jointly on a fixed day of every month for the preceding month at the delivery point and signed by the representatives of GETCO. Apportioning of net electricity generation from each WTG is determined by GETCO and the procedure is formulated by GETCO which is statutory authority and hence acceptable. In the event of failure of main meter, the check meter will be used in monitoring the electricity data. The agency is experienced in the monitoring system and is managing O&M of numerous other wind farm projects. The validation team therefore is of the opinion that the project participant through the O&M agency is capable of implementing the monitoring plan in the context of the project activity. The monthly electricity supplied by the project activity in the Share Certificates issued by GETCO is cross checked with sales invoices. As per para 68 of ACM0002 version 20.0, $EG_{facility,y=}$ $EG_{PJ,y}$ and $EG_{PJ\_Add,y}$ should be determined as per "TOOL05: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation". As per the tool for Sell to Grid the Net electricity exported is cross checked with records for sold electricity where relevant. Thus, Quantity of net electricity supplied to the grid can be cross checked from the invoices raised by the Project Participant to the State Electricity Board. Assessment team checked the process and found it appropriate. Calibration of all the meters is done by state electricity board officials as per the industry standards. However, the calibration will be done once in a 5 year[13] for all the project activity. The energy meter recording the export and import from the grid at substation is under the control and supervision of state electricity board officials. Similarly O&M contractor is responsible for monitoring of the generation data at CMS. It is reported that the data will be kept for 2 years following the end of the crediting period or till the last issuance of CERs for the project activity whichever occurs later. The responsibilities and authorities of project management, data handling and recording, measurement methods and QA/QC procedure have been systematically established and formalized and the same was verified during the site visit. Further, site is maintained by the service provider and monitoring of electricity generation is done by state utility. All the monitoring arrangement and system is robust and controlled by State Utility. Thus, the monitoring arrangements, including the QA/QC procedures, are feasible within the project design and the project participants have ability to implement it. The same has been evaluated by the DOE and found acceptable.

D.5. Start date, crediting period type and duration

Means of validation	Assessment team checked the Initial PDD for crediting period type and duration and EPC (=Engineering, Procurement, Construction) contract for the validation of Start date of the project activity
Findings	No NC (= Non conformity) was raised during the validation process
Conclusion	The start date of the project activity as mentioned in the Version 05 is 22/03/2016. As per the definition of Start date of the project activity *"For a CDM project activity (non-A/R) or CPA (non-A/R), the date on which the project participants commit to*

[13] http://powermin.nic.in/whats_new/pdf/Metering_Regulations.pdf, page 12

	making expenditures for the construction or modification of the main equipment or facility (e.g. a wind turbine), or for the provision or modification of a service (e.g. distribution of energy-efficient light bulbs, change of transport management system), for the CDM project activity or CPA. Where a contract is signed for such expenditures (e.g. for procurement of a wind turbine), it is the date on which the contract is signed" Assessment team checked the EPC contract signed between Vestas (Manufacturer) and project participant dated 22/03/2016 and thus approve the start date of the project activity as because the start date of the project meet the creteria "*commit to making expenditures for the construction or modification of the main equipment or facility"*. Project participant has chosen renewable crediting period of the project activity and thus the duration is 7 years which can be renewed twice. The same is thus acceptable to the assessment team.

D.6. Environmental impacts

Means of validation	The guideline provided by MOEF is checked by the assessment team http://envfor.nic.in/legis/eia/so1533.pdf
Findings	No NC (= Non conformity) was raised during the validation process
Conclusion	The project activity is expected to have positive impacts and no significant adverse environmental impacts are foreseen. Since, the project activity is an electricity generation from renewable source (i.e. wind energy) therefore no negative impact are envisaged. There is no mandatory legal requirement for carrying out an environmental impact assessment in the host country. The Ministry of Environment and Forests (MoEF), Government of India (GOI) notification[14] dated 14/09/2006 regarding the requirement of Environment Impact Assessment (EIA) studies states that any project developer in India needs to file an application to the Ministry of Environment and Forests (including a public hearing and an EIA) in case the proposed industry or project is listed in a predefined list. The list includes thirty nine project activities that require EIA studies. The wind power projects are not included in this list and thus an EIA study is not required.

D.7. Local stakeholder consultation

Means of validation	The local stakeholder consultation MOM, attendance sheet is checked by the assessment team. During the validation site visit assessment team also interviewed some of the stakeholder present during the meeting with PP.
Findings	No NC (= Non conformity) was raised during the validation process.
Conclusion	As per the CDM requirements, it is necessary to invite the relevant stakeholders, before the validation process starts. Moreover, the start date of the project is 22/03/2016 and stakeholder consultation meeting took place on 18/03/2016 for the project site which is before the start date of the project activity which fulfills the requirement of Para 107 of CDM project standard for the project activities, version 02. The DOE checked the relevance of the dates during the validation site visit. All the stakeholders have been invited through public notice (dated 05/03/2016) to attend the stakeholders meeting. The local stakeholders' consultation meeting was attended by local persons including local villagers, local vendors and technology suppliers. The stakeholders identified by the project participant were local villagers who are the major population of the particular area, local communities and gram panchayet (Village head), Wind Panel supplier, project proponent representatives, O&M Team and other people involved in the project. Validation team verified the list of participants who attended the stakeholder meeting and feedback questionnaire and confirms the stakeholders identified are relevant. The validation team also verified the minutes of meeting to note that no negative comments were received and the same was cross checked with the information obtained during follow up interviews

[14] http://envfor.nic.in/legis/eia/so1533.pdf

	with the stakeholder's. Thus Validation team is of the opinion that the stakeholder meeting was adequate and appropriate.

D.8. Sustainable development co-benefits

Means of validation	The creteria is a voluntary initiative. As the project Host country approval clearly mentions that project activity contributes to Sustainable development in India (= Host country) no further study is thus required.
Findings	No NC (= Non conformity) was raised during the validation process
Conclusion	The creteria is a voluntary initiative. As the project Host country approval clearly mentions that project activity contributes to Sustainable development in India (= Host country) no further study is thus required.

D.9. Approval

Means of validation	The Approval is provided by the Indian DNA (Ministry of Environment and Forest, Govt of India). Assessment team checked the HCA supplied by the project participant and also cross checked the same from the web site (http://www.cdmindia.gov.in/). The HCA confirms the approval of Indian DNA which is the party to Kyoto protocol and confirms that project is vide by the guideline of CDM
Findings	No NC (= Non conformity) was raised during the validation process.
Conclusion	Assessment team confirms that the project is approved from Indian DNA and thus the same is in line with CDM Validation and Verification Standard for the project activities, Version 02.0. The HCA confirms that 1. The Party is a Party to the Kyoto Protocol 2. Participation is voluntary; 3. the proposed project activity contributes to the sustainable development of the country; 4. HCA refers to the precise proposed project activity title in the PDD being submitted for registration. 5. HCA is unconditional with respect to above items and thus acceptable to the assessment team.

D.10. Authorization

Means of validation	The Authorisation is provided by the Indian DNA (Ministry of Environment and Forest, Govt of India). Assessment team checked the HCA supplied by the project participant and also cross checked the same from the web site (http://www.cdmindia.gov.in/). The HCA confirms the authorisation of Indian DNA which is the party to Kyoto protocol and confirms that project is vide by the guideline of CDM
Findings	No NC (= Non conformity) was raised during the validation process
Conclusion	Assessment team confirms that the project is authorised from Indian DNA and thus the same is in line with CDM Validation and Verification Standard for project activities version 02: The HCA confirms that • the Party is a Party to the Kyoto Protocol • Participation is voluntary; • the proposed project activity contributes to the sustainable development of the country; • HCA refers to the precise proposed project activity title in the PDD being submitted for registration. HCA is unconditional with respect to above items. • The project activity is in line with sustainable development policies of the country and national regulation / policy on Environmental Protection, Electricity and Non- Conventional Energy. Nevertheless in the Host Country Approval, it is stated that the project participant (PP) has to comply with the following conditions: • PP shall not sell the CERs to any agency /company/ organization which purchases the CERs using ODA Funds • PP shall inform the national CDM Authority regarding all transaction details

	of CERs including the name and address of the party to which CERs were sold within 30 days of transfer of the CERs • PP shall furnish expeditiously any information, during the lifetime of the project as requested by the National CDM Authority. • PP shall obtain all statutory clearances and other approvals as required from the competent authorities for setting up of the project • All transaction shall be subject to supervision of the Executive Board of the CDM, under the authority and guidance of the COP/MOP • This approval is not transferable. The authority reserved the rights to revoke this Host Country Approval if the conditions stipulated in this approval are not complied with to the satisfaction of the National CDM Authority. All the above conditions are met and same is checked by the assessment team from the host country approval number 4/7/2016-CC dated 08/02/2017 and found correct.

D.11. Modalities of communication

Means of validation	Assessment team checked the MOC supplied by the project participant and found that the latest form applicable in the UNFCCC web site is used and signing authority has the power to sign the same on behalf of PP
Findings	No NC (= Non conformity) was raised during the validation process
Conclusion	Assessment team checked the signed MOC document dated 15/03/2018. The project participant Dev-Dwarka Windproject Limited to act as focal point for the project activity. Assessment team also checked the power of Attorney in the name of Mr. Pranav Sharma to act as focal point and Signatory on behalf of Dev-Dwarka Windproject Limited. The same is as per the requirement of CDM Validation and Verification Standard for project activities, version 02 and thus assessment team confirm that the MOC is correct and accurate.

D.12. Global stakeholder consultation

Means of validation	Assessment team checked the GSC home page for the project. https://cdm.unfccc.int/Projects/Validation/DB/BEZKN6CZPEW51VCITJ8SGTUJ2QN623/view.html
Findings	CAR 07 was raised during the validation process and closed successfully. Please refer Appendix 4 of this report for the detail closure of the CAR.
Conclusion	GSC comments were closed successfully. Please refer CAR 07 in Appendix 4 of this report for the detail closure of the CAR/GSC comments.

SECTION E. Internal quality control

As final step of a validation of the final documentation including the validation report and the checklist have to undergo an internal quality control by the technical review committee, i.e. each report has to be finally approved either by the head of the technical review committee or the deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one to avoid any conflict of Interest.

After confirmation of the PP the validation opinion and relevant documents are submitted to the EB through the UNFCCC web-platform

SECTION F. Validation opinion

Applus+ Certification has performed a validation of the "Renewable Energy Power project by DDWL". The validation was performed on the basis of UNFCCC criteria and host country criteria, as well as criteria, e.g. ACM0002 version 20.0, given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided Applus+ Certification with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project will hence be recommended by Applus+ Certification for registration with the UNFCCC.

Applus+ Certification has received a confirmation from the host Party that the project activity assists it in achieving sustainable development.

By displacing fossil fuel-based electricity with electricity generated from a renewable source, the project results in reductions of CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change. An analysis of the investment demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of annual emission reductions of 59,407 tCO_{2e} per year, thereon displacing 63,072 MWh/year amount.

The validation has been performed following the requirements of the latest version of the CDM Validation and Verification Standard for project activities, version 02 and on the basis of the contractual agreement. The single purpose of this report is its use during the registration process as part of the CDM/UNFCCC project cycle.

Appendix 1. Abbreviations

Abbreviations	Full texts
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction(s)
CEA	Central Electricity Authority
CL	Clarification request
CM	Combined Margin
CMS	Central Monitoring system
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reductions
EB	Electricity Board
FAR	Forward Action Request
GEDA	Gujarat Energy Development Agency
GHG	Greenhouse gas(es)
GWP	Global Warming potential
GUVNL	Gujarat Urja Vikas Nigam Ltd.
PP	Project Participant
PPA	Power purchase agreement
PLF	Plant Load factor
RBI	Reserve Bank Of India
GETCO	Gujarat Energy Transmission Corporation Limited
SERC	State Electricity regulatory commission

Appendix 2. Competence of team members and technical reviewers

1. Dr. Atul Takarkhede counts with 10 years of experience in field of Environmental Auditing, consulting and accreditation. He is an Expert in ISO 9001-14001, CO2/GHG Reporting, Carbon Foot Print, Energy, Water and Waste Management Reporting for organizations environmental performance. His professional portfolio is mainly related with carrying out EIA, conducting QA/QC of EIA Reports; Conducting Environmental/water Audits; NABET requirements appliance. Furthermore, he counts with solid experience on CDM-VCS-GS consultancy and auditing. He has Ph.D. (Environmental Science) from Institute of Science, RTM Nagpur University, Nagpur, and he has already published different technical reports related to environmental science. Currently he is associated with True Quality Certifications Private Limited and is empanelled with APPLUS certification to carry out GHG audit.

2. Mr. Denny Xue (Master Degree in Environmental Engineering, Bachelor Degree in Thermal Engineering) is an Auditor appointed by LGAI Technological Center S.A. (Applus+ Certification) for the GHG project assessment. He is based on Shanghai. He has 1.5 years of work experiences in CDM project development. Before he joined LGAI Technological Center S.A. (Applus+ Certification), he has been worked for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development.

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	NA	Contract of the project participant with the DOE	Contract document signed between PP and DOE	Project participant
2	NA	PLF assessment study report for the project activity	Offer letter from Vestas dated 01/03/2016	Project participant
3	NA	Technical specifications of wind Panels generators from manufacturers	Technical specifications of wind Panels as provided Manufacturer	Project participant
4	NA	Board decision for serious CDM consideration	Board meeting dated 04/03/2016 for investment into the project.	Project participant
5	NA	Intimation to UNFCCC	Prior consideration emails for the project. Also checked from UN web site https://cdm.unfccc.int/Projects/PriorCDM/notifications/index_html?s=40	Project participant
6	NA	Webhosted PDD for GSC comment- version 01 Version 05 based on which opinion is provided	16/12/2016 24/08/2020	Project participant
7	NA	Financial Calculation sheet- version 01	24/08/2020	Project participant
8	NA	Emission reduction calculation sheet- version 01	24/08/2020	Project participant
10	NA	The operational lifetime of the project activity from the manufacturer(=Technical specifications)	Manufacturer technical specifications	Project participant
11	NA	The stakeholder consultation process documents: ·List of attendee ·Minutes of meeting ·Feedbacks from the stakeholders	MOM and attendance sheet of the meeting	Project participant
12	NA	ACM 0002 version 20.0:, "Grid-connected electricity generation from renewable sources	UNFCCC CDM web site	UNFCCC
13	NA	RERC Order http://rerc.rajasthan.gov.in/TariffOrders/Order216.pdf RBI: Reserve Bank of India www.rbi.org.in Ministry of Environment and forest: www.envfor.nic.in UNFCCC www.cdm.unfccc.int CEA: Central electricity authority www.cea.nic.in Income tax act 1961 http://law.incometaxindia.gov.in/DIT/	Reference link is provided.	Independent Search

14	NA	Tools/ guidelines used in the project activity · Clarification on national and/or sectoral policies Para 27 EB 55 · Guidelines for the reporting and validation of Plant Load Factor Annex 11 EB 48 · Guidelines on the demonstration and assessment of Prior Consideration of the CDM EB 62 Annex 13 · Tool to determine the remaining lifetime of the project activity in line with Annex 15 EB 50 · Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, Version 2, EB 41 · Tool to calculate the emission factor for an electricity system version 07 · Glossary of CDM terms version 09	UNFCCC CDM web site		UNFCCC
15	NA	Letter of ODA from the PP	ODA letter dated 19/07/2017		Project Participant
16	NA	Host country approval	HCA letter dated 08/02/2017		Project Participant
17	NA	Modalities of Communication	MOC dated 15/03/2018		Project Participant
18	NA	Commissioning Certificates for the project activity	**Capacity in MW**	**Commissioning Date**	Project Participant
			30 MW	29/06/2016, 09/01/2017, 21/01/2017 & 30/01/2017	
19	NA	EPC contract signed between PP and Manufacturer	EPC contract dated 22/03/2016		Project participant

Appendix 4. Clarification requests, corrective action requests and forward action requests

Table 1. CLs from this validation

CL ID	xx	**Section no.**		**Date:** DD/MM/YYYY
Description of CL				
Project participant response				**Date:** DD/MM/YYYY
Documentation provided by project participant				
DOE assessment				**Date:** DD/MM/YYYY

Table 2. CARs from this validation

CAR ID	01	**Section no.**	PDD	**Date:** 01/07/2019
Description of CAR				
PP is required to provide the following documents: 1. Supportive for technical specification 2. Commissioning certificate for the all WTGs 3. Source of the assumptions for investment analysis. 4. Supportive for technical lifetime 5. Local stakeholder documents. 6. Letter of Approval (LoA) from the Host Party DNA for the proposed CDM project activity to confirm the approval and participation requirements. 7. Duly signed Modalities of Communication (MoC) consistent with Annex 1 of PDD.				
Project participant response				**Date:** 24/08/2020
1) The technical brochure is provided as supporting for the technical specification of the wind machines in the project activity. 2) Commissioning certificates for the remaining WTGs are now provided. 3) Offer Letter is now provided as supporting for the inputs assumption of investment analysis. 4) Letter form the WTG supplier is provided as supporting document for the technical lifetime of the wind machines of the project activity. 5) The supporting documents for the Local Stakeholder Meeting is now provided. 6) Letter of Approval (LoA) from the Host Party DNA for the proposed CDM activity has been received and provided with this submission to confirm the approval and participation requirements 7) The signed copy of the modalities of Communication (MoC) is now provided.				
Documentation provided by project participant				
1) Technical Brochure 2) Commissioning Certificates 3) Copy of the Offer letter 4) Letter from the WTG Supplier justifying the lifetime of the WTGs 5) LSHM documents (Notice, MoM, List of Attendees & Meeting documents) 6) Letter of Approval (LoA) from the Host Party DNA. 7) Signed copy of Modalities of Communication (MoC).				

DOE assessment	Date: 27/08/2020
1. Technical specification (product brochure) have been submitted by PP. Technical specifications mentioned in the PDD is found inline with manufacturers specification brochure. CAR closed. 2. Commissioning certificates for the all WTGs have been now provided and dates are found correct. CAR thus closed. 3. Copy of offer letter have been submitted for source of the assumptions for investment analysis. CAR closed. 4. Letter from the WTG Supplier for the lifetime of the WTGs have been submitted and the lifetime of the WTGs is 25 years. CAR closed. 5. Local stakeholder documents have been submitted by PP and found inline with information in the PDD. CAR closed. 6. Letter of Approval (LoA) from the Host Party DNA i.e. MoEFCC for the proposed CDM project activity have been submitted by PP. CAR closed. 7. Duly signed Modalities of Communication (MoC) consistent with Annex 1 of PDD. CAR closed.	

CAR ID	02	Section no.	PDD	Date: 01/07/2019
Description of CAR				
PP requested to apply latest version of the methodology, tools and CEA database as per guidelines. Appropriate revision in PDD requested.				
Project participant response				**Date:** 24/08/2020
Latest version of the methodology, tools and CEA database as per guidelines has been revised with the submission of this PDD.				
Documentation provided by project participant				
PDD version 05				
DOE assessment				**Date:** 27/08/2020
PP have applied latest version of methodology i.e. ACM 0002, version 20 appropriately and all applicable sections have been updated accordingly. CAR thus closed.				

CAR ID	03	Section no.	PDD	Date: 01/07/2019
Description of CAR				
PP requested to updates geo-coordinates of the each WTG in line with actual commissioning of WTGs.				
Project participant response				**Date:** 24/08/2020
Geo-coordinates of each WTG has been mentioned in Section A.2 of the revised PDD along with actual commissioning of the WTGs.				
Documentation provided by project participant				
PDD version 05				
DOE assessment				**Date:** 27/08/2020
Geo-coordinates of the WTGs are now provided and found inline with onsite observations and Google earth. CAR closed.				

CAR ID	04	Section no.	PDD	Date: 01/07/2019
Description of CAR				
In section B.5 of the PDD version 1, PP needs to clarify 1. Prior consideration of CDM benefits to be justified with evidences. 2. PP needs to provide the investment analysis sheet and to provide supportive for the assumptions taken for investment analysis. 3. Include sources where publicly available information has been included. 4. Provide supportive for GBI being availed. 5. Benchmark calculation sheet needs to be provided.				
Project participant response				**Date:** 24/08/2020

1) Prior Consideration details for CDM benefits are now included in the section B.5 of the PDD and the supporting documents for the same is also provided.

2) Investment analysis sheet is now provided. Supportive for assumption for investment analysis have also been provided

3) Sources for publically available information has been included.

4) GBI benefits is not availed by the PP. Hence, the reference of the same has been removed from the IRR sheet.

5) Benchmark calculation is done in the IRR sheet which is now provided.

Documentation provided by project participant

1) Prior consideration copy along with the copy of the emails sent and the acknowledgement email.
2) IRR sheet containing the investment analysis along with the relevant sources and web-links to support the publicly available information at the time of investment making.

DOE assessment	**Date:** 27/08/2020

1. Prior consideration of CDM benefits have been justified with evidences and found correct. CAR closed.
2. PP have provided the investment analysis sheet & supportive for the assumptions taken for investment analysis and found correct. CAR closed.
3. Sources/references of publicly available information has been included now in the PDD. CAR closed.
4. As GBI benefits are not availed by the PP, same have been removed. CAR closed
5. Benchmark calculation sheet have been provided now. CAR closed.

CAR ID	05	**Section no.**	PDD	**Date:** 01/07/2019

Description of CAR

1. The common practice analysis sheet needs to be provided.
2. PP needs to demonstrate how the geographical area "Gujarat" identifies project as different in step 4.

Project participant response	**Date:** 24/08/2020

1) The common practices analysis sheet is now provided.

2) The typo error has now been rectified.

Documentation provided by project participant

Common Practice Analysis sheet(for both 30 MW and 40 MW) and PDD Version 02

DOE assessment	**Date:** 27/08/2020

PP have submitted common practice analysis sheet and found correct. Typo error in the section have been removed now. CAR closed.

CAR ID	06	**Section no.**	PDD	**Date:** 01/07/2019

Description of CAR

PP requested to submit estimated ER sheet along with revision in PDD for application of methodology, tools & CEA guidelines as applicable.

Project participant response	**Date**: 24/08/2020

ER sheet along with revision in PDD has been provide with this submission.

Documentation provided by project participant

ER sheet and PDD version 02

DOE assessment	**Date:** 27/08/2020

PP have submitted estimated ER sheet and found correct. Revised PDD *for application of methodology, tools & CEA guidelines have been submitted and found correct. CAR thus closed.*

CAR ID	07	**Section no.**	PDD	**Date:** 01/07/2019

Description of CAR

PP requested to submit response to below GSP comments as received:

Project title: Renewable Energy Power project by DDWL

DOE: Earthood Services Private Limited

PP: Dev-Dwarka Windproject Limited

Email id: pranavketan@hotmail.com

Start date: 01/04/2016 , 22/03/2016

1. The benchmark value given in the PDD is a joke. In the era of copy paste your consultants have forgotten simple additions. The final benchmark value is missing, while the value presented as 18.56% and 18.12%, does not match up with the 11.06% and inflation forecast. Now my question is to the DOE, Don't you think if the benchmark value changes, this would mean significant changes from the published PDD? Pls. let me know a valid reason if you think this is not a significant change (I hope this new Indian DOE would work diligently, though not sure if they would really work so).
2. The assumptions mentions the expected commissioning date to be 31/05/2016 that is with 60 days of start date? Is this practically possible or the consultants have fudged dates? So as to put in the assumptions which are convenient to them. A De-ration assumption of a decade old has been referred, can your WTG supplier concur with this? The technology has improved by leaps and bounds, such things are mentioned only to distort the financial analysis.
3. Operative costs escalate by 5% whereas administrative cost by 10% where is the logic. Insurance cost has been adopted on 2001 order, surely there have been so many orders after that? Is the client not aware or they is it the case they intentionally want to project wrong details?
4. With project cost so low the IRR calculations have been manipulated, the DOE to look into this.
5. Common Practice analysis: The start date mentioned in this section is different 05/02/2016 why is this difference?
6. The common practice analysis mentioned in the PDD just does not make any sense, is it just to confuse the staekholders or the PP is not able to appoint a good consultant?
7. Nall: 3 only 3 projects why have the details not been given?
8. While Ndiff: 0, will the consultant change these values in the final one?
9. Again I would ask the DOE to clarify if these changes are not significant? Should the PDD not be re-webhosted so that we can give our comments on the correct values?
10. Prior consideration: how many start dates would be mentioned in the PDD? Here it says 22/03/2016.
11. LSC Meeting: Who carried out the LSC Meeting? In case the final PDD provides significant changes in the LSC section I would ask the DOE to web-host this again.
12. As per the CDM guidelines the LSC has to be conducted before the start date, in this case there are two start dates mentioned in the PDD and the LSC is conducted after both the dates. Why is so?
13. The notice to stakeholders was given on 15/12/2015? Almost 4 months before the LSC meeting?
14. Again I would ask the DOE to clarify if these comments are taken into account and the PDD is revised are these changes are not significant? Should the PDD not be re-webhosted so that we can give our comments on the correct values?

Submitted by: Naveen Dhingra

Project participant response	**Date:** 24/08/2020

1) The benchmark value has been revised in the latest IRR Sheets submitted and accordingly PDD has been revised. The benchmark is calculated as per CDM guidelines and submitted to DOE

2) The start date mentioned in the webhosted PDD was unambiguously written, however the PDD has been revised and accordingly the correct dates has been mentioned. The financial assumptions has been revised and evidence and supporting's has been given.

3) IRR calculations has been revised as per the latest available data being taken at the time of investment making decision. Insurance cost is taken as 2012 CERC order and that was the latest available data at the time of PDD submission. The admin expenses has been removed from IRR calculations.

4) The project cost is being taken from the offer letter being provided by the technology supplier and the same values has been considered for the IRR Calculations.

5) The start date has been revised as per the available document.

6) The CPA sheet has been revised accordingly as per the comments raised and the same has been submitted to the DOE.

7) The CPA sheet has been revised and submitted to the DOE in response of the query raised.

8) The CPA sheet has been revised accordingly as per the comments raised and the same has been submitted to the DOE.

9) The CPA sheet has been revised and submitted to the DOE in response of the query raised.

10) The start date is 22/03/2016 and inconsistency in other sections of PDD has been revised.

11) The details regarding LSC meeting have been mention in Section E of the revised PDD

12) Typographical error has been regretted. The LSC meeting dates has been revised as per the actual scenario and supporting's has been also provided.

13) LSC meeting dates has been revised and mentioned in the revised PDD.

14) Typographical error has been regretted. The LSC meeting dates has been revised as per the actual scenario and supporting's has been also provided.

Documentation provided by project participant	
PDD Version 02	
DOE assessment	**Date:** 27/08/2020

1) Project developer had demonstrated that the financial returns of the proposed CDM project activity would be insufficient to justify the required capital investment as per CDM Validation and Verification Standard for project activities version 02.0. In the PDD Version 02, PP has adopted a conservative approach to identify the benchmark for the project activity. The project is generating revenue from selling power generated from the Wind power plant. Thus simple cost analysis (Option I) is not appropriate. Also in the absence of the project activity grid electricity would have been the obvious choice for the Project which requires no investment. Hence investment comparison analysis (Option II) is also not appropriate for the project activity. Therefore, benchmark analysis (Option III) is used for the project activity as per project type and decision-making context. The benchmark calculated as 13.74% and inline with the CDM investment guidelines. The benchmark value has been revised in the latest IRR Sheets/PDD and submitted by PP. The Comment of GSC thus can be closed
2) PP have submitted EPC contract for the start date of the project activity and the revised PDD has been submitted by PP. The financial assumptions has been revised and evidence and supporting's has been given. The Comment of GSC thus can be closed
3) PP have submitted revised IRR calculations as per the latest available data being taken at the time of investment making decision inline with the investment guidelines. Insurance cost is taken as 2012 CERC order and that was the latest available data at the time of PDD submission. The admin expenses has been removed from IRR calculations. Thus, Comment of GSC thus can be closed
4) The project cost is being taken from the offer letter being provided by the technology supplier and the same values has been considered for the IRR Calculations. Same have been also crosschecked with SERC order and IRR compared and found additional. Thus, Comment of GSC thus can be closed.
5) The start date have been now revised as per the EPC contract and found correct. Comment thus closed.
6) The revised CPA sheet has been submitted to the DOE and found correct. Comment thus closed.
7) The revised CPA sheet has been submitted to the DOE and found correct. Comment thus closed.
8) The revised CPA sheet has been submitted to the DOE and found correct. Comment thus closed.
9) The revised CPA sheet has been submitted to the DOE and found correct. All corrections are completed inline with CDM guidelines & project standard. Comment thus closed.
10) The start date is 22/03/2016 is now consistently mentioned in the revised PDD. Comment thus closed.
11) As per the CDM requirements, it is necessary to invite the relevant stakeholders, before the validation process starts. Moreover, the start date of the project is 22/03/2016 and stakeholder consultation meeting took place on 18/03/2016 which is before the start date of the project activity which fulfills the requirement of Para 107 of CDM project standard for the project activities, version 02. The DOE checked the relevance of the dates during the validation site visit. All the stakeholders have been invited through public notice (dated 05/03/2016) to attend the stakeholders meeting. The local stakeholders' consultation meeting was attended by local persons including local villagers, local vendors and technology suppliers. The stakeholders identified by the project participant were local villagers who are the major population of the particular area, local communities and gram panchayet (Village head), Wind Panel supplier, project proponent representatives, O&M Team and other people involved in the project. Validation team verified the list of participants who attended the stakeholder meeting and feedback questionnaire and confirms the stakeholders identified are relevant. The validation team also verified the minutes of meeting to note that no negative comments were received and the same was cross checked with the information obtained during follow up interviews with the stakeholder's. Thus Validation team is of the opinion that the stakeholder meeting was adequate and appropriate. GSC comment is thus closed.
12) The Query is same as point number 11 and the same is explained above. GS comment can be closed out.
13) The Query is same as point number 11 and the same is explained above. GS comment can be closed out.
14) Typographical error has been regretted. The LSC meeting dates has been revised as per the actual scenario and supporting's has been also provided.

~~**Table 3 FARs from this validation**~~

~~**FAR ID**~~	~~xx~~	~~**Section no.**~~		~~**Date:** DD/MM/YYYY~~
~~**Description of FAR**~~				
~~**Project participant response**~~				~~**Date:** DD/MM/YYYY~~

~~Documentation provided by project participant~~	
~~DOE assessment~~	~~Date:~~ ~~DD/MM/YYYY~~

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Document information

Version	*Date*	*Description*
04.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the "CDM validation and verification standard for project activities" (CDM-EB93-A05-STAN); • Make editorial improvements.
03.1	11 January 2018	Editorial revision to remove an erroneously included instruction paragraph in section D.2 (Identification of project type).
03.0	31 October 2017	Revision to align with the requirements of the "CDM validation and verification standard for project activities" (version 01.0).
02.0	22 July 2016	EB 90, Annex 3 Revision to include provisions related to automatically additional project activities.
01.0	23 March 2015	Initial publication.

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