Validation report form for renewal of crediting period for CDM project activities

(Version 03.0)

Complete this form in accordance with the instructions attached at the end of this form.

BASIC INFORMATION	
Title and UNFCCC reference number of the project activity	Title: Grid Connected Wind Power Project in Tamil Nadu UNFCCC Ref No: 7415
Number and duration of the next crediting period	2nd Crediting period Duration: 04/10/2019 to 03/10/2026
Version number of the validation report	02
Completion date of the validation report	07/09/2020
Version number of PDD to which this report applies	Version: 09
Project participants	M/s CLP Wind Farms (India) Private Limited
Host Party	India
Applied methodologies and standardized baselines	ACM0002: "Grid-connected electricity generation from renewable sources" - Version 20.0
Mandatory sectoral scopes	1 : Energy industries (renewable - / non-renewable sources)
Conditional sectoral scopes, if applicable	Not applicable
Estimated amount of annual average GHG emission reductions or GHG removals by sinks in the next crediting period	113,643 tCO_2e
Name and UNFCCC reference number of the DOE	E-0052: Carbon Check (India) Private Ltd.
Name, position and signature of the approver of the validation report	Vikash Kumar Singh, Complaince Officer

SECTION A. Executive summary

Purpose and general description and location:

M/s CLP Wind Farms (India) Private Limited has appointed Carbon Check (India) Private Ltd. (CCIPL) to validate the renewal of crediting period of the proposed CDM project activity "Grid Connected Wind Power Project in Tamil Nadu" (UNFCCC Registration No.: 7415). This report summarises the findings of the validation of the project, performed on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The project is a wind farm located in Tamil Nadu state in India. The total installed capacity of the project is 49.5 MW, consisting of 30 turbines of type V-82 manufactured by Vestas Wind Technology India Private Limited with the rated output of 1.65 MW each. The operational lifetime of the project is 20 years. The electricity generated by the project is fed into the Integrated Indian Grid system. The annual electricity supplied to the Indian grid is 120,650 MWh with plant load factor of 27.82%. The objective of the project is to produce electricity with clean and renewable wind sources and to displace part of the electricity from fossil fuel-fired plants connected to Integrated Indian Grid. The project activity will generate greenhouse gas (GHG) emission reductions by avoiding CO_2 emissions from electricity generation by connected fossil fuel power plants.

Validation scope:

The validation was performed on the basis of UNFCCC criteria for the Clean Development Mechanism. The scope of the validation is defined as an independent and objective review of the project design document, the validity of methodology used, the project's baseline study, estimated emission reductions and monitoring plan and other relevant documents. The information in these documents is reviewed against CDM VVS for Project Activities (version 02.0) /B03/, Kyoto Protocol requirements, CDM Executive Board/UNFCCC rules.

Validation process:

The validation has been performed as described in the CDM VVS for Project Activities (version 02.0) /B03/ and constitutes the following steps:

- Desk review of the registered PDD on the UNFCCC website
- Desk review of the revised PDD and the relevant documents
- Follow-up Interviews
- Issuance of Validation Report

The following CDM requirements have been considered:

- Article 12 of the Kyoto Protocol,
- Modalities and procedures for CDM (Marrakech Accords) Para 49(a)
- Subsequent decisions by the COP/MOP and CDM Executive Board
- Host country criteria (National and/or Sectoral policies)
- Criteria given to provide for consistent project operations, monitoring and reporting

Conclusion:

M/s CLP Wind Farms (India) Private Limited has appointed Carbon Check (India) Private Ltd. (CCIPL) to carry out the validation (renewal of crediting period) of the project activity "Grid Connected Wind Power Project in Tamil Nadu" in India , with regard to the relevant requirements for CDM activities. The project correctly applies the baseline and applicable monitoring methodology ACM0002: "Grid-connected electricity generation from renewable sources" (version 20.0) /B01/.

The project results in reductions of CO_2 equivalent emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project continues to be 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.

The monitoring plan provides for the monitoring of the project's emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is CCIPL's opinion that the project participants are able to monitor as per the monitoring plan.

The total emission reductions from the project are estimated to be 795,501 tCO_2e over a 7-year crediting period, averaging 113,643 tCO_2e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not alter.

During the course of validation, the DOE had raised two (2) clarifications and one (1) corrective action requests, all of which have been resolved by the PP.

CCIPL concludes that the CDM Project Activity "Grid Connected Wind Power Project in Tamil Nadu" in India, as described in the PDD /01/, meets all relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakesh Accords) Para 49 (a) and the subsequent decisions by the COP/MOP and CDM Executive Board. The selected baseline and monitoring methodology (ACM0002, Version 20) /B01/ is applicable to the project and correctly applied. CCIPL therefore requests the approval of the renewal of the crediting period for the registered CDM project with UNFCCC.

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	Interview(s)	Validation findings
1.	Team Leader / Technical Expert / Local Expert	IR	Agarwalla	Sanjay Kumar	CCIPL	X	NA	X	X

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

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	IR	Anand	Amit	CCIPL
2.	Approver	IR	Singh	Vikash Kumar	CCIPL

SECTION C. Means of validation

C.1. Desk/document review

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The validation was performed primarily based on the review of the revised PDD /01/ and the supporting documentation. Documents reviewed or referenced during the validation are listed in Appendix 3 below.

C.2. On-site inspection

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Site visit for the subject project activity was avoided due to travel restrictions imposed in the host country due to COVID-19 impact. DOE also noted CDM Executive Board's notice to relax mandatory site visits by DOEs until 31 December 2020 because of COVID-19 /B10/. DOE could not further postpone the site visit due to commitments by DOE in its proposal to complete the assignment within stipulated timeframe /09/.

On checking the revised and approved PDD /03/ and the updated PDD provided for renewal of crediting period /01/, it is confirmed that the proposed project is a green field project, there is no pre-project information before the project.

The alternative means used and justified for the purpose of validation are demonstrated as below:

The validation team has carried out remote interviews, with the PP representative and operation staff, in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for RCP. During the desk review, the relevant documents, including the revisefd and approved PDD /03/ and corresponding validation reports for the 1st crediting period, the previous periodic monitoring report and verification reports, the picture of nameplate of the main equipment, the picture of monitoring meters, the latest valid version of Power Purchase Agreement /05/ and other relevant background documents were provided and assessed. The project description in the PDD /01/ for the renewable crediting period has been verified from these documents. Validation team can confirm the project design, construction, operation and monitoring plan were not changed for 2nd crediting period. And the baseline scenario information also can be confirmed as it was defined by the applied methodology ACM0002 version 20.0 /B01/.

Duration of on-site inspection: NA				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	NA	NA	NA	NA

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Saha	Sandip	CLP	31/08/2020	- Confirmation of technical specifications of the WTGs and moniotoring meters - Baseline scenario - Project boundary - Applicability of the methodology - Revised grid emission factor	Sanjay Kumar Agarwalla

					calculation - Monitoring plan -Data management and reporting, QA/QC systems - Monitoring / measuring systems - Metering guidelines, Meter specifications – Accuracy, make - Calibration requirements – procedure, frequency	
2.	Patil	Darshak	CLP	31/08/2020	- Confirmation of technical specifications of the WTGs and moniotoring meters - Project boundary -Data management and reporting, QA/QC systems - Monitoring / measuring systems - Metering guidelines, Meter specifications – Accuracy, make - Calibration requirements – procedure, frequency	Sanjay Kumar Agarwalla
3.	Pandyan	Ravi	RENOM	31/08/2020	Operation and Maintenance of the WTGs	Sanjay Kumar Agarwalla

C.4. Sampling approach

>> N/A

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

Area of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	-	-	-
Application and selection of methodologies and standardized baselines	01	-	-
Validity of original baseline or its update	01	01	-
Estimated emission reductions or net anthropogenic	-		

removals			
Validity of monitoring plan	-	-	-
Crediting period	-	-	-
Project participants	-	-	-
Post-registration changes	-	-	-
Others (please specify)	-	-	-
Total	02	01	-

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	The updated PDD /01/ has been validated against the valid version of the applicable PDD form version 11 /B05/ and the instructions therein for filling out the PDD form.
Findings	NA
Conclusion	As per requirments of Para. 412(a)-(i) and (ii) of VVS-PA /B03/ validation team confirms that the updated PDD /01/ is in compliance with the latest version of the PDD form (version 11) and the instructions therein for filling out the PDD form. CCIPL also confirms that the project participants have updated the relevant sections of the PDD in accordance with the relevant requirements in the Project Standard /B02/. CCIPL further confirms that the information transferred to the updated version of the PDD is materially the same as that in the revised and approved PDD /03/.

D.2. Application and selection of methodologies and standardized baselines

Means of validation

The PP has applied the methodology ACM0002 Version 20 /B01/. This version of the methodology is the latest version and currently valid for the submission of project activity. The proposed project activity meets the criteria defined in the baseline methodology as described below:

Paragraph number of the applied methodology	**Applicability Criteria**	**DOE assessment**
3	This methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Install a Greenfield power plant; (b) Involve a capacity addition to (an) existing plant(s); (c) Involve a retrofit of (an) existing operating plants/units; (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s)/unit(s).	The project activity is a greenfield wind power plant connected to grid. Hence, meets the applicability condition.
4	The methodology is applicabl under the following conditions: a) The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit; b) In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects) the existing plant/unit started commercial operation prior to the start of a minimum	The project activity involves Green field renewable energy power plant (wind power plant).

		historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.	
	5	In case of hydro power plants, one of the following conditions shall apply[1]: a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density, calculated using equation (7), is greater than 4 W/m2; or c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (7), is greater than 4 W/m^2; or d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (7), is lower than or equal to 4 W/m^2, all of the following conditions shall apply: I. The power density calculated using the total installed capacity of the integrated project, as per equation (8), is greater than 4 W/m^2; II. Water flow between reservoirs is not used by any other hydropower unit which is not a part of the project activity; III. Installed capacity of the power plant(s) with power density lower than or equal to 4 W/m^2 shall be: a) Lower than or equal to 15 MW; and b) Less than 10 per cent of the total installed capacity of integrated hydro power project.	Not applicable as the proposed project activity is the electricity generation through wind power plant.
	6	In the case of integrated hydro power projects, project proponent shall:	Not applicable as the proposed project activity is

[1] Project participants wishing to undertake a hydroelectric project activity that results in a new reservoir or an increase in the volume of an existing reservoir, in particular where reservoirs have no significant vegetative biomass in the catchments area, may request a revision to the approved consolidated methodology.

	a) Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or b) Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore, this water balance will take into account seasonal flows from river, tributaries (if any), and rainfall for minimum of five years prior to the implementation of the CDM project activity.	the electricity generation through wind power plant.
7	The methodology is not applicable to the following: (a) Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; (b) Biomass fired power plants/units	Not applicable as the project activity is the electricity generation through wind power plant and does not involve switching from fossil fuels to renewable energy sources and also does not involve biomass fired power plants.
8	In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance".	The project activity is a new wind power plant and does not involve any retrofit, rehabilitation, replacement or capacity addition. Hence, not applicable for the project activity.

Tool 07: Tool to calculate the emission factor for an electricity system - Version 07.0 /B07/

Applicability Criteria	DOE assessment

	This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).	The project is a grid connected Greenfield wind power project and hence the tool is applicable for the project activity.
	Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, two sub-options under the step 2 of the tool are available to the project participants, i.e. option II.a and option II.b. If option II.a is chosen, the conditions specified in "Appendix 2: Procedures related to off-grid power generation" should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.	PP has demonstrated step wise approach for the calcualtino of OM, BM and CM in section B.4 of the PDD /02/ which is found to be in line with the Tool 07 /B07/.
	In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.	Project is located in non-Annex I country and hence the tool is applicable.
	Under this tool, the value applied to the CO2 emission factor of bio fuels is zero.	The project is a wind project and does not involvem any bio fuels.
	The project activity correctly applies the methodology ACM0002, version 20 /B01/ and the Tool 07 /B07/.	
Findings	CL 01 had been raised and successfully resolved. Please refer Appendix 4 for further details	
Conclusion	As per requirments of Para. 412(a)- (iii) of VVS-PA/B03/ validation team confirms that the selected baseline and monitoring methodology has been previously approved by the CDM Executive Board, and is applicable to the project activity, which complies with all the applicability conditions therein and the selected version is valid at the time of submission of the proposed project activity for renewal of crediting period. It is also confirmed that the methodology is correctly applied by comparing it with the actual text of the applicable version of the methodology and there is no deviation from the selected methodology.	

D.3. Validity of original baseline or its update

Means of validation	The project participant has included the assessment of the validity of the original baseline as per the tool "Assessment of the validity of the original/ current baseline and update of the baseline at the renewal of a crediting period", Version 3.0.1 /B06/, which has been concluded to be still valid and applicable for the project

The tool consists of two steps. The first step provides an approach to evaluate whether the current baseline is still valid for the next crediting period. The second step provides an approach to update the baseline in case that the current baseline is not valid anymore for the next crediting period.

Step 1: Assess the validity of the current baseline for the next crediting period
Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

The project is a new wind prower plant connected to grid. In the absence of the project equivalent power would have been generated in the fossil fuel dominated grid. Therefore, baseline is the grid emission. Electricity Act 2003, , National electricity Policy 2005 and Tariff Policy 2006 are the main laws that govern the electricity sector in India /B08/. The national policy does not mandate wind power for electricity generation. Therefore, the baseline scenario is still valid as per the original PDD /03/.

Step 1.2: Assess the impact of circumstances

The circumstances existing at the time of requesting renewal of crediting period are the same as existing in the validation of the project activity. The estimated baseline emissions using wind power to supply renewable electricity to the Integrated Indian grid that is currently dominated by fossil fuel power plants. The baseline scenario identified at the validation of the project activity was the continuation of the current practice without any investment. It could be observed that the emission factor of the Integrated Indian grid applied for the 1st crediting period was 0.9447 tCO_2/MWh and updated to 0.9419 tCO_2/MWh following the methodological Tool 07 /B07/ and latest CEA database /04/. The grid emission factor is calculated following steps as per tool 'Tool to calculate the emission factor for an electricity system' version 7.0 /B07/. The validation team accessed the data source for emission factor from publicly available source /04/ and confirms that it meets the tool /B07/ requirements. At the time of requesting renewal of the crediting period, the conditions used to determine the baseline scenario in the previous crediting period are still valid.

Step 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

In the absence of the project activity, the equivalent electricity would have generated in fossil fuel dominated grid. Therefore the baseline identified is the continuation of use of the current equipment(s) without any investment. An investment is not necessary before the end of the next crediting period (i.e. 03/10/2026) as it is realistic to consider that fossil fuel dominated grid will exceed the crediting period for which renewal is requested. The project has a life of 20 years which will not end until the end of the second crediting period.

Step 1.4: Assessment of the validity of the data and parameter

"Where emission factors, values or emission benchmarks are used and determined only once for the crediting period, they should be updated, except if the emission factors, values or emission benchmarks are based on the historical situation at the site of the project activity prior to the implementation of the project and cannot be updated because the historical situation does not exist anymore as a result of the CDM project activity".

Following data parameters are updated with respect to the revised and approved PDD /03/:

Data/Parameter	Value in PDD	Value in updated PDD	Assessment

	Operating margin CO_2 emission factor for grid connected power generation in year *y* (**$EF_{grid,OM,y}$**)	0.9871 tCO_2/MWh	0.9622 tCO_2/MWh	The updated emission factor is as per latest Indian grid emission factor data published in Dec 19 and hence correctly considered by PP for the second crediting period /**04**/.
	Build margin CO2 emission factor for grid connected power generation in year y (**$EF_{grid,BM,y}$**)	0.8179 tCO_2/MWh	0.8811 tCO_2/MWh	The updated emission factor is as per latest national grid emission factor data published in Dec 19 and hence correctly considered by PP for the second crediting period /**04**/.
	Combined margin CO_2 emission factor for grid connected power generation in year *y* (**$EF_{grid,CM,y}$**)	0.9447 tCO_2/MWh	0.9419 tCO_2/MWh	The combined margin is calculated considering 75% of OM and 25% of BM as per 'Tool to calculate the emission factor for an electricity system' /B07/. The data and calculation is correct and hence the updated value is accepted for the second crediting period.
	Considering the guidance provided under this step, calculation of emission factor and baseline emissions are updated for the next crediting period as per step 2. **Step 2: Update the current baseline and the data and parameters** Since, the existing baseline scenario is still valid, this step is not applicable. Finally, it is concluded that the original baseline scenario is valid and assessment is complete as per "Tool for the assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" v03.0.1 /B06/.			
Findings	CL 02 and CAR 01 had been raised and successfully resolved. Please refer Appendix 4 for further details			
Conclusion	CCIPL concludes that the original baseline is valid and assessment is done as per methodological tool 'Tool for the assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period v 03.0.1' /B06/. The assessment meets the requirements of paragraph 404 of VVS Standard version 02.0 /B03/.			

D.4. Estimated emission reductions or net anthropogenic removals

Means of validation	**Baseline Emissions**: In line with applied methodology ACM0002, version 20, baseline emissions are calculated as below: $BE_y = EG_{PJ,y} \times EF_{grid,CM,y}$ Where: BE_y Baseline emissions in year y (tCO_2) $EG_{PJ,y}$ 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_2e/MWh) Therefore baseline emissions are calculated as: $BE_y = EG_{facility} * EF_{grid,CM,y}$ = 120,650 MWh/yr × 0.9419 tCO_2/MWh = 113,643 tCO_2e $EG_{PJ,y} = EG_{facility,y}$ is the quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr). This is to be calculated from monitoring parameters as per monitoring plan given in section B.6.1 of the PDD and Appendix 4 of the PDD. For ex-ante estimation this is considerd to be 120,650 MWh per year. Grid emission factor ($EF_{grid,CM,y}$) is calculated as per 'Tool to calculate the emission factor for an electricity system' version 07 /B07/ considering latest national data and fixed to be 0.9419 tCO_2/MWh for the entire second crediting period. Accoridingly baseline emission is estimated to be 113,643 tCO_2e per year. **Project emissions:** The project activity is a wind power plant, according to the methodology, $PE_y = 0$ **Leakage:** According to the methodology, no leakage needs to be considered for the project activity i.e., $LE_y = 0$. **Emission reductions:** The emission reductions ER_y during the crediting period is: $ER_y=BE_y- PE_y$ = 113,643 tCO_2e - 0 tCO_2e =113,643 tCO_2e Therefore, ex-ante emission reduction from the project activity is 113,643 tCO_2e per year.
Findings	-
Conclusion	CCIPL confirms, the PDD correctly lists assumption and data used by the PP for estimating emission reduction including their references and sources. Source of data and assumptions are correctly quoted and interpreted in the PDD. All values used in the PDD are considered reasonable in the context of the proposed CDM project activity. The baseline methodology and corresponding tools have been correctly applied to calculate project, baseline and leakage emissions, and emission reductions. All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD.

D.5. Validity of monitoring plan

Means of validation	The Project uses the approved consolidated monitoring methodology ACM0002 Version 20.0 /B01/ for grid-connected electricity generation from renewable sources. The methodology requires monitoring of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity. All the wind mills are located in Tamilnadu State of India, and are connected to the substations under Southern grid which is synchronised with Indian grid. The electricity supplied to the grid would be taken from the Joint Meter Reading Report / Energy Generation Statement issued by TNEB for each WTG. TNEB issues this report / statement based on the generation recorded by meters located near each WTG. Details of the monitoring plan are described in section B.7 of the PDD. Monitored parameter $EG_{facility,y} = EG_{PJ,y}$ i.e. net power supplied to the

	grid. All necessary parameters have been contained and clearly described. The monitoring plan contained in the updated PDD is materially the same as the approved revised PDD. The baseline emission factor of 0.9419 tCO_2/MWh is determined ex-ante based on the most recent information available at the time of requesting for the renewal of the crediting period. There are 30 TNEB main meters for this project. Sufficient procedures have been identified in the updated PDD and the implementation of those procedures will enable that the emission reductions of the project can be reported and verified ex-post. The management and operation team for the monitoring activity of the project has been described in the updated PDD /01/.
Findings	-
Conclusion	The monitoring plan contained in the updated PDD is in accordance with the monitoring methodology and the approved monitoring plan. The monitoring plan will give opportunity for real measurements of achieved emission reductions. Validation team

D.6. Crediting period

Means of validation	In accordance to paragraph 270 of the PCP for project activity version 02 /B04/, the new crediting period shall start on the day immediately after the expiration of the current crediting period regardless of the date when the crediting period is deemed renewed. The validation team reviewed the updated PDD, and registration information in the UNFCCC website to confirm the validity of the second crediting period.
Findings	NA
Conclusion	The first crediting period is from 04/10/2012 to 03/10/2019. As per the Project Cycle Procedure (version 02.0) /B04/, the new crediting period is from 04/10/2019 to 03/10/2026. The 2nd crediting period starts on 04/10/2019 in the updated PDD /01/, which is the day immediately after the expiration of the 1st crediting period. The validation team hereby confirms that the start date of 2nd crediting period is correctly determined, the 2nd crediting period of the project commences on the day immediately after the expiration of the first crediting period.

D.7. Project participants

Means of validation	CCIPL confirm the list of project participants from the review of project view page at UNFCCC website for the activity (UNFCCC Ref: 7415) /B09/.
Findings	N/A
Conclusion	CCIPL confirms that the project participants of the proposed CDM project activity is listed in the updated PDD and this information is consistent with the information provided in the section that contains the contact information for project participants.

D.8. Post-registration changes

Type of post-registration changes (PRCs)	Confirmation (Y/N)	Validation report for PRCs	
		Version	Completion date
Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents[2]	N	-	-
Corrections	N	-	-
Change to the start date of the crediting period	N	-	-

[2] Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

Inclusion of a monitoring plan	N	-	-
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents	N	-	-
Changes to the project design	N	-	-
Changes specific to afforestation and reforestation project activities	N	-	-

SECTION E. Internal quality control

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The final validation report has undergone a technical review and quality review before being submitted to the project participant(s) and UNFCCC Executive Board. A technical reviewer qualified in accordance with CCIPL's qualification scheme for CDM validation and verification has performed the technical review.

SECTION F. Validation opinion

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Carbon Check (India) Private Limited (CCIPL) has performed an assessment of the request for renewal of the crediting period of CDM project activity "Grid Connected Wind Power Project in Tamil Nadu" (UNFCCC Ref. No.: 7415). The assessment was performed in accordance with the "CDM Validation and Verification Standard for Project Activities (version 02.0) /B03/ and included an assessment of:

(a) The impact of new relevant national and/or sectoral policies and circumstances on the baseline taking into account relevant EB guidance with regard to renewal of the crediting period at the time of requesting renewal of crediting period;
(b) The correctness of the application of an approved baseline methodology for the determination of the continued validity of the baseline or its update, and the estimation of emission reductions for the applicable crediting period.

The review of the project design documentation and the subsequent follow-up interviews have provided CCIPL with sufficient evidences to determine the validity of the original baseline and/or its update through an assessment. The project correctly applies the baseline and monitoring methodology ACM0002: "Grid-connected electricity generation from renewable sources" (version 20) /B01/.

The total emission reductions from the project are estimated to be 795,501 tCO_2e over a 7-year crediting period, averaging 113,643 tCO_2e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not alter.

The monitoring plan provides for the monitoring of the project's emission reductions. The monitoring arrangements described in the monitoring plan are feasible within the project design and it is CCIPL's opinion that the project participant is able to implement the monitoring plan.

In summary, it is CCIPL's opinion that the CDM project activity (UNFCCC Ref. No.: 7415) "Grid Connected Wind Power Project in Tamil Nadu" as describe in the PDD /01/ (version 09; Dated: 06/09/2020) meets all relevant UNFCCC requirements for the renewal of the crediting period. Hence CCIPL requests the renewal of the crediting period of the project.

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CCIPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CER(s)	Certified Emission Reduction(s)
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CL	Clarification Request
CLP	M/s CLP Wind Farms (India) Private Limited
CO2	Carbon dioxide
CO2e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reductions
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
IR	Internal resource
kW	Kilo Watt
LoA	Letter of Approval
MoC	Modalities of Communication
MoV	Means of Verification
MR	Monitoring Report
ODA	Official Development Assistance
PDD	Project Design Document
PE	Project Emission
PP(s)	Project Participant(s)
RCP	Renewal of crediting period
Ref.	Document Reference
SS(s)	Sectoral Scope(s)
TA(s)	Technical Area(s)
TNEB	Tamil Nadu Electricity Board
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

Carbon Check (India) Private Ltd.

Sanjay Agarwalla

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 06.0):

For following functions:

Validator	☒	**Team Leader**	☒	**Technical reviewer**	☒
Verifier	☒	**Technical Expert**	☒	**Local Expert[1]**	☒

In the following Technical Areas:

TA 1.1	☒	**TA 3.1**	☒	**TA 5.2**	☒	**TA 9.2**	☒	**TA 13.2**	☐
TA 1.2	☒	**TA 4.1**	☒	**TA 8.1**	☐	**TA 10.1**	☐	**TA 14.1**	☐
TA 2.1	☒	**TA 5.1**	☒	**TA 9.1**	☒	**TA 13.1**	☒		

Mr. Vikash Kumar Singh
Compliance Officer

Mr. Amit Anand
CEO

Date of Approval
24/12/2019

Valid Till
23/12/2020

Revision History of the Document

26/12/2014	Initial Adoption
24/12/2015	Annual Revision
20/01/2016	Interim Revision for office address change
23/12/2017	Annual Revision
24/12/2018	Annual Revision
24/12/2019	Annual Revision

[1] India

CARBON CHECK (INDIA) PRIVATE LIMITED
Registered in India: U74930DL2012PTC232495
Regd. Off: 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi - 110005
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Carbon Check (India) Private Ltd.

Amit Anand

has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

Validator	☒	Team Leader	☒	Technical reviewer	☒
Verifier	☒	Technical Expert	☒	Local Expert[1]	☒

In the following Technical Areas:

TA 1.1	☒	TA 3.1	☒	TA 5.2	☐	TA 9.2	☐	TA 13.2	☐
TA 1.2	☒	TA 4.1	☐	TA 8.1	☒	TA 10.1	☐	TA 14.1	☒
TA 2.1	☐	TA 5.1	☐	TA 9.1	☐	TA 13.1	☒		

Mr. Vikash Kumar Singh
Compliance Officer

Date of Approval	Valid Till
24/12/2019	23/12/2020

Revision History of the Document

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[1] India, South Africa

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Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
/01/	CLP	a. Initially submitted PDD b. Final PDD	Version 08 of 19/08/2020 Version 09 of 06/09/2020	PP
/02/	CLP	a. Emission reduction calculation spread sheet along with grid emission factor calculation (corresponding to /01-a/) b. Emission reduction calculation spread sheet along with grid emission factor calculation (corresponding to /01-b/)	Version 01 of 19/08/2020 Version 02 of 06/09/2020	PP
/03/	CLP	Revised and approved PDD for the project "Grid Connected Wind Power Project in Tamil Nadu"	Version 07 of 01/11/2017)	Others
/04/	CEA	The CO2 Baseline Database for the Indian Power Sector - Ministry of Power: Central Electricity Authority (CEA) Version 15	http://cea.nic.in/tpeandce.html	Others
/05/	CLP	Power purchase Agreement dated 24/03/2010 and 29/07/2010 with Tamil Nadu electricity Board for all 30 WTG	-	PP
/06/	Vestas	Technical specifications of the wind turbine installed in the project	-	PP
/07/	CLP	Single line diagram for the flow of electricity from generation point to feed in grid	-	PP
/08/	CLP	O & M agreement copy with RENOM Energy Services LLP	Dated: 29/07/2020	PP
/09/	CCIPL	Validation contract in between CLP and CCIPL	Dated: 25/08/2020	
/10/	CLP	Project site photographs (with nameplate of the WTGs and monitoring meters)	-	PP
/B01/	UNFCCC	ACM0002: "Grid-connected electricity generation from renewable sources"	Version 20	Others
/B02/	UNFCCC	Standard: CDM project standard for project activities	Version 02	Others
/B03/	UNFCCC	Standard: CDM Validation and Verification standard for project activities	Version 02	Others
/B04/	UNFCCC	CDM project cycle procedure for project activities	Version 02	Others
/B05/	UNFCCC	Project Design Document Form (CDM-PDD-FORM)	Version 11	Others
/B06/	UNFCCC	Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period	Version 3.0.1, EB 66 annex 47	Others
/B07/	UNFCCC	Tool 07: Tool to calculate the emission factor for an electricity system	Version 07.0	Others
/B08/	CERC	Electricity Act 2003	http://www.cercind.gov.in/Act-with-amendment.pdf	Others
/B09/	UNFCCC	Project 7415 : Grid Connected Wind Power Project in Tamil Nadu	https://cdm.unfccc.int/Projects/DB/RWTUV1348481875.12/view	Others
/B10/	UNFCCC	CDM Executive Board agrees to relax mandatory site visits by DOEs until 31 December 2020 because of COVID-19	Website https://cdm.unfccc.int/newsroom/latestnews/releases/2020/01041_index.html	Others

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

Table 1. CL from this validation

CL ID	CL 01	**Section no.**		**Date:** 04/09/2020
Description of CL				
In section B.2 of the PDD, PP needs to state the methodology paragraphs exactly as per the applied version of the methodology, ACM0002, version 20.				
Project participant response				**Date:** 04/09/2020
Applicability criteria of ACM0002 ver 20 are now appropriately updated in section B.2 of the revised PDD				
Documentation provided by project participant				
Revised PDD				
DOE assessment				**Date:** 07/09/2020
PP has submitted revised PDD stating the meth paragraphs appropriately. The CL is closed.				

CL ID	CL 02	**Section no.**	E.3	**Date:** 04/09/2020
Description of CL				
PP needs to clarify the following statement in section B.6.1 of the PDD: "*As observed in the CEA database, (Version 15, Dec'19) the percentage of total grid generation by low-cost/must-run plants (on the basis of average of five most recent years) for the Indian grid is only 14.5% which is much lesser than 50% of the total generation*", considering that 14.5% is not applicable for all the five years. Also it is noted that the values of OM and BM are inconsistently stated in between the PDD and the provided ER spread sheet for grid emission factor calculation.				
Project participant response				**Date:** 04/09/2020
Section B.6.1 of the PDD has now appropriately updated and mentioned that the percentage of total grid generation by low-cost/must-run plants (on the basis of average of five most recent years) for the Indian grid is always much lesser than 50% of the total generation.				
Documentation provided by project participant				
Revised PDD				
DOE assessment				**Date:** 07/09/2020
PP has submitted revised PDD with appropriate revision and consistent values of OM, BM and CM. The CL is closed.				

Table 2. CAR from this validation

CAR ID	01	**Section no.**		**Date:** 04/09/2020
Description of CAR				
PP needs to demonstrate the compliance of para 282, 283, 284 and 286 of the PS for project activities, version 02. Compliance of para 286 of PS has not been demonstrated which says: "*If data and parameters used for determining the original baseline, that were determined ex ante and not monitored during the crediting period, are no longer valid, the project participants shall update such data and parameters in accordance with the "Methodological tool: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period*".				
Project participant response				**Date:** 04/09/2020
"Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" (EB66 Annex 47) is now demonstrated in section B.4 of the revised PDD.				
Documentation provided by project participant				
Revised PDD				
DOE assessment				**Date:** 07/09/2020
PP has submitted revised PDD complying paragraph 286 of PS for project activities, version 02 and "Methodological tool: Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period". The CAR is closed.				

Table 3. FAR 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
-				

- - - - -

Document information

Version	*Date*	*Description*
03.0	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) and version 02.0 of the "CDM project cycle procedure for project activities" (CDM-EB93-A06-PROC); • Make editorial improvements.
02.0	31 October 2017	Revision to align with the requirements of the "CDM validation and verification standard for project activities" (version 01.0).
01.0	23 March 2015	Initial publication.

Decision Class: Regulatory
Document Type: Form
Business Function: Renewal of crediting period
Keywords: crediting period, project activities, validation report