RENEWABLE WIND POWER PROJECT BY AXIS WIND FARMS (RAYALASEEMA) PVT. LTD.

Document Prepared by Axis Wind Farms (Rayalaseema) Pvt. Ltd.

Project title	Renewable Wind Power project by Axis Wind Farms (Rayalaseema) Pvt. Ltd.
Project ID	VCS-2052[1]
Monitoring period	01-October-2022 to 30-September-2023(inclusive of both days)
Original date of issue	15-January-2024
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Version	05
***VCS Standard* Version**	4.6
Prepared by	Axis Wind Farms (Rayalaseema) Pvt. Ltd.

[1] https://registry.verra.org/app/projectDetail/VCS/2052

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The main purpose of the project activity is to generate clean form of electricity through renewable wind energy source. The project involves installation of 105 MW wind power project in Anantpur District of Andhra Pradesh.

The project activity utilizes 50 Suzlon made S111 WTGs each with capacity of 2.1 MW. The WTG wise commissioning dates are described in the table below:

Capacity	Village	WTG Location No.	Commissioning Date
10.5	Kalagalla and Ipperu	KDR-033, KDR- 035, KDR- 036, KDR-037, KDR- 038	02-March-2018
25.2	Ipperu, Padmati Yaleru & Atmakur	KDR-039, PTN-003, PTN-030, PTN-033, PTN-018, PTN-017, PTN-016, PTN-019, PTN-020, PTN-021, PTN-024, PTN-025	30-March-2018
16.8	Ipperu, Kuderu, Atmakur	KDR-039, PTN-003, PTN-030, PTN-033, PTN-018, PTN-017, PTN-016, PTN-019, PTN-020, PTN-024, PTN-021, PTN-025	15-June-2018
10.5	Ipperu & Kuderu	PTN-09, PTN-05, PTN-04, KDR-45, KDR-34	19-July-2018
21	Kalagalla, Kuredu, Padamati Yaleru & Atmakur	KDR-032, KDR-040, KDR-041, KDR-044, PT-032, PT-031, PT-029, PT-015, PT-026, PT-039	04 -September-2018
21	Kammuru, Kuredu, & Thimmapurumu	KDR-050, KDR-051, KDR-052, KDR-001, KDR-002, KDR-003, KDR-042, KDR-043, PT-027, PT-028	27-September-2018

All the WTGs mentioned above are in continued operation since the respective dated of commissioning. The scenario existing prior to the implementation of the project activity, is electricity delivered to the grid by the project activity that would have otherwise been generated by the operation of fossil-fuel dominated grid connected power plants and by the addition of new generation sources.

The total actual GHG emission reductions achieved in current monitoring period of 1st October 2022 to 30th September, 2023 are 232,918 tCO_{2e} by displacing 248,632 MWh of electricity from fossil fuel dominated electricity grid with electricity generation using wind energy sources.

The table below shows the description of the previous Joint validation and periodic verifications for the project activity along with this monitoring period. It also includes the information of the respective applicable VCS program, VVB Name and the Number of years for each periodic verification.

1.2 Audit History

Audit type	Period	Program	Validation/verification body name	Number of years
Joint Validation and Verification	02-March-2018 to 30-November-2019	VCS program	Earthood Services Private Limited(ESPL)	1 year 8 months
Verification	01-December-2019 to 31-December-2020	VCS program	LGAI Technological Center S. A. (Applus + Certification)	1 year 1 month
Verification	01-January-2021 to 20-June-2021	VCS program	LGAI Technological Center S. A. (Applus + Certification)	0 year 6 months
Verification	01-July-2021 to 31-December-2021	VCS program	LGAI Technological Center S. A. (Applus + Certification)	0 year 6 months
Verification	01-Januray-2022 to 31-March-2022	VCS program	LGAI Technological Center S. A. (Applus + Certification)	0 year 3 months
Verification	01-April-2022 to 30-September-2022	VCS program	LGAI Technological Center S. A. (Applus + Certification)	0 year 6 months
Verification	01-October-2022 to 30-September-2023	VCS program	LGAI Technological Center S. A. (Applus + Certification)	1 year
Total	02-March-2018 to 30-Septmeber-2023			5 years 6 months

1.3 Sectoral Scope and Project Type

Sectoral scope[2]	01 - Energy Industries (Renewable/non-renewable sources)
Project activity type	Renewable Energy project

The project activity is not a grouped project,

Sectoral scope	Not applicable as it is not a AFOLU project.
AFOLU project category[3]	Not applicable as it is not a AFOLU project.
Project activity type	Not applicable as it is not a AFOLU project.

1.4 Project Proponent

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Organization name	Axis Wind Farms (Rayalaseema) Pvt. Ltd.
Contact person	Mr. Murugan Subbiah
Title	Project Representative
Address	Plot no.47, 48, 49, Street No. 1, 2nd Avenue, Patrika Nagar, Madhapur, Seri Lingampalli (M), Rangareddi, Hyderabad, TG – 500081, IN
Telephone	+91-7208944360
Email	msmsubbiah@evrenenergy.com

1.5 Other Entities Involved in the Project

Organization name	NA
Role in the project	NA
Contact person	NA
Title	NA

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

[3] *See Appendix 1 of the* VCS Standard

Address	NA
Telephone	NA
Email	NA

1.6 Project Start Date

Project start date	02-March-2018
Justification	It is the earliest date of commissioning of the WEGs of the project activity.

1.7 Project Crediting Period

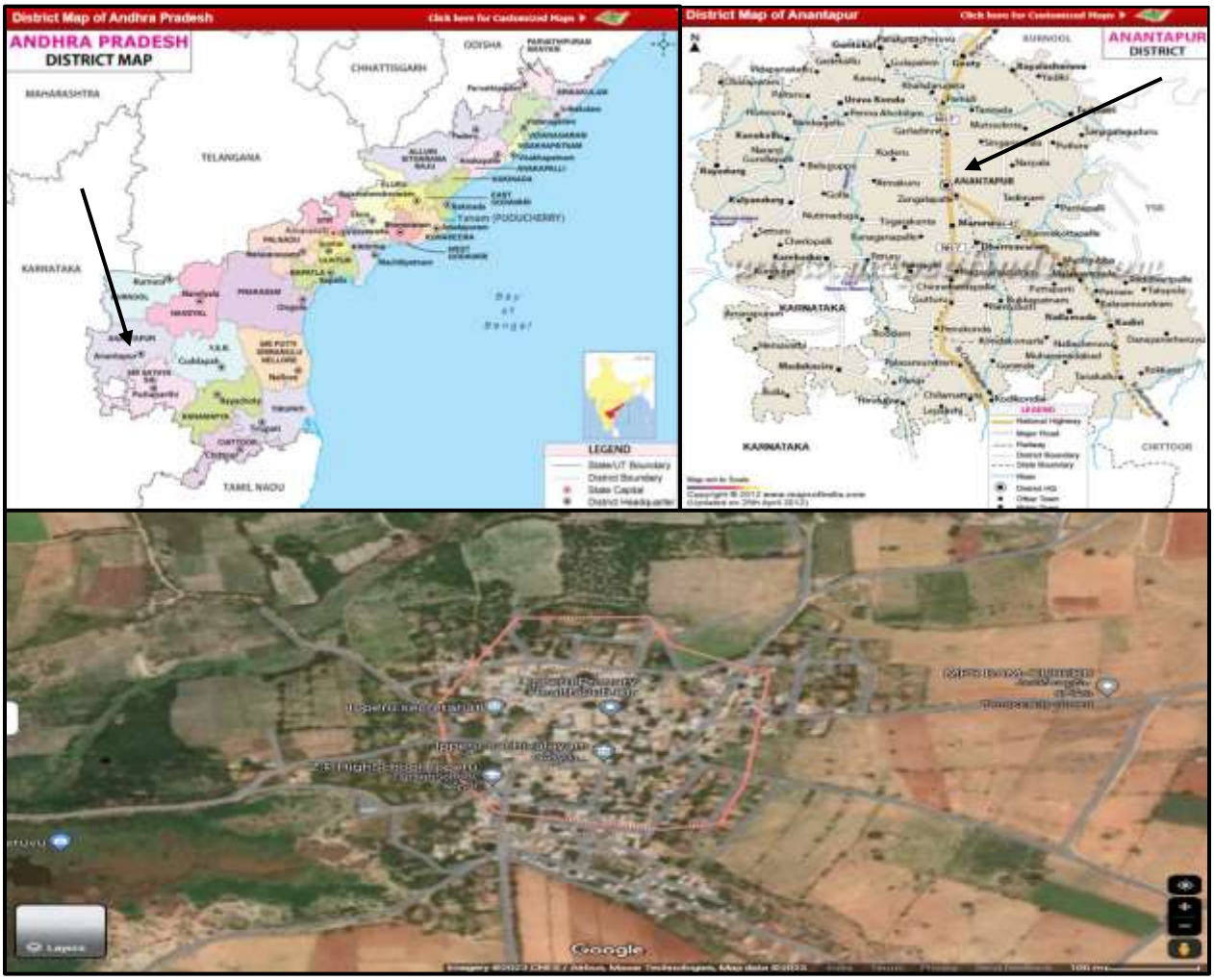
Crediting period	☐ *Seven years, twice renewable* xTen years, twice renewable☐ *Other (state the selected crediting period and justify how it conforms with the VCS Program requirements)*
Start and end date of first or fixed crediting period	02-March-2018 to 01-March-2028

1.8 Project Location

The project is located in the state of Andhra Pradesh, India.

The geographical coordinated for the all the project locations are mentioned below:

Location	Latitude	Longitude
Kalagalla	14.8138° N	77.4178°E
Ipperu	14.7770° N	77.4250°E
Padamati	13°40’59” N	79°20’49” E
Yaleru	14.6298° N	77.5082° E
Atmakur	15.87791° N	78.588842°E
Kuderu	14.7212° N	77.4128° E
Thimmapurumu	17.0286° N	82.2461°E



1.9 Title and Reference of Methodology

Type (methodology, tool or module).	Reference ID, if applicable	Title	Version
Methodology	ACM0002	"Consolidated baseline methodology for grid-connected electricity generation from renewable sources".	19.0
Tool	07	Tool to calculate the emission factor for an electricity system	7.0[4]

[4] http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v7.0.pdf

Tool	01	Tool for the demonstration and assessment of additionality	7.0.0[5]

1.10 Double Counting and Participation under Other GHG Programs

1.10.1 No Double Issuance

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

☐ Yes ☒ No

1.10.2 Registration in Other GHG Programs

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

☐ Yes ☒ No

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

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

Are project reductions and removals or project activities also included in an emissions trading program or binding emission limit? See the *VCS Program Definitions* for definitions of emissions trading program and binding emission limit.

☐ Yes ☒ No

If yes, provide all required evidence of no double claiming as outlined by the VCS Standard.

1.11.2 No Double Claiming with Other Forms of Environmental Credit

Has the project activity sought, received, or is planning to receive credit from another GHG-related environmental credit system? See the *VCS Program Definitions* for definition of GHG-related environmental credit system.

☐ Yes ☒ No

1.11.3 Supply Chain (Scope 3) Emissions

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

[5] http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf

☐ Yes ☒ No

If yes:

Is the project proponent(s) or authorized representative a buyer or seller of the product(s) (goods or services) that are part of a supply chain?

☐ Yes ☒ No

If yes:

Has the project proponent(s) or authorized representative posted a public statement on their website saying, "Carbon credits may be issued through the Verified Carbon Standard project [project ID] for the greenhouse gas emission reductions or removals associated with [project proponent or authorized representative organization name(s)] [name of product(s) whose emissions footprint is changed by the project activities]."

☐ Yes ☒ No

1.12 Sustainable Development Contributions

The contribution of this project activity in terms of following four indicators of sustainable development as stipulated by the National CDM Authority (NCDMA) of India is provided below:

Social Wellbeing:

- The project activity has generated employment opportunities for the local population in different phases of the project. Manpower requirement is there in erection and operational phase of the renewable energy project. This would result in upliftment of the living standards of the local community.

- The installation of the renewable energy projects has led to development of basic infrastructure like increasing the connectivity of roads, communication with nearby cities which in turn has led to improve the living standards of the local population.

Economic Well-being

The project activity has created business opportunities for the local populace such as suppliers, contractors etc. The use of wind energy reduces the dependence on the imported fossil fuel like coal and associated price variation thereby leading to increased energy security. It will narrow the existing electricity supply gap in Andhra Pradesh.

Environmental Well-being

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

Technological well-being

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

Table 1: Sustainable Development Contributions

Row number	SDG target	SDG indicator	Net impact on SDG indicator	Current project contributions	Contributions over project lifetime
Sequential row number	*SDG Target number*	*Number and text of SDG indicator or, if no official SDG indicator is applicable, user-defined indicator*	*Indicate the project's contribution to the SDG Indicator (implemented activities to increase or decrease)*	*Brief description of the quantifiable impact of the project's activities related to the SDG indicator, during the monitoring period.*	*Brief description of the cumulative quantifiable impact of the project's activities related to the SDG indicator, over the project lifetime.*
1)	7.2	7.2.1 Renewable energy share in the total final energy consumption	Implemented activities to increase	About 248,632 MWh renewable electricity has supplied to Indian electricity grid during the reported period that helps to increase the renewable energy share in the energy mix.	About 1,207,594 MWh renewable electricity has supplied to Indian electricity grid throughout the project lifetime that helps to increase the renewable energy share in the energy mix
2)	8.5	8.5.2 Unemployment rate, by sex, age and persons with disabilities	Implemented activities to decrease unemployment rate	Total - 166 people were employed during this monitoring period. Thus, the project activity is contributing. in the reduction of unemployment rate.	Average of 166 people were employed annually for this project activity for the current as well as the previous monitoring period. Thus, the project activity is contributing. in the reduction of unemployment rate.

3)	13.0	Tonnes of greenhouse gas emissions avoided or removed	Implemented activities to increase	By supplying 248,632 MWh clean electricity (generated through Wind Power) to Indian electricity grid, the project avoided release of 232,918 tCO_{2e} in to the atmosphere during the reporting period.	Overall Prevented the release of 1,156,591 tCO_{2e} into the atmosphere since project commissioning.

1.13 Commercially Sensitive Information

There is no commercial sensitive information related the project activity. All information is provided in the public version of the project documents.

2 SAFEGUARDS AND STAKEHOLDER ENGAGEMENT

2.1 Stakeholder Engagement and Consultation

2.1.1 Stakeholder Identification

Stakeholder Identification	The main stakeholder identified by the Project Participant are the local villagers who were the main population of the project area, local communities and the Gram Panchayat (Village Head) and Operations and Maintenance team of the Project Participant.
Legal or customary tenure/access rights	The land on which the WTG is installed is owned by the Project Participant which has project lifetime of 25 years.
Stakeholder diversity and changes over time	The project owner has conducted and stakeholder meeting during the start of registration process of this project under the VCS mechanism. In this stakeholder meeting, diverse stakeholders such as local villagers (villages nearby the project site), state utility officials, NGOs were invited. The project owner has explained the various benefits and advantages of this project including the economic impact on the local area. Over the period of the year, the nature of the stakeholders has not changed.
Expected changes in well-being	Over the course of the project implementation, there has been considerable and positive impact on the livelihood of the local people. The project activity has generated employment to the local people, development of new skills for the locals by providing trainings and exposing to various awareness programs.

Location of stakeholders	The main stakeholders of this project are: • State Utility which includes transmission and distribution companies which have offices at local (block level) and as well as State capital. • Villagers/local citizens- they are located near the project area. The project has positive impact on the local people has it has generated employment(temporary/permanent) opportunities for them.
Location of resources	The land on which the WTGs are installed belongs to the project owner. The locations of all WTGs are provided in the Section 1.8.

2.1.2 Stakeholder Consultation and Ongoing Communication

Ongoing consultation	For on-going communication, the project owner has kept grievance register in the plant site office for the stakeholders to convey their complaint/grievances. The representative of PP addresses the grievances if any to the stakeholders and communicates them on regular basis. During the current monitoring period, no negative comments were received from the local stakeholders..
Date(s) of stakeholder consultation	Local stakeholder consultation was conducted during the validation of the project. The Project Proponent had conducted local stakeholder's consultation in different villages where the project is located.

Project Location	Capacity	Date of meeting	Mode of Invitation
Kalagalla and Ipperu	10.5	16/01/2018	Public notice and Invitation letter
Ipperu, Padmatiyaleru & Atmakur	25.2	15/01/2018	Public notice and Invitation letter

	Ipperu, Kuderu & Atmakur	16.8	28/07/2018	Public notice and Invitation letter
	Ipperu & Kuderu	10.5	15/01/2018	Public notice and Invitation letter
	Kalagalla, Kuredu, Padamatiyaleru & Atmakur	21	31/01/2018	Public notice and Invitation letter
	Kammuru, Kuredu & Thimmapurumu	21	27/07/2018	Public notice and Invitation letter
Communication of monitored results	The main outcomes and benefits of the project activity like total power generated, corresponding GHG emission reduction and providing employment opportunities was explained to all the stakeholders.			
Consultation records	The consultation with stakeholders was documented in the forms of Minutes of Meeting consisting outcome of the consultation process and the same has been shared with the stakeholders.			
Stakeholder input	During the stakeholder's consultation process, the below inputs were received for the project : 1. How many units of green power were generated during the current monitoring period? PP response: During the current monitoring period, 248,632 MWh of net electricity was generated by the project activity and supplied to the grid. 2. How much GHG emission reduction was achieved during the current monitoring period?			

	PP response: The total actual GHG emission reductions achieved in current monitoring period are 232,918 tCO_{2e}. 3. Will the project activity provide employment opportunities? PP response: PP has provided employment to 166 people during the current monitoring period. All inputs were addressed properly by the Project Proponent.

2.1.3 Free, Prior, and Informed Consent

Consent	The project area legally belongs to the Project Proponent and no conflicts have arised relatedto the rights of the project, the project location or any other disagreements with any stakeholders.
Outcome of FPIC	The project site belongs to the Project Proponent and it has a legal document of its rights over the Land. In the process, there has no displacement or relocation of the local villages. Since the start of the project activity, there has been many positive economic impacts which has greatly contributed to the upliftment of the region.

2.1.4 Grievance Redress Procedure

Grievances received	Resolution and outcome
No grievances received during the monitoring period.	There is a grievance register which is kept at the project site location. Any stakeholder who has any complaint or suggestion can contact as per the details mentioned. The project representative would be immediately reverting as necessary.

2.1.5 Public Comments

Summary of comments received	Actions taken
No negative comments have been received.	Since the commissioning, there has been no change in the project design and therefore any updates were not necessary.

2.2 Risks to Stakeholders and the Environment

	Risk identified	Mitigation or preventative measure taken
Risks to stakeholder participation	No risk identified	The implementation of the project activity has to lead to increase in employment during the installation and operation phases of the project.
Working conditions	No risk identified	Improved working conditions due to better infrastructure at the project site.
Safety of women and girls	No risk identified	There is no involvement of women or girls in the project activity and the installation of project activity does not displace the current living conditions of the local people.
Safety of minority and marginalized groups, including children	No risk identified	The project representatives and Suzlon who is the O & M contractor at site made sure that there was no minor, or any marginalized group or any children present on the site locations during the installation and operational phase. Suzlon has structured and implemented HSE manual specifying the standard procedures to be followed at the project site. This helps to maintain a safe working environment for the employees of the project.

Pollutants (air, noise, discharges to water, generation of waste, release of hazardous materials)	No risk identified	At no stage of the project activity, there is air, noise pollution, nor water pollution and also there is no discharge of wastewater and release of hazardous materials.

2.3 Respect for Human Rights and Equity

2.3.1 Labor and Work

Discrimination and sexual harassment	No discrimination or sexual harassment has occurred and the same can be confirmed by the local stakeholders of the project area.
Management experience	The project proponent has vast experience of managing renewable energy projects all over India. The team consists of engineers, technicians and project managers. There is no involvement of any other entity.
Gender equity in labor and work	The project proponent promotes gender equality in work and pay. It was ensured that equal salary was given to the men and women present on the site location.
Human trafficking, forced labor, and child labor	Project activity does not involve any victims of human trafficking, forced labor or child labor. The same can be confirmed by the local stakeholders living nearby the project site.

2.3.2 Human Rights

The project site and its surrounding area does not have presence of any indigenous and tribal people. The local villages and the people residing near the project activity were not relocated nor displaced from their current location due to the implementation of the project activity. Hence there is no human rights conflict present at the project sites. The project area is legally owned by the Project Proponent and there is no implication of rights of IPs, LCs and customary rights holders of any individual or group or a community on the project activity nor the surrounding areas.

2.3.3 Indigenous Peoples and Cultural Heritage

The project area and its surrounding area does not have any cultural or heritage site present.

2.3.4 Property Rights

Disputes over rights to territories and resources	No dispute has arisen so far.
Respect for property rights	The project area belongs to the project proponent.

2.3.5 Benefit Sharing

Summary of the benefit sharing plan	Although the project owner has no legal/binding commitment to share the revenue or profit with any other stakeholder but the project owner have executed a couple of CSR programs which has benefitted the schools, temples and the local communities. All assets of this project and the revenue generated by the project belongs to the project owner and there is no benefit sharing agreement cum plan with any of the stakeholders.
Benefit sharing during the monitoring period	There has been no legally binding commitment to share the benefits so there is no such a plan in place. However, PP has executed different CSR programs which has benefitted the schools and temples located near the project site.

2.4 Ecosystem Health

	Risk identified	Mitigation or preventative measure taken during the monitoring period
Impacts on biodiversity and ecosystems	No risk identified	There is no negative impact on the biodiversity and the ecosystem of the project area. It was expected at the time of validation that there will be a gradual improvement in the vegetation due to the increased economic activities close to the project areas. However, there has been no increase in vegetation cover.

Soil degradation and soil erosion	No risk identified	There were negligible impacts on soil degradation or erosion. The top soil was excavated during construction which was stockpiles and again used for compaction. .
Water consumption and stress	No risk identified	There is no water requirement for the operation of the wind power plant. Only requirement is for drinking and sanitation purpose. The consumption of freshwater during construction was also limited. Therefore, the project has no negative impact on the water quality or quantity.
Usage of fertilizers	No risk identified	There was no usage of fertilizers in the surrounding area of the project sites.

2.4.1 Rare, Threatened, and Endangered species

Species or habitat	No rare species are found in the surrounding area of the project site. It is not a migratory route for any birds. Therefore, it does not cause any obstruction in the path of migratory birds.

2.4.2 Introduction of species

Species introduced	Classification	Justification for use	Adverse effects and mitigation
N/A	N/A	N/A	N/A

Existing invasive species	Mitigation measures to prevent spread or continued existence of invasive species
N/A	N/A

2.4.3 Ecosystem conversion

The project area did not involve clearing of any existing ecosystems or any land cover. Therefore, it is not applicable.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

The project has been completed and the monitoring equipment are installed to monitor the parameters as described in the registered Project Description (PD). All the WTGs involved in the project activity are already commissioned and operational.

Technical specifications of Suzlon S 111 WTG

Operating Data	
Rated power	2.1 MW
Cut-out speed	21.0m/s
Cut-in speed	3 m/s
Rated speed	10 m/s
Hub height	90 m
Rotor diameter	111.80 m
Rotor speed range	9.4 to 13.0 rpm
Rotor	
Pitch system	Electric asynchronous motor, 3 stage-planetary gearbox
Diameter	111.8 m
Swept area	9852 m^2
Blade material	The three blades are 54.6 m in length and are made of reinforced Epoxy, vacuum infused glass
Generator Type	Asynchronous- 3 phase induction generator with slip-rings operated with rotor circuit inverter system (DFIG).
Yaw system	
Type	Friction bearing with gear rim
Bearings	Spherical roller bearing
Braking system	Hydraulic disc brake, activated by hydraulic pressure

The details of commissioning schedule of the WTGs in this project activity have been provided below:

Project Proponent	**Capacity**	**Date of Commissioning**
	10.5	02-March-2018

Axis Wind Farms (Rayalaseema) Pvt. Ltd.	25.2	30-March-2018
	16.8	15-June-2018
	10.5	19-July-2018
	21	04-September-2018
	21	27-September-2018

The WTGs are under operation including scheduled shutdowns during the current monitoring period and no such event has been identified in the current monitoring period which may impact GHG emissions reductions.

The project owner had hired EKI Energy Services Limited as a Service provider for conducting validation and previous verification of the project, but they have decided to remove the service provider and the get the verification process done by their Internal team.

3.2 Deviations

3.2.1 Methodology Deviations

No methodology deviation is applied during the monitoring period.

3.2.2 Project Description Deviations

Deviation 1:

As per the VCS Joint PD and MR section 4.2 the monthly electricity supplied/exported by the project activity in the JMR report is cross checked with the monthly invoices of sale (of electricity). Also, it is clearly stated in the section 4.2 of the current monitoring report that, Net electricity supplied to the grid by the project plant in a given month = Export (MWh)– Import (MWh). However, as per the project site practice, there are two types of invoices - one for electricity export while the other (HT bill) is electricity import.

The calculation approach for arriving to the Export and the Import values are mentioned below one by one.

For Export (MWh): The values of electricity export are adjusted with line loss percentage (provided in monthly JMRs) in accordance with the formula Electricity Delivered (export) = Meter reading – (meter reading* line loss %). The values of electricity export thus obtain are compared with the values of electricity export as per invoices and for each month, smaller of them is considered for Emissions Reductions calculations as per conservative approach for all the months covered in current monitoring period.

The values of electricity export thus obtained (for months October 2022 to September 2023) are compared with values of export in invoices (Export Invoice) and smaller of the values are considered

for Emissions Reductions calculations as per conservative approach. Also, since the values are mentioned in KWh in the JMR and Invoices the final Export values are converted into MWh for calculation of net electricity.

For Import (MWh): In case electricity import, for the months October 2022 to September 2023, the values of electricity import (as in JMR) are adjusted with transmission and distribution losses according to the formula as per project site practice:

Electricity Import = Import (as per JMR) *103%

The values of electricity import thus obtained (for months October 2022 to September 2023) are compared with values of import in invoices (HT bills) and greater of the values are considered for Emissions Reductions calculations as per conservative approach. Also, since the values are mentioned in KWh in the JMR and Invoices the final Import values are converted into MWh for calculation of net electricity.

Thus, the calculation approach for the Export (MWh) and Import (MWh) values has been clearly mentioned above. In order to obtain the values of "Quantity of net electricity generation supplied by the project plant/unit to the grid", the monthly values of electricity import (obtained by the method described here) are subtracted from the values of electricity export (obtained by the method described above). This is conservative approach for Emissions Reductions calculations and is being followed in the present verification and future issuances as well.

The deviation 1 was taken in 2nd periodic verification for the monitoring period 01-December-2019 to 31-December-2020. The deviation as described above is sought on the calculation approach for the export and import values. The deviation does not have any impact on the project applicability, baseline scenario, and additionality.

Deviation 2:

The contact details of the Project Proponent have been updated in the Section 1.3 in the 5th periodic verification. The contact details of the other entities involved were also updated in Section 1.4.

Deviation 2 was taken in the 5th periodic verification for the monitoring period 01-January-2022 to 31-March-2022.

The above-mentioned deviations are of permanent nature and does not have any impact on the project applicability, baseline scenario, and additionality.

Deviation 3

During the site assessment of current verification period, (7th periodic verification), the auditor has noted that model of WTGs installed in the projects has not been mentioned properly. There

was a misrepresentation by the representative of the project owner and even by the verifying agency related to the WTGs model installed in this project. The actual model installed in the project site is S111 WTG (Make- Suzlon) while in the all previous monitoring and verification reports and project document WTGs model mentioned was S 88(Make- Suzlon).

The project owner has decided to take a deviation and correct the error in the current monitoring report as well as in the project verification report.

Deviation- 3 is being taken in the 7th periodic verification for the monitoring period 01-October-2022 to 30-September-2023. The above-mentioned deviation is of permanent nature and does not have any impact on the project applicability, baseline scenario, and additionality.

3.3 Grouped Projects

The project is not a grouped project - thus this is not applicable.

3.4 Baseline Reassessment

Did the project undergo baseline reassessment during the monitoring period?

☐ Yes ☒ No

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	$EF_{grid, OM,y}$
Data unit	tCO_2/MWh
Description	Operating Margin CO_2 emission factor in year y
Source of data	Calculated from CEA database, Version 14, Dec 2018[6]
Value applied	0.9610
Justification of choice of data or description of measurement methods and procedures applied	Calculated as per "Tool to calculate the emission factor for an electricity system, version 07" as 3-year generation weighted average using data for the years 2015-16, 2016-17 and 2017-18. The data are obtained from "CO2 Baseline Database for Indian Power Sector" version 14, published by the Central Electricity Authority, Ministry of Power, Government of India.

[6] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

Purpose of Data	• Calculation of baseline emissions
Comments	The value is fixed and it is same for the entire crediting period

Data / Parameter	$EF_{grid, BM,y}$
Data unit	tCO_2/MWh
Description	Build Margin CO_2 emission factor in year y
Source of data	Calculated from CEA database, Version 14, Dec 2018[7]
Value applied	0.8644
Justification of choice of data or description of measurement methods and procedures applied	Calculated as per "Tool to calculate the emission factor for an electricity system, version 07" as per the latest data available for the most recent year 2017-18. The data are obtained from "CO_2 Baseline Database for Indian Power Sector" version 11, published by the Central Electricity Authority, Ministry of Power, Government of India.
Purpose of Data	• Calculation of baseline emissions
Comments	The value is fixed and it is same for the entire crediting period

Data / Parameter	$EF_{grid, CM, y}$
Data unit	tCO_2/MWh
Description	Combined margin CO_2 emission factor in year y
Source of data	Calculated from CEA database, Version 14, Dec 2018[8]
Value applied	0.9368
Justification of choice of data or description of measurement methods and procedures applied	The combined margin emissions factor is calculated as follows: $EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid, BM,y} * W_{BM}$ Where: $EF_{grid,BM,y}$ = Build margin CO_2 emission factor in year *y* (tCO_2/MWh) $EF_{grid,OM,y}$= Operating margin CO_2 emission factor in year *y* (tCO_2/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 75% W_{BM}= Weighting of build margin emissions factor (%) = 25%
Purpose of Data	• For the calculation of the Baseline Emission
Comments	This parameter is fixed ex-ante for the entire crediting period.

[7] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

[8] http://www.cea.nic.in/reports/others/thermal/tpece/cdm_co2/user_guide_ver14.pdf

4.2 Data and Parameters Monitored

<table>
<tr><td>Data / Parameter</td><td>EG $_{PJ, y}$</td></tr>
<tr><td>Data unit</td><td>MWh</td></tr>
<tr><td>Description</td><td>Quantity of net electricity supplied by the project plant/unit to the grid in year y in MWh</td></tr>
<tr><td>Source of data</td><td>Monthly JMRs from SLDC</td></tr>
<tr><td>Description of measurement methods and procedures to be applied</td><td>The difference of final value of export and import is used for monthly values of net electricity supplied to the grid by the project activity and same value is being considered for ER calculations.</td></tr>
<tr><td>Frequency of monitoring/recording</td><td>Continuous measurement & monthly recording</td></tr>
<tr><td>Value monitored</td><td>
<table>
<tr><td>Year</td><td>Net Electricity Supplied</td></tr>
<tr><td>1st October 2022 to 31st December 2022</td><td>22,786</td></tr>
<tr><td>1st January 2023 to 30th September 2023</td><td>225,846</td></tr>
<tr><td>Total</td><td>248,632</td></tr>
</table>
</td></tr>
<tr><td>Monitoring equipment</td><td>The electricity exported / supplied by the plant to pooling substation and further to substation. This meter also measures electricity imported by the plant from the grid.

<table>
<tr><th>Meter Type</th><th>Main meter</th><th>Check meter</th><th>Standby Meter</th></tr>
<tr><td>Make</td><td>L&T</td><td>L&T</td><td>L&T</td></tr>
<tr><td>Serial No.</td><td>0020006260</td><td>0020008138</td><td>0020006261</td></tr>
<tr><td>Accuracy class</td><td>0.2s</td><td>0.2s</td><td>0.2s</td></tr>
<tr><td>Date of Calibration</td><td>29/03/2022</td><td>29/03/2022</td><td>29/03/2022</td></tr>
<tr><td>Valid till</td><td>28/03/2027</td><td>28/03/2027</td><td>28/03/2027</td></tr>
</table>

The energy meters[9] were replaced with new ones on 22/06/2023. The details of the new main and check meter are mentioned in the below table:
<table>
<tr><td>Meter Type</td><td>Main meter</td><td>Check Meter</td><td>Standby Meter</td></tr>
</table>
</td></tr>
</table>

[9] Project Proponent was informed by the Andhra Pradesh Southern Power Distribution Company Limited (APSPDCL) through a letter dated 18/04/2023 to replace the energy meters with new ones because the metering has to comply with latest DLMS standard protocols. Therefore, the meters were replaced on 22/06/2023 and its Test report is submitted to the DOE.

	<table><tr><td>Serial No.</td><td>0023009826</td><td>0023009827</td><td>0023009828</td></tr><tr><td>Accuracy class</td><td>0.2s</td><td>0.2s</td><td>0.2s</td></tr><tr><td>Date of Calibration</td><td>22/06/2023</td><td>22/06/2023</td><td>22/06/2023</td></tr><tr><td>Valid till</td><td>21/06/2028</td><td>21/06/2028</td><td>21/06/2028</td></tr></table>
QA/QC procedures to be applied	The meters are approved, tested & sealed by the State Utility. The meters are in the custody of State Utility. The frequency of calibration is once in 5 years. The monthly net electricity supplied/exported by the project activity in the JMR report is cross checked with the monthly invoices of sale. In the absence or delay in the meter calibration appropriate Guidelines are being applied appropriately to confirm the conservativeness of metering. The metering arrangement, accuracy class of meters, calibration frequency is under control of state electricity board and PP do not have any control on it. PP is getting value of net electricity supplied to grid and the same is considered as the monitoring parameter. The monthly billing is raised based on substation meters.
Purpose of the data	Calculation of baseline emissions
Calculation method	Thus, Net electricity supplied to the grid by the project plant in a given month = Export[10] & [11](MWh)– Import[12] (MWh)
Comments	Data will be archived in paper & electronic form for two years after the end of crediting period or of the last issuance of VERs for this project activity, whichever occurs later.

4.3 Monitoring Plan

The monitoring plan is developed in accordance with the modalities and procedures for VCS project activities and is proposed for grid-connected wind energy project being implemented. The monitoring plan, which will be implemented by the project participant describes about the

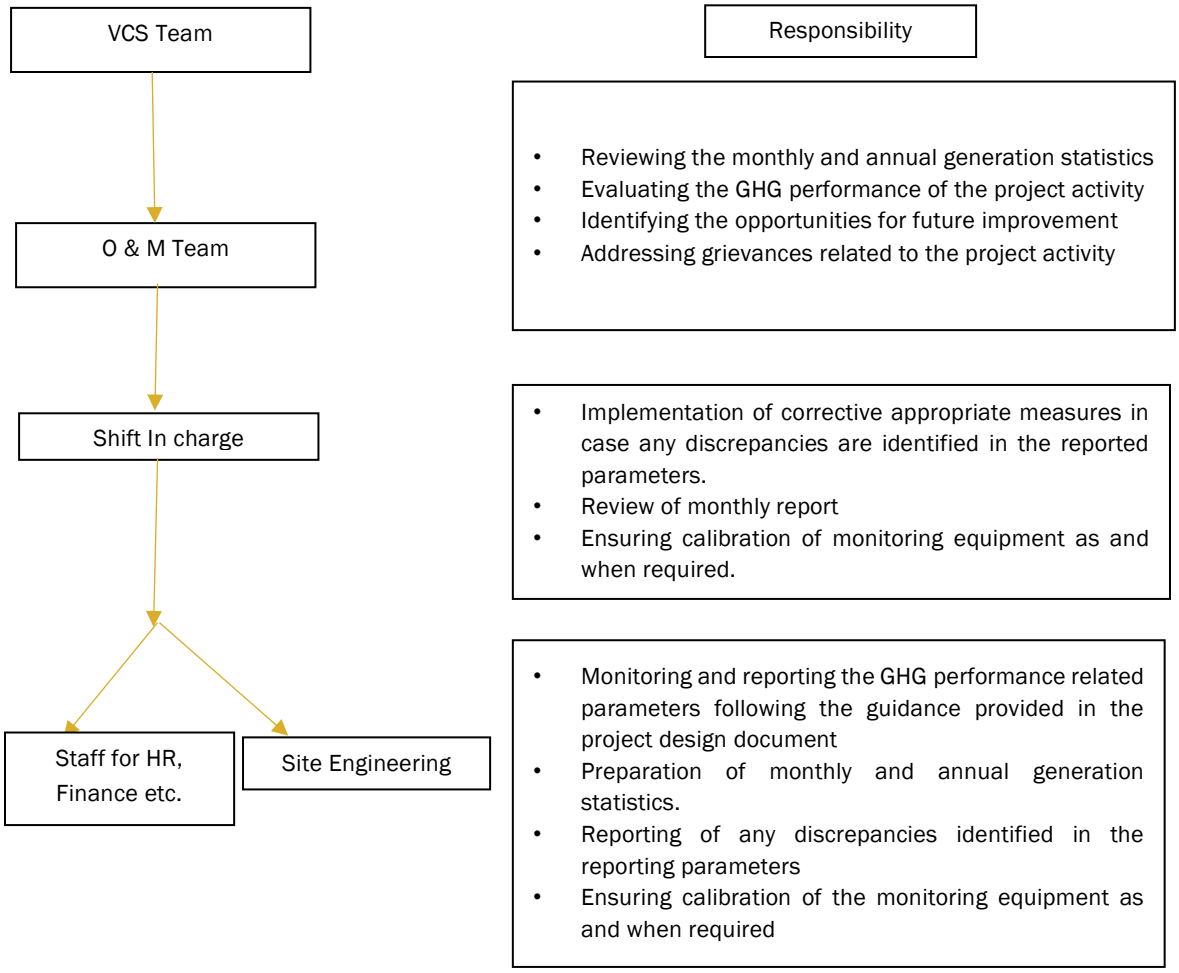
[10] Electricity export value is obtained by adjusting the line loss % according to the formula (given in JMR) i.e., electricity export = meter reading for export - (meter reading for export*line loss %)

[11] Electricity export value thus obtained adjusting line loss % compared to electricity delivered(export) invoices and smaller value of the two has been considered for ER calculations as per conservative approach.

[12] 3% has been added to the import values to adjust T&D losses for the entire monitoring period and the values thus obtained compared with values in invoices (HT bill) and then greater of the two values have been considered for ER calculations.

monitoring organization, parameters to be monitored, monitoring practices, quality assurance, quality control procedures, data storage and archiving.

The authority and responsibility for registration, monitoring, measurement, reporting and reviewing of the data rests with the project participant. PP proposed the following structure for data monitoring, collection, data archiving and calibration of equipment for this project activity. The team comprises of the following members:



Data Measurement

The export and import energy will be measured continuously using above mentioned Main and Check meters located at the substations. Readings of meters shall be taken on monthly basis by authorized officer of SEB in the presence of PP or representative of PP. Based on the Meter Reading Statement to PP, invoices will be raised. These invoices can be used for cross checking the meter readings taken for the respective project activity.

Data collection and archiving

Readings from meters will be collected in the presence of the plant in-charge. Export and Import data would be recorded and stored in logs as well as in electronic form on a daily basis. The records are checked periodically by the Plant Manager and discussed thoroughly with the plant supervisor. The period of storage of the monitored data will be 2 years after the end of crediting period or till the last issuance of VCUs for the project activity whichever occurs later.

Internal Audit

PP has carried out the internal audit annually and whenever necessary to verify that the monitoring plan satisfies the VCS Standards, or the standards provided by other laws and regulations to be conformed to and abides by the procedures specified in the registered VCS PD.

Procedures for handling non-conformances with the validated monitoring plan

If any non-conformity is observed in the proposed monitoring plan, then the same shall be reported to the VCS board at the time of the VCS verification along with the corrective actions taken by the PP.

Emergency preparedness

The project activity will not result in any unidentified activity that can result in substantial emissions from the project activity. No need for emergency preparedness in data monitoring is visualized.
In the event that the main meter, which is used to record the net electricity exported by the project, is found to be faulty it will be repaired or replaced and the data from the check meter will be used in its place. In the unlikely event that the check meter fails it will also be repaired or replaced. However, it is very unlikely that both meters will become faulty simultaneously but if such situations arrives then data recorded in the SCADA system will be considered for the emission reduction calculation purpose. A margin error of 2% will be deducted as per meter accuracy class (0.2s) from the net generation for emission reduction calculation.

Personnel training

In order to ensure a proper functioning of the project activity and a properly monitoring of emission reductions, the staff will be trained. The plant helpers will be trained in equipment operation, data recording, reports writing, operation and maintenance and emergency procedures in compliance with the monitoring plan.

Also, as described in the diagram above the Site In-charge is responsible for the internal periodic inspection of the project for at least once in a year. Also, corrective action for any non-conformities or discrepancies identified during the audit are to be resolved by the site In-charge.

Metering Arrangement

Line diagram with metering arrangement for the wind project activity is shown below:

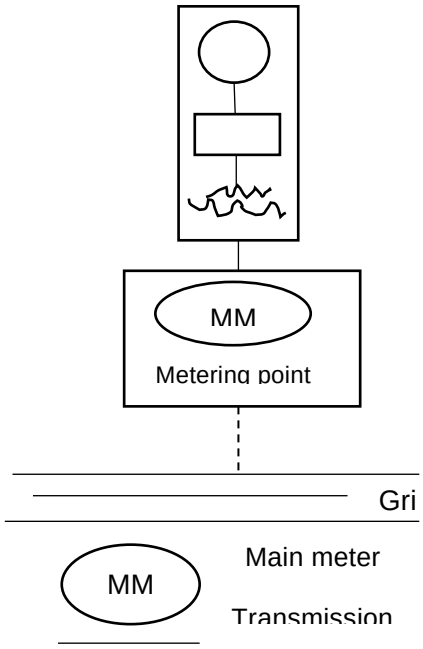


Figure 1 Line Diagram

QA/QC procedures

The energy meters at the feeders are maintained and owned by state electricity board. Neither the project proponent nor the site personnel have any control over it. The records will be crosschecked with the records of sold electricity to state electricity board. The meters are calibrated by state electricity board at-least once in five years.

Apportioning

In case the dates of a particular monitoring period do not match with the dates of the billing cycle, the net electricity exported to the grid would be calculated from:

• Apportioning the net electricity exported to grid, as recorded in the consolidated Share Certificate / JMR Report / Credit Notes certified by the respective state DISCOM, based on the number of days in the monitoring period and the number of days for which Share Certificate / JMR Report / Credit Notes was prepared.

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

As per the approved consolidated Methodology ACM0002 (Version 19.0) para 42:

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:

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

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/year)

$EF_{grid,y}$ = 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" (t CO_2/MWh)

Total net electricity exported $EG_{PJ,y}$ = 248,632 MWh

$EF_{grid, CM, y}$ = 0.9368 tCO_2/MWh

Year-wise calculation of Baseline Emissions

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

= 248,632 MWh x 0.9368 tCO_2/MWh

= 232,918 **tCO_2**.

5.2 Project Emissions

The project emissions from the wind power project activity is zero as per the ACM0002, para 34. 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, PEy = 0.

5.3 Leakage Emissions

As per the para 56 in the ACM0002, no other leakage emissions are considered. The emission potentially arising due to activities such as power plant construction and upstream emissions from fossil fuel use are neglected.

$LE_y = 0$

5.4 GHG Emission Reductions and Carbon Dioxide Removals

The net emission reductions achieved during the current monitoring period are being calculated as per below equation:

Net Emission Reductions = BEy - PEy

= 232,918 – 0 = 232,918 tCO_2e

:

Vintage period	Baseline emissions (tCO_2e)	Project emissions (tCO_2e)	Leakage emissions (tCO_2e)	Reduction VCUs (tCO_2e)	Removal VCUs (tCO_2e)	Total VCUs (tCO_2e)
01-October-2022 to 31 December 2022	21,346	0	0	21,346	0	21,346
01-January-2023 to 30-September 2023	211,572	0	0	211,572	0	211,572
Total	232,918	0	0	232,918	0	232,918

Vintage period	Ex-ante estimated reductions/ removals	Achieved reductions/ removals	Percent difference	Explanation for the difference
01-October-2022 to 31-December-2022	49,953	21,346	-57.27%	Power generation by WTGs is directly proportional to the wind speed and it is higher in high wind seasons. This period was a moderate wind season. Hence it resulted in lower emission reduction

				compared to the estimated ERs.
01-January-2023 to 30-September-2023	148,230	211,572	42.73%	Power generation by WTGs is directly proportional to the wind speed and it is higher in high wind seasons. This monitoring period involved high wind season so the generation. The main reason of the higher generation and higher emission reduction in the current monitoring period is better wind speed during both high and moderate wind season. An improved and better O & M practice has also contributed in improving generation and overall emission reduction.
Total	198,183	232,918	17.53%	

As per the registered PD estimated annual emission reduction from the project activity is 198,183 tCO_2e, whereas actual emission reductions achieved during the current monitoring period is 232,918 tCO_2e, which is 17.53% increase than the estimated annual emission reductions. This increase in the emission reduction is due to higher generation achieved during the both high wind (June to September) and moderate wind season (Dec-January). Also, overall improved and better O & M practice has contributed in improving generation and emission reduction.

The annual average generation as per the project document (PD) is 216.153 MWh with 23.50% PLF. During the current monitoring period which is also a one-year time window, the project has generated 248,632 MWh with the approx. 27.03% PLF which is approx. 15% higher than the assumed PLF.

Even after an increase in the PLF by 15% particularly for this monitoring period, the RoI/IRR of the project does not cross the benchmark return. The project will fail the additionality test if PLF increases by 20.30% more than the assumed/base value which is not the case.

Moreover, this increase has happened for a particular year while additionality considers the generation and corresponding cash flow for 25 years.

Thus, the increase in the PLF for this particular monitoring window will not impact the project's additionality.

APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION

Section	Information	Justification

The above section is not applicable.