RENEWABLE ENERGY POWER PROJECTS BY ATRIA POWER

Document Prepared by: Kosher Climate India Private Limited

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1 PROJECT DETAILS

1.1 Summary Description of the Implementation Status of the Project

The proposed project activity involves the installation of Wind and Solar Power Projects in Karnataka State of India. The purpose of the project activity is to generate clean electricity with utilization of wind & solar energy. The total installed capacity of the project is 148.8 MW; which involves operation of three wind projects of 39.6 MW capacity each (total capacity of 118.8 MW) and 1 Solar power plants with total capacity of 30 MW located at Karnataka, India. All the three wind projects are located in the same region and connected to Atria 33/220 kV pooling substation at Basavana Bagewadi. The pooling substation is connected with KPTCL 220/110/33/11 kV receiving substation at Basavana Bagewadi. The solar power project is connected with KPTCL 66/11 kV Kogali substation. The wind and solar power projects are promoted by subsidiaries of Atria Power Corporation Pvt. Limited. The details of which are as follows:

Wind Project Name	Project Promoters	Capacity (MW)	Purpose	Grid	District
Project 1	Atria Wind Power (Basavana Bagewadi) Pvt Ltd	39.60	Sale to Third Party	National	Vijayapura
Project 2	Atria Wind Power (Bijapur 1) Pvt Ltd	39.60	Sale to Third Party	National	Vijayapura
Project 3	Atria Wind Power (Chitradurga) Pvt Ltd	39.60	Sale to Third Party	National	Vijayapura

Solar Project Name	Project Promoters	Capacity (MW)	Purpose	Grid	District
Project 4	Atria Solar Power (Chamarajnagar) Pvt Ltd	30	Sale to Third Party	National	Bellary

All the projects are already commissioned and running.

Project Promoters (Wind)	Installed Capacity	WTGs	Feeder	Commissioning Date
Atria Wind Power (Basavana Bagewadi) Pvt Ltd	39.6 MW	9 x 2.2 MW	Feeder 1	18.04.2018
		9 x 2.2 MW	Feeder 2	18.04.2018
Atria Wind Power (Bijapur 1) Pvt Ltd	39.6 MW	9 x 2.2 MW	Feeder 3	18.04.2018
		9 x 2.2 MW	Feeder 4	18.04.2018
Atria Wind Power (Chitradurga) Pvt Ltd	39.6 MW	9 x 2.2 MW	Feeder 5 &6	27.04.2019
		9 x 2.2 MW	Feeder 5& 6	29.04.2019

Project Promoters (Solar)	Installed AC Capacity	Installed DC capacity	Commissioning Date
Atria Solar Power (Chamarajnagar) Pvt Ltd	30 MW	37.5 MWp	25.01.2018

All the projects are connected with Indian national grid. The electricity generated by each project is sold to third party via wheeling agreement with DISCOM. The project activity will therefore displace an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid. Since wind power is Greenhouse Gas (GHG) emissions free, the power generated will prevent the anthropogenic gas emissions generated by fossil fuel based thermal power stations comprising coal, diesel, furnace oil and gas.

There was no activity at the site prior to implementation of the project activity. Hence the scenario existing prior to the project activity is same as baseline scenario which is continual use of highly carbon intensive electricity in the regional grid.

The estimation of GHG reductions by this project is limited to carbon dioxide (CO_2) only. The project activity leads to an annual average emission reduction of 314,814 tCO_2 per year or 3,148,137 tCO_2 for the chosen crediting period of 10 years.

The current monitoring period chosen is from 01-December-2019 to 30-June-2021 (inclusive of first & last date) and the GHG emission reductions calculated are 467,623tCO_2.

1.2 Sectoral Scope and Project Type

Sectoral Scope: 01- Energy Industries (Renewable/Non-Renewable Sources)

Project Type: Type I

Methodology:

ACM0002: Grid-connected electricity generation from renewable sources, version 19.0

The project is not a grouped project; it consists of 3 independent wind power projects and 1 independent solar power project by 4 project developers with combined capacity of 148.8 MW.

1.3 Project Proponent

Organization name	Atria Wind Power (Basavana Bagewadi) Pvt Ltd
Contact person	Kaushik Surender Rao
Title	Director
Address	11, Commissariat Rd, Ashok Nagar, Bangalore- 560025, Karnataka, India
Telephone	+91 80 4941 1411
Email	info@atriapower.com

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Organization name	Atria Wind Power (Chitradurga) Pvt Ltd
Contact person	Kaushik Surender Rao
Title	Director
Address	11, Commissariat Rd, Ashok Nagar, Bangalore- 560025, Karnataka, India
Telephone	+91 80 4941 1411
Email	info@atriapower.com
Organization name	Atria Wind Power (Bijapur 1) Pvt Ltd
Contact person	Kaushik Surender Rao
Title	Director

Address	11, Commissariat Rd, Ashok Nagar, Bangalore- 560025, Karnataka, India
Telephone	+91 80 4941 1411
Email	info@atriapower.com

Organization name	Atria Solar Power (Chamarajnagar) Pvt Ltd
Contact person	Kaushik Surender Rao
Title	Director
Address	11, Commissariat Rd, Ashok Nagar, Bangalore- 560025, Karnataka, India
Telephone	+91 80 4941 1411
Email	info@atriapower.com

1.4 Other Entities Involved in the Project

Organization name	Kosher Climate India Private Limited
Role in the project	Consultant /Bundling Agency
Contact person	Vamsi Krishna
Title	Global Business Head
Address	#109, 2nd Floor, 27th Main, HSR Layout, Bangalore- 560102
Telephone	080-25720814
Email	vamsi@kosherclimate.com

1.5 Project Start Date

The start date for this project is 25-January-2018. This is the day on which the commissioning of the solar project (which is earliest commissioning amongst all the individual projects which are part of this Large Scale Project)

1.6 Project Crediting Period

25-January-2018 to 24-January-2028 will be the 1st crediting period.

The project activity adopts renewable crediting period of 10 years period which can be renewed for maximum 2 times

1.7 Project Location

The project activity is located is located in Karnataka state of India. The table provides details of location of each project:

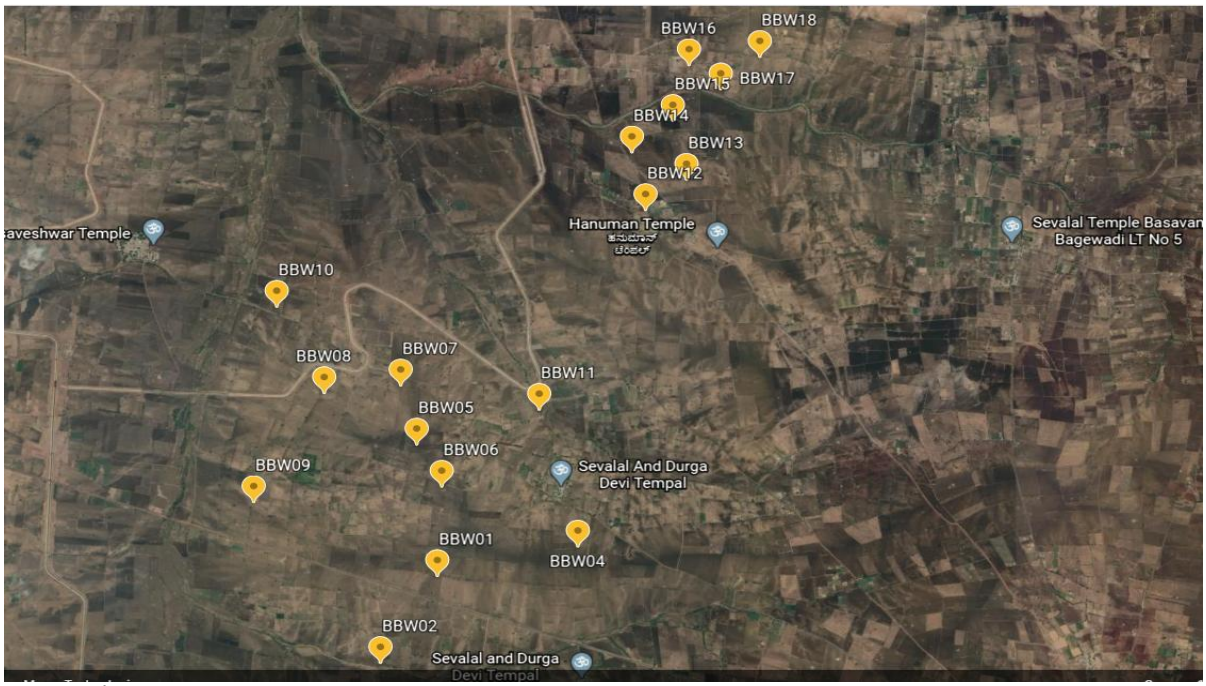
Project	Project Promoters	Capacity	Location
Project 1	Atria Wind Power (Basavana Bagewadi) Pvt Ltd	39.60 MW	Basavana Bagewadi Taluk Vijayapura District, Karnataka
Project 2	Atria Wind Power (Bijapur 1) Pvt Ltd	39.60 MW	Basavana Bagewadi Taluk Vijayapura District, Karnataka
Project 3	Atria Wind Power (Chitradurga) Pvt Ltd	39.60 MW	Basavana Bagewadi Taluk Vijayapura District, Karnataka
Project 4	Atria Solar Power (Chamarajnagar) Pvt Ltd	30 MW	Kogalli village, Hagaribommanahalli Taluk, Bellary District, Karnataka.

The geographical coordinates of the Wind projects are given below:

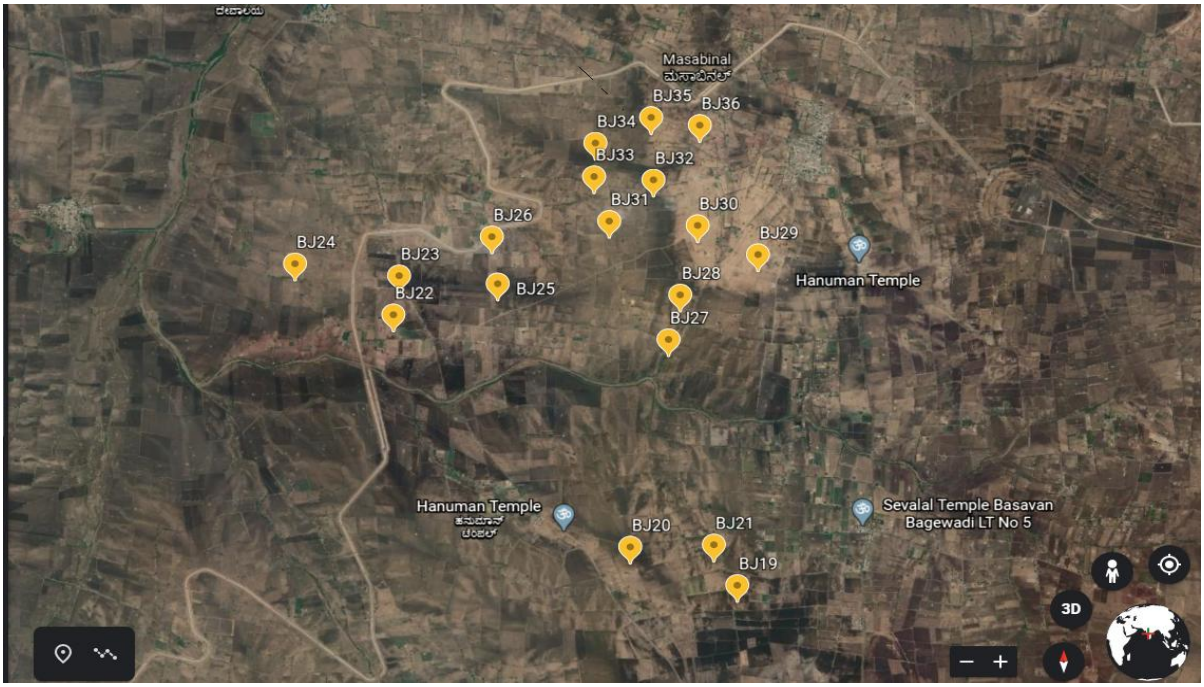
Project	New Turbine No	Feeders	WTG Coordinates	
			Latitude (° N)	Longitude (° E)
Project 1	BBW01	1	16.5970	75.9161
	BBW04	1	16.5998	75.9284
	BBW09	1	16.6040	75.9000
	BBW06	1	16.6055	75.9165
	BBW05	1	16.6095	75.9143
	BBW07	1	16.6151	75.9129
	BBW08	1	16.6144	75.9062

	BBW10	1	16.6226	75.9020
	BBW11	1	16.6128	75.9250
	BBW02	2	16.5887	75.9111
	BBW16	2	16.6456	75.9381
	BBW18	2	16.6464	75.9443
	BBW14	2	16.6373	75.9331
	BBW13	2	16.6347	75.9379
	BBW17	2	16.6433	75.9409
	BBW15	2	16.6403	75.9367
	BBW12	2	16.6318	75.9343
	BBW03	2	16.5998	75.9284
Project 2	BJ24	3	16.6507	75.9174
	BJ31	3	16.6545	75.9445
	BJ35	3	16.6638	75.9481
	BJ36	3	16.6631	75.9523
	BJ32	3	16.6582	75.9483
	BJ33	3	16.6585	75.9432
	BJ22	3	16.6461	75.9259
	BJ34	3	16.6615	75.9433
	BJ23	3	16.6496	75.9264
	BJ26	4	16.6531	75.9344
	BJ29	4	16.6515	75.9573
	BJ27	4	16.6439	75.9496
	BJ25	4	16.6489	75.9349
	BJ30	4	16.6541	75.9521
	BJ20	4	16.6253	75.9463
	BJ21	4	16.6255	75.9535

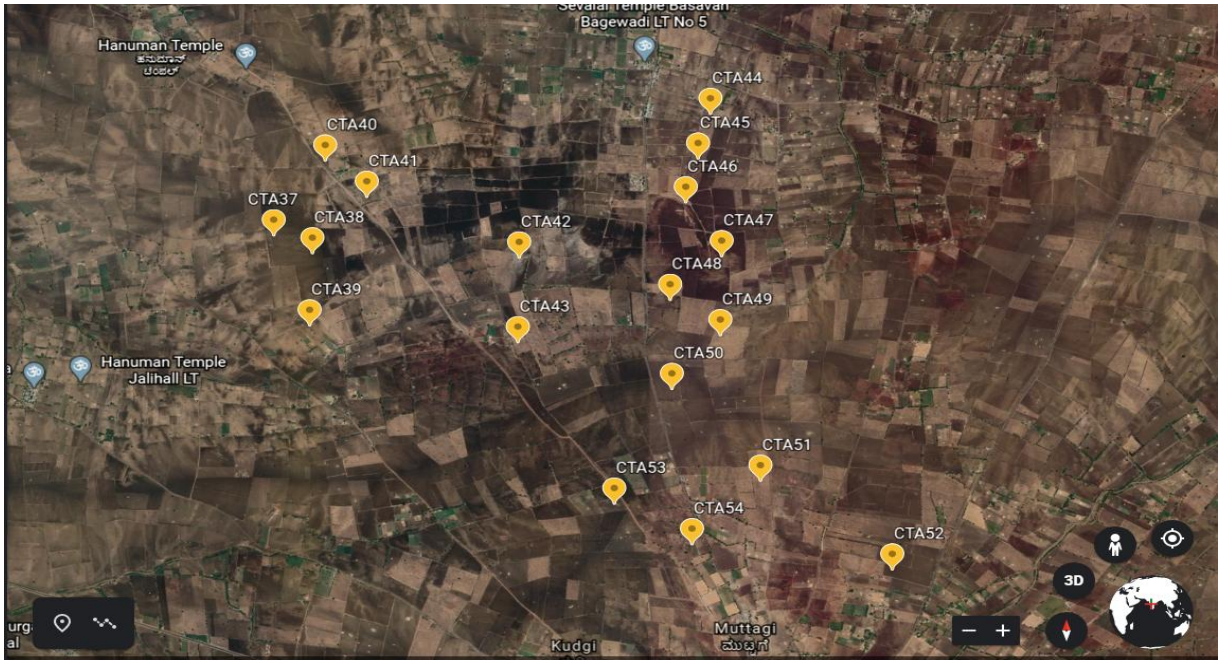
	BJ28	4	16.6479	75.9506
	BJ19	4	16.6219	75.9555
Project 3	CTA41	5	16.6191	75.9484
	CTA40	5	16.6217	75.9457
	CTA42	5	16.6148	75.9582
	CTA48	5	16.6118	75.9679
	CTA46	5	16.6187	75.9689
	CTA45	5	16.6218	75.9697
	CTA47	5	16.6149	75.9712
	CTA44	5	16.6250	75.9705
	CTA50	5	16.6055	75.9680
	CTA38	6	16.6151	75.9449
	CTA37	6	16.6164	75.9424
	CTA39	6	16.6100	75.9447
	CTA43	6	16.6088	75.9581
	CTA53	6	16.5974	75.9643
	CTA54	6	16.5945	75.9693
	CTA49	6	16.6093	75.9711
	CTA51	6	16.5990	75.9737
	CTA52	6	16.5927	75.9822



Project 1



Project 2



Project 3

Geographical coordinates of the Solar project is as below:

Project	Solar power plant Coordinates	
	Latitude (° N)	Longitude (° E)
Project 4	14.95	76.14

Project 4

1.8 Title and Reference of Methodology

The methodology applied for the project is Approved Large Scale Consolidated Methodology: ACM0002 "Grid-connected electricity generation from renewable sources" (Version 19.0, EB100)[1]

ACM0002 draws upon the following tools which have been used in the PD:

- Methodological Tool: Tool to calculate the emission factor for an electricity system - Version 7.0, EB 100, Annex 6[2].
- Methodological Tool: Tool for the demonstration and assessment of additionality - Version 07.0.0, EB 70 Annex 8[3].

1.9 Participation under other GHG Program

The project is neither registered nor seeking registration under any other GHG programs.

1.10 Other Forms of Credit

The project is not included in any emissions trading program or any other mechanism that includes GHG allowance trading, and include details about any such programs or mechanisms.

The project has not sought or received another form of GHG-related environmental credit, including renewable energy certificates, during this monitoring period.

1.11 Sustainable Development

Social wellbeing: The project helps in generating employment opportunities during the construction and operation phases. The project activity leads to development in infrastructure in the region like development of roads and also may promote locals business with improved power generation. The project proponent will contribute 2% of net revenue realised from sale of VERs towards community development initiatives.

Economic wellbeing: The project is a clean technology investment in the region, which would not have been taken place in the absence of the VCS benefits. The project activity will also help to reduce the demand supply gap in the state.

Environmental Wellbeing: The project activity will generate power using zero emissionswind based power generation which helps to reduce GHG emissions and specific pollutants like SOx, NOx, and SPM associated with the conventional thermal power generation facilities.

[1] http://cdm.unfccc.int/methodologies/DB/VJI9AX539D9MLOPXN2AY9UR1N4IYGD

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

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

Technological wellbeing: The successful operation of project activity would lead to promotion of wind& solar based power generation and would encourage other entrepreneurs to participate in similar projects.

2 SAFEGUARDS

2.1 No Net Harm

The project is renewable energy project. PP has also conducted an Environmental and social impact assessment study prior to implementation of the project activity. As per the ESIA report, there were no harm identified form the project and hence no mitigations measures are applicable.

2.2 Local Stakeholder Consultation

Local stakeholder consultation was conducted as a part of Environmental and social impact assessment study. No negative comments received from the stakeholder. The ESIA report is submitted to DOE for verification.

PP also conducted another stakeholder consultation on 01/10/2019 and 02/10/2019. PP decided the date and venue for local stakeholder consultation and informed local stakeholder regarding the meeting. The followings are the local stakeholders for the project activity:

- Local community
- Local village administration
- Technology suppliers
- Local vendors
- Local NGOs

Since project 1, 2 & 3 are located in same region, the stakeholder consultation for these 3 projects is conducted combinedly. Invitation notices were put up in the local panchayats at least a week in advance of the consultations. In the introductory speech, the representatives of Atria Power welcomed the gathering and informed the stakeholders about the project activity; project's associated benefits with respect to CO2 emission reductions and explained the purpose of conducting the stakeholder meeting in order to gather the views and comments of the local stakeholders on the project activity. Subsequent to the introductory speech, comments were received from the stakeholders.

Project	Meeting date	Location
Project 1, 2 & 3	01/10/2019	Atria Pooling station, Basavana Bagewadi, Vijayapura District, Karnataka
Project 4	02/10/2019	Site office, Kogli Village Hagaribommanahalli Taluk, Bellary

		District, Karnataka.

Only doubts and clarification requests are received from the stakeholders and representative from the Atria power has clarified all the doubts asked by the stakeholders. The questions asked by stakeholders and response by Atria power has explained below:

Project 1, 2 &3

Questions by stakeholder	Clarification by Atria Power
Can the wind power generated from the wind mill be supplied to households?	No, the electricity generated from the wind mills are at high voltage which are not suitable for households. However, the power supplied to grid and the electricity from the grid is supplied to households after voltage reduction.
Are the wind turbines being safe?	Yes, the wind power technology is proven and turbines are operating successfully throughout the world. Moreover, the wind turbines are purchased from reputed manufacturer ie, Vestas. Hence, there is no safety risk because of wind turbines
Will the additional CSR activities be undertaken in our village?	Depends on the annual CSR budget, the CSR activities will be taken based on the priority of the activity. The local people will be consulted to check the priority requirements.

Project 4

Questions by stakeholder	Clarification by Atria Power
Will additional jobs be provided?	Currently all the vacancies are filled. If any new opening available in the future then the new recruitment will happen.
Will the preference be given to local people?	Yes, preference will be given to the local people only. Only if the person with required skills are not available locally then the people from other location will be recruited.

Will the additional CSR activities be undertaken in our village?	Depends on the annual CSR budget, the CSR activities will be taken based on the priority of the activity. The local people will be consulted to check the priority requirements.
What is the life of the solar power plant?	The life time of the Power plant is about 25 years.

No Negative feedback was received from any of the stakeholders. All of them supported the initiative and appreciated the project proponent for carrying out such an activity in the region. Hence no comments warranting action from the project proponent were received.

On-going communication with local stakeholders

The project proponent also maintains a grievance register at the site. Stakeholders can anytime provide their inputs or concerns over the project. The site manager is responsible for addressing the grievances received from stakeholders. The same is informed during the stakeholder consultation meeting. This mechanism will ensure to continue to engage with local stakeholder in an ongoing proactive manner. During the monitoring period no grievances received from any stakeholders.

2.3 AFLU- Specific Safeguards

Not applicable.

3 IMPLEMENTATION STATUS

3.1 Implementation Status of the Project Activity

All the four projects are commissioned and operating as per the description provided in the registered PD. The details of implementation are given below:

Project Promoters (Wind)	Installed Capacity	WTGs	Feeder	Commissioning Date
Atria Wind Power (Basavana Bagewadi) Pvt Ltd	39.6 MW	9 x 2.2 MW	Feeder 1	18.04.2018
		9 x 2.2 MW	Feeder 2	18.04.2018
Atria Wind Power (Bijapur 1) Pvt	39.6 MW	9 x 2.2 MW	Feeder 3	18.04.2018

Ltd		9 x 2.2 MW	Feeder 4	18.04.2018
Atria Wind Power (Chitradurga) Pvt Ltd	39.6 MW	9 x 2.2 MW	Feeder 5 &6	27.04.2019
		9 x 2.2 MW	Feeder 5& 6	29.04.2019

Project Promoters (Solar)	Installed AC Capacity	Installed DC capacity	Commissioning Date
Atria Solar Power (Chamarajnagar) Pvt Ltd	30 MW	37.5 MWp	25.01.2018

Since commissioning, all the WTGs are operational continuously without any major outages.

During the monitoring period, there is no major events occurred that may impact the GHG emission reductions or removals and monitoring

No other changes to the project such as change in project proponent or other entity happened during the monitoring period.

3.2 Deviations

3.2.1 Methodology Deviations

There is no methodology deviation applied during this monitoring period.

3.2.2 Project Description Deviations

There is no project description deviations applied during this monitoring period or in previous monitoring reports.

3.3 Grouped Projects

The project is not a grouped project.

4 DATA AND PARAMETERS

4.1 Data and Parameters Available at Validation

Data / Parameter	$EF_{OM,y}$

Data unit	tCO2/MWh
Description	Operating margin CO2 emission factor of INDIAN Grid
Source of data	Central Electricity Authority:CO2 Emission Database CEA CO2 Baseline database Version 14
Value applied:	0.9610
Justification of choice of data or description of measurement methods and procedures applied	Calculated in line with "*Tool to calculate the emission factor for an electricity system*" using data from Central Electricity Authority of India's (CEA) "*Baseline Carbon Dioxide Emission Database Version 14*". The value used is calculated ex-ante as generation based weighted average of last three years of the operating margin provided in the CEA database. Weighted average = $\sum_{i=1 \text{ to } n}$ (Net generation in operating margin in year i * Simple operating margin in year i)/$\sum_{i= 1 \text{ to } n}$ (Net generation in operating margin of year i)
Purpose of Data	Baseline Emission calculation
Comments	The operating margin emission factor is a 3-year generation-weighted average (2015-18). The operating Margin is calculated ex ante and fixed during the crediting period

Data / Parameter	$EF_{BM,y}$
Data unit	tCO2/MWh
Description	Build margin CO2 emission factor of INDIAN grid
Source of data	Central Electricity Authority:CO2 Emission Database CEA CO2 Baseline database Version 14
Value applied:	0.8644
Justification of choice of data or description of measurement methods and procedures applied	Calculated in line with "*Tool to calculate the emission factor for an electricity system*" using data from Central Electricity Authority of India's (CEA) "*Baseline Carbon Dioxide Emission Database Version 14*". The value is calculated ex-ante as most recent build margin provided by the CEA
Purpose of Data	Baseline Emission calculation

Comments	The Build Margin would be calculated ex ante and fixed during the crediting period. For ex ante calculation the most recent data (2017-18) available has been used and the build margin is thus calculated.

Data / Parameter	$EF_{grid,CM,y}$
Data unit	tCO_2/MWh
Description	Combined margin CO_2 emission factor of INDIAN grid
Source of data	Central Electricity Authority:CO_2 Emission Database CEA CO2 Baseline database Version 14
Value applied:	0.9368
Justification of choice of data or description of measurement methods and procedures applied	The date has been considered in accordance to the Tool to calculate emission factor of an electricity system. The tool guides to take 75% weightage of $EF_{grid,OMsimple}$, & 25% weightage of $EF_{grid,BM,y}$.
Purpose of Data	Baseline Emission calculation
Comments	The combined margin would be calculated ex-ante and fixed for the entire crediting period and the combined margin thus calculated is 0.9368.

4.2 Data and Parameters Monitored

Data / Parameter	$EG_{facility,y}$ [4]
Data unit	MWh
Description	Quantity of net electricity supplied by the project activity (wind & solar) to the grid in the year y
Source of data	JMR (Joint Meter Reading) issued by DISCOM
Description of measurement methods and procedures applied	Data Type: Measured & Calculated. Monitoring equipment: Energy meters of accuracy class 0.2s Archiving Policy: Paper & Electronic. The value of net electricity generation supplied to the grid as per Monthly Joint Meter Reading Report forms (B-Forms) the basis for

[4] If the project activity is the installation of a Greenfield power plant, then: $EGPJ,y = EGfacility$,y

calculation of the emission reductions; which can be cross-checked from the invoice raised to DISCOM

Wind

The Net electricity supplied to the grid by each wind project is estimated as below
Net electricity = Export – Import – Transmission loss
The calculation monthly net electricity supplied to grid will be provided in the Joint meter reading B-Form of the respective project/Feeder.

OR
Total net electricity supplied to grid by the 3 wind projects shall be directly estimated as below
Net electricity = Export – Import
The calculation monthly net electricity supplied to grid will be provided in the Joint meter reading B-Form taken from bulk meter installed at KPTCL substation

Solar
The Net electricity supplied to the grid by each wind project is estimated as below
Net electricity = Export – Import
The calculation monthly net electricity supplied to grid will be provided in the Joint meter reading B-Form itself.

Frequency of monitoring/recording

Measurement: Continuous

Recording: Monthly

Value applied:

Vintage	Generation
2018	23,707.9 MWh
2019	315,258.8 MWh
2020	160,205.5 MWh
Total	499,172.1 MWh

Monitoring equipment

Project 1:

Meter Details:

Details	Feeder-1	Feeder-2
Meter Number	Main:17166962 Check: 17166964	Main:17166967 Check: 17166977
Accuracy	0.2s	0.2s
Location	Pooling station	Pooling station

Project 2:

Meter Details:

Details	Feeder-3	Feeder-4
Meter Number	Main:17166983 Check: 17125600	Main: 17125701 Check: 17167005
Accuracy	0.2s	0.2s
Location	Pooling station	Pooling station

Project 3:

Meter Details:

Details	Feeder-5	Feeder-6
Meter Number	Main:17167007 Check: 17167012	Main: 17167017 Check: 17167025
Accuracy	0.2s	0.2s
Location	Pooling station	Pooling station

Bulk meter at KPTCL substation (applicable for Project 1,2 &3):

Meter Details:

Details	
Meter Number	Main: 17125678 Check: 17125587
Accuracy	0.2s
Location	KPTCL Substation

Project 4:

Meter Details:

Details	
Meter Number	Main: 17002897 Check: 17069213
Accuracy	0.2s
Location	KPTCL Substation

QA/QC procedures applied

The meter(s) shall be calibrated and maintained by the state utility as per their own schedule, and this frequency of meter calibration is not within the control of the Project Proponent.

Calibration of electricity meters is carried out in-line with the Nation standard[5] which recommends at least once in 5 year calibration or whenever abnormal difference/inconsistency is observed between main meter and check meter. The details of the calibration are given below:

Project	Energy Meter	PC test/calibration date	Calibration due date
Project 1	Feeder 1 Main:17166962 Check: 17166964	11/04/2018	10/04/2023
		10/12/2019	09/12/2024
	Feeder 2 Main:17166967 Check: 17166977	11/04/2018	10/04/2023
		10/12/2019	09/12/2024
Project 2	Feeder 3 Main:17166983 Check: 17125600	11/04/2018	10/04/2023
		10/12/2019	09/12/2024
	Feeder 4 Main:17125701 Check: 17167005	10/04/2018	09/04/2023
		10/12/2019	09/12/2024
Project 3	Feeder 5	10/04/2018	09/04/2023

[5] (Page number 12 of) http://www.aegcl.co.in/Metering_Regulations_Of_CEA_17_03_2006.pdf

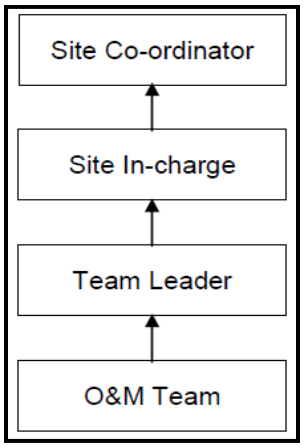
		Main:17167007 Check: 17167012	10/12/2019	09/12/2024
		Feeder 6 Main:17167017 Check: 17167025	10/04/2018	09/04/2023
			10/12/2019	09/12/2024
	Project 1-3	Bulk meter Main:17125678 Check: 17125587	16/03/2018	15/03/2023
			10/12/2019	09/12/2024
	Project 4	Main: 17002897 Check: 17069213	18/10/2019	17/10/2024
			12/05/2020	11/05/2025
Purpose of data	Calculation of baseline emissions			
Calculation method	-.			
Comments	The data would be archived electronically and maintained for the entire crediting period plus two years.			

4.3 Monitoring Plan

All the three wind projects in the bundle have entered into agreement with the respective WTG Suppliers for the operation and maintenance of WTGs. And the solar project has entered into agreement with the O&M contractor for the operation and maintenance of the project. O&M contractor will provide a monthly report, which includes generation data, major breakdown events and machine availability. Project manager is responsible for recording of monthly meter readings of export and import. Monthly power export and import data will be sent regularly to site in charge of each project separately.

Organizational structure and responsibilities or personnel:

The data for the project is compiled by the O&M Contractor and subsequently stored by the PP, the reporting and data flows as per the below mentioned flow chart starting from Site O&M team which monitors day to day operational data and monthly recording. The reporting responsibilities for the project are described as below;



The Site In-charge will be responsible for carrying out internal auditing and QA/QC. All the values from generation record will be checked with JMR and invoices for consistency. In case there are any non-conformances identified. The Site In-charge will investigate the error and

revise the record to correct it. In any case where values have slightest of variation in different records the most conservative value will be taken in the project monitoring report.

Personal Training:
The training for operating and maintaining the plant will be provided to the O&M team whenever there would be necessity or any technological up gradation.

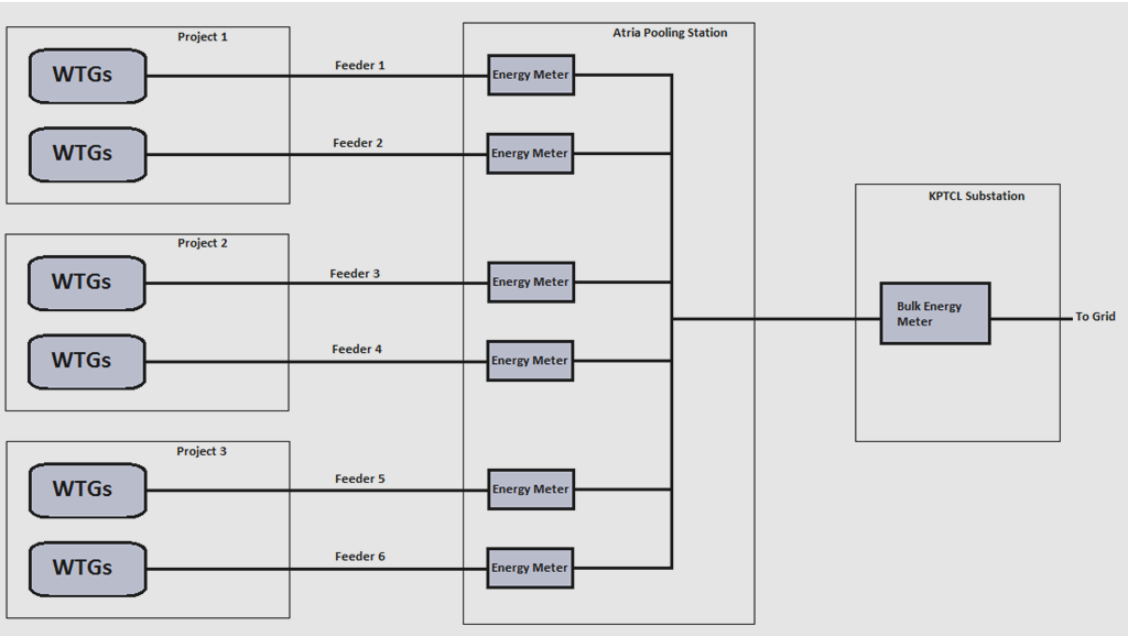
Emergency preparedness:

In case Main meter or Check meter is found to be outside the acceptable limits of accuracy or faulty or not functioning properly, it will be repaired, recalibrated or replaced as soon as possible. In the event that the Main meter is not in service as a result of maintenance, repairs or testing, the Check meter will be used for readings

Data recording & archiving: The project proponent shall maintain data both in electronic form and hard copies. The monitored data shall be archived till 2 years after the completion of crediting period.

Methods for measuring, recording, storing, aggregating, collating and reporting data and parameters

Project 1, 2,& 3 (Same Procedure):



The above diagram shows the metering arrangements for the wind power projects (project 1,2 & 3). Monthly Joint meter reading is taken from energy meters installed at each feeder at pooling station and bulk energy meter installed at the KPTCL substation by representative of DISCOM and O&M team/service provider (on behalf of the project proponent). It must be noted here that the meter readings as mentioned above shall be calculated as the product of meter multiplication factor and the difference of the current and previous meter readings. There are two different JMR statement will be prepared for the project

Bulk Meter JMR statement: Export & Import reading at the bulk meter installed at substation will be recorded in this.

Feeder JMR statement: Import & export reading of the energy meter reading installed at each feeder in the pooling station will be recorded. Also the net electricity supplied from each feeder will be calculated as below:

Net energy supplied = Feeder Export – Feeder Import – Transmission loss.

Calculation of Transmission loss:

DISCOM will calculate percentage of transmission loss for each feeder every month. The total transmission loss between pooling station and KPTCL substation will be apportioned to each feeder based on the proportion of energy exported from each feeder for the respective month. Example of transmission loss for a month is given below:

Since only these three wind projects are connected to the bulk energy meter in KPTCL substation, the difference between export and import taken from 'Bulk meter JMR statement' shall be also directly taken for net electricity supplied by the three wind projects.

ATRIA WIND POWER (Basavana Bagewadi) PVT LTD

PERCENTAGE OF TRANSMISSION LINE LOSSES

MONTH : JUNE- 2021

Sl. No.	MONTHLY GENERATION OF INDIVIDUAL METERING POINT	METER READINGS		
		33KV METERING POINTS	MAIN METER	CHECK METER
1	Y= M/S ATRIA WIND POWER (Basavana Bagewadi) Pvt Ltd,220KV Line 01 Bulk meter	RR No : BGDIPP- 24	1,84,73,000	1,84,66,000
2	Y= M/S ATRIA WIND POWER (Basavana Bagewadi) Pvt Ltd,220KV Line 01 Bulk meter	RR No : BGDIPP- 24G	1,85,50,000	1,85,36,000
3	X= M/S ATRIA WIND POWER (Basavana Bagewadi) Pvt Ltd, 33KV, F#1 Meter	RR No : BGDIPP-24A	62,90,400	62,90,400
4	X=M/S ATRIA WIND POWER (Basavana Bagewadi) Pvt Ltd, 33KV, F#2 Meter	RR No : BGDIPP-24B	61,15,200	61,15,200
5	X= M/S ATRIA WIND POWER (Bijapur-1) Pvt Ltd, 33KV, F#3 Meter	RR No : BGDIPP-24C	60,22,800	60,21,600
6	X= M/S ATRIA WIND POWER (Bijapur-1) Pvt Ltd, 33KV, F#4 Meter	RR No : BGDIPP-24D	58,28,400	58,28,400
7	X= M/S ATRIA WIND POWER (Chitradurga) Pvt Ltd, 33KV, F#5 Meter	RR No : BGDIPP-24E	64,65,600	64,68,000
8	X= M/S ATRIA WIND POWER (Chitradurga) Pvt Ltd, 33KV, F#6 Meter	RR No : BGDIPP-24F	65,46,000	65,44,800
		TOTAL	3,72,68,400	3,72,68,400

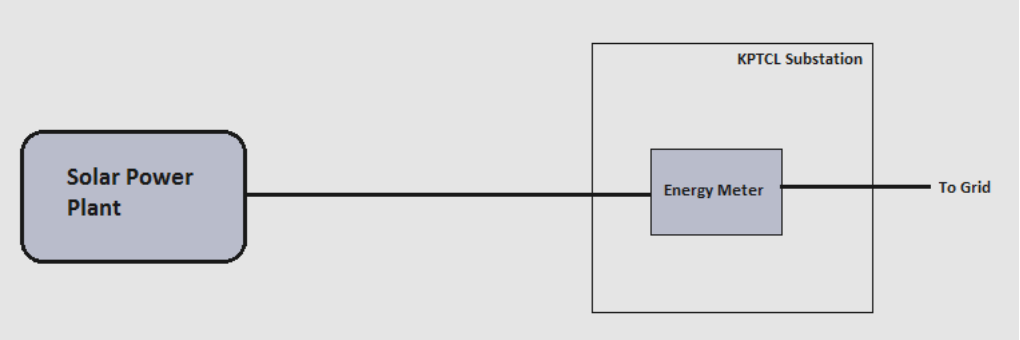
MAIN METER	CHECK METER
$Z= \frac{(X - Y) \times 100}{(X)}$	$Z= \frac{(X - Y) \times 100}{(X)}$
$Z= \frac{(3,72,38,400 - 3,70,23,000)}{3,72,68,400} \times 100$	$Z= \frac{(3,72,68,400 - 3,70,02,000)}{3,72,68,400} \times 100$
Z= MAIN METER % LOSS = 0.658%	Z= CHECK METER % LOSS = 0.715%

M/S Atria Wind Power
(Basavana Bagewadi) Pvt Ltd

EXECUTIVE ENGINEER (Ele)
O & M Div. HESCOM
BASAVANA BAGEWADI

The JMRs will be stored in Atria head office in hard and soft copies. During the verification, the net energy supplied to grid will be taken from the JMR. The period of storage of the monitored data will be 2 years after the end of crediting period or till the last issuance of VERs for the project activity whichever occurs later.

Project 4



The above diagram shows the metering arrangements for the solar power project (project 4). Monthly Joint meter reading is taken from energy meters installed at the KPTCL substation by representative of DISCOM and O&M team/service provider (on behalf of the project proponent). It must be noted here that the meter readings as mentioned above shall be calculated as the product of meter multiplication factor and the difference of the current and previous meter readings.

Import & export reading of the energy meter reading installed KPTCL substation will be recorded. Also the net electricity supplied from the project will be calculated in the JMR as below:
Net energy supplied = Export –Import

The JMRs will be stored in Atria head office in hard and soft copies. During the verification, the net energy supplied to grid will be taken from the JMR. The period of storage of the monitored data will be 2 years after the end of crediting period or till the last issuance of VERs for the project activity whichever occurs later.

Procedures for calibrating equipment:

The energy meters at the feeders are maintained and owned by KPTCL. Neither the project proponent nor the site personnel have any control over it. The meters are calibrated by KPTCL at-least once in five years.

Policies for oversight and accountability:
The energy meter readings will be recorded by KPTCL in presence of project representatives. Meter reading of main meter and check meter are compared for any error in the meter or oversight in recording the meter reading. The JMR is issued by KPTCL and the project proponent does not have any control over it.

Procedures for internal auditing and QA/QC & Procedures for handling non-conformities:
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. JMR also prepared by KPTCL and hence no internal audit is required on the monitoring.

Sampling approaches:
All the parameters are monitored 100%. No parameter is monitored on sampling basis

5 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

5.1 Baseline Emissions

As per description earlier under this document:

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

$EF_{grid,CM,y}$ is Combined margin CO2 emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO2/MWh) (i.e, 0.9368 tCO2/MWh).

and;

$EG_{PJ,y} = EG_{facility,\ y}$

Here,

$BE_y = 499172.1MWh * 0.9368\ tCO_2/MWh$

Net Electricity- Project wise:

Net electricity supplied to grid (MWh)					
Month	Project 1	Project 2	Project 3	Project 4	Total
Dec-19	5640.5	7070.6	7,231.3	3765.5	23707.9
Jan-20	5027.2	5431.7	6,101.5	4789.2	21349.6
Feb-20	6010.9	5899.1	6,679.6	4364.1	22953.7
Mar-20	5015.3	5232.8	5,060.5	4793.1	20101.7
Apr-20	5412.0	4604.1	5,971.7	4436.25	20424.1
May-20	7803.5	7425.1	8,064.0	4520.1	27812.7
Jun-20	12782.9	11839.6	13,445.1	3593.85	41661.5
Jul-20	9871.0	9417.2	10,435.4	4007.25	33730.9
Aug-20	14467.5	13967.1	15,453.0	3599.7	47487.3
Sep-20	5116.2	4987.7	5,597.1	3755.7	19456.7
Oct-20	3553.6	3444.5	3,766.0	4305.6	15069.8
Nov-20	4890.6	5068.1	6,186.3	4529.85	20674.9
Dec-20	6212.0	5966.6	7,088.7	5268.9	24536.1
Jan-21	5364.0	5110.4	6,068.8	5171.4	21714.6
Feb-21	5208.9	5036.2	5,485.1	5222.1	20952.3
Mar-21	5646.4	5864.2	7,225.9	5541.9	24278.4
Apr-21	4895.3	4652.7	5,240.2	4923.75	19712.0

May-21	9378.5	9190.5	9,321.4	4722.9	32613.3
Jun-21	12,315.5	11,763.6	12,918.7	3937.05	40934.9
Total	**134,611.97**	**131971.7**	**147,340.2**	**85248.2**	**499172.1**

Project wise estimation of baseline emission reduction:

Month	Net Generation (MWh)	Emission Factor (tCO2/MWh)	Baseline emissions* (tCO_2 e) $EG_{PJ,y}$ (MWh) x $EF_{grid,CM,y}$ (tCO_2/MWh)
Project 1	134,612	0.9368	126,104
Project 2	131,972	0.9368	123,631
Project 3	147,340	0.9368	138,028
Project 4	85,248	0.9368	79,860
Total	**499,172**	0.9368	**467,623**

**Rounded down values*

Vintage wise of baseline emissions:

Year	Net Electricity (MWh)	Grid Emission Factor tCO_2/MWh	Baseline Emissions* (tCO_2) $EG_{PJ,y}$ (MWh) x $EF_{grid,CM,y}$ (tCO_2/MWh)
2019	23,707.9	0.9368	22,209
2020	315,258.8	0.9368	295,334
2021	160,205.5	0.9368	150,080
TOTAL	**499,172.1**	**0.9368**	**467,623**

**Rounded down values*

5.2 Project Emissions

The project activity involves in harnessing wind & solar power. So, the emissions from the project are zero.

5.3 Leakage

No leakage emissions have been considered and hence the leakage emission is zero.

5.4 Net GHG Emission Reductions and Removals

As per the applied methodology, emission reductions are calculated as follows:

$ER_y = BE_y - PE_y$

Where,

ER_y = Emission Reduction in tCO_2e/year

BE_y = Baseline emission in tCO_2/year

PE_y = Project emissions in tCO_2e/year

Project wise emission reduction:

Project	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
Project 1	126,104	0	0	126,104
Project 2	123,631	0	0	123,631
Project 3	138,028	0	0	138,028
Project 4	79,860	0	0	79,860
Total	**467,623**	**0**	**0**	**467,623**

Vintage wise emission reduction:

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
Year 2019*	22,209	0	0	22,209
Year 2020	295,334	0	0	295,334
Year 2021**	150,080	0	0	150,080
Total	**467,623**	0	0	**467,623**

* For the period from01-Dec-2019 to 31-Dec-2019

** For the period from 01-Jan-2021 to 30-Jun-2021

Comparison of actual emission reduction with actual:

Details	Project 1	Project 2	Project 3	Project 4
Start date of monitoring period	01-Dec-19	01-Dec-19	01-Dec-19	01-Dec-19
End date of Monitoring period	30-Jun-21	30-Jun-21	30-Jun-21	30-Jun-21
Total days of generation in the monitoring period	578	578	578	578
Estimated annual emission Reduction As per PD (tCO_2e)	94,274	92,195	91,675	52,439
Estimated ERs for this monitoring period (tCO_2e)	149,289	145,996	145,172	83,040
Actual Emission Reduction (tCO_2e)	126,104	123,631	138,028	79,860
Difference in Emission reduction	-15.53%	-15.32%	-4.92%	-3.83%

Since actual emission reduction of all the projects are less than estimated emission reduction, no further justification is required.