Verification Report for

Project : 550 KW Solar Power Project Vandana Global Ltd, Chhattisgarh.

UCR Project ID : 216

Name of Verifier	SQAC Certification Pvt. Ltd.
Date of Issue	October 09, 2023
Project Proponent	M/s Vandana Global Limited
UCR Project Aggregator	M/s Carbon Equalizers, KATNI.
Work carried by	Mr. Santosh Nair
Work reviewed by	Mr. Praful Shinganapurkar

Summary:

SQAC Certification Pvt. Ltd. has performed verification of the "550 KW Solar Power Project Vandana Global Ltd, Chhattisgarh" The purpose of the proposed project activity is to generate electricity using a clean and renewable source of energy i.e., solar radiation, for captive use in Raipur district in the state of Chhattisgarh.

The project activity meets the following UN SDG's:

Verification for the period**: 01/01/2013 to 31/12/2022** (10 years 0 month)

The GHG emission reductions were calculated on the basis of UCR Protocols which draws reference from UCR Protocol Standard Baseline & Emission Factor and Type I (Renewable Energy Projects) UNFCCC Methodology Category AMS-I.F. Small-scale Methodology, Renewable electricity generation for captive use and mini-grid Ver 05. The verification was done remotely by way of video calls / verification, phone calls and submission of documents for verification through emails.

SQAC is able to certify that the emission reductions from the 550 KW Solar Power Project Vandana Global Ltd, Chhattisgarh, (UCR ID – 216) for the period **01/01/2013 to 31/12/2022** amounts to **4,148 CoUs** (**4,148** tCO_2eq)

Detailed Verification Report:

Purpose:

This is a single project activity of capacity 550 KW, which is a ground mounted captive solar power generation activity by 'M/s Vandana Global Limited' (Project Proponent or PP). PP has the full ownership of the project activity. The purpose of the proposed project activity is to generate electricity using a clean and renewable source of energy i.e., solar radiation, for captive use. The installation and operation of the solar power plant in Raipur district in the state of Chhattisgarh are per the details listed below:

Village	District	Type	Total installed capacity KW	Commissioning date
Sondra	Raipur	Ground mounted - captive	550	10-06-2012

Hence, the project activity displaces electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit, i.e., in the absence of the project activity, the users would have been supplied electricity from:

(a) A national or a regional grid (grid hereafter)

The baseline scenario identified is:
The product of amount electricity displaced with the electricity produced by the renewable generating unit and an emission factor.

ABSTRACT OF JOINT COMMISSIONING CERTIFICATE (JCC) OF SPV POWER PLANTS

JCC No. District Raipur RO Raipur Dated 10/5

(1) Name of the Installation Site: Vandana Global Ltd near watch tower west facing boundary wall
(2) Capacity of the SPV Power Plants installed : 100 kWp Plant No. 01
(3) Work order No: VGL/SOLAR/LANCO/12-13/16A Date: 10/5/12
(4) Sanction No. 14139/SPV/MNRE Sanction (Part XX)/11-12 Date:
(5) Actual date of commissioning: ~~24-11-12~~ 14.02.13 Alimahi
(6) Stipulated date of commissioning as per W.O: ~~30-11-12~~
(7) Extension granted till: — vide HO letter no. — dated —
(8) Name & address of the contractor:
M/s LANCO Solar Energy Pvt Ltd, Plot No.229
Udyog Vihar Phase-1, Gurgaon – 122016

This is hereby certified that the contractor M/s LANCO Solar Energy Pvt Ltd has successfully installed and commissioned the 100kWp SPV power plant at Vandana Global Ltd near watch tower west on _____(date) with major components as mentioned in Annexure I appended herewith as per the terms and conditions of the work order mentioned at Sr. No. (3) above.

The work has been fully executed as per the work order and the SPV power plant at Vandana Global Ltd, Raipur of 100 kWp capacity is handed over in good working condition. We shall provide complete warranty against all manufacturing defects and defective/erroneous installation for a period of 5 years from the date of handing over. (The warranty certificate, operation & maintenance manual, necessary spare parts, tool kit & engineering documents have been handed over to Vandana Global Ltd. The above-mentioned the SPV power plant has been handed over by the contractor to Vandana Global Ltd, Raipur in fully satisfactory working condition.

Date: Sign:
Place: RAIPUR Seal:
(Contractor's representative)

Solar photovoltaic power plant at watch tower west facing wall, Vandana Global Ltd, Raipur of 100 kWp verified and taken over.

Date: Name:
Place: Seal:
LANCO Representative

Name: MUKESH BHARGAVA
Seal:
Beneficiary

VANDANA GLOBAL LTD. RAIPUR (C.G.)

ABSTRACT OF JOINT COMMISSIONING CERTIFICATE (JCC) OF SPV POWER PLANTS

JCC No. District Raipur RO Raipur Dated

(1) Name of the Installation Site: Vandana Global Ltd, near watch tower south facing wall
(2) Capacity of the SPV Power Plants installed : 100 kWp Plant No. 02
(3) Work order No: VGL/SOLAR/LANCO/12-13/16A Date: 10.5.12
(4) Sanction No. 14139/SPV/MNRE Sanction (Part XX)/11-12 Date:
(5) Actual date of commissioning: ~~24-11-12~~ 08.03.13 Alimahi
(6) Stipulated date of commissioning as per W.O: 30.11.12
(7) Extension granted till: — vide HO letter no. — dated —
(8) Name & address of the contractor:
M/s LANCO Solar Energy Pvt Ltd, Plot No.229
Udyog Vihar Phase-1, Gurgaon – 122016

This is hereby certified that the contractor M/s LANCO Solar Energy Pvt Ltd has successfully installed and commissioned the 100 kWp SPV power plant at Vandana Global Ltd near watch tower south on 24.11.12 (date) with major components as mentioned in Annexure I appended herewith as per the terms and conditions of the work order mentioned at Sr. No. (3) above.

The work has been fully executed as per the work order and the SPV power plant at Vandana Global Ltd, Raipur of 100 kWp capacity is handed over in good working condition. We shall provide complete warranty against all manufacturing defects and defective/erroneous installation for a period of 5 years from the date of handing over. (The warranty certificate, operation & maintenance manual, necessary spare parts, tool kit & engineering documents have been handed over to Vandana Global Ltd. The above-mentioned the SPV power plant has been handed over by the contractor to Vandana Global Ltd, Raipur in fully satisfactory working condition.

Date: 25.11.12 Sign:
Place: Raipur Seal:
(Contractor's representative)

Solar photovoltaic power plant at watch tower south facing boundary wall, Vandana Global Ltd, Raipur of 100 kWp verified and taken over.

Date: 25.11.12 Name:
Place: Raipur Seal:
LANCO Representative

Name: MUKESH BHARGAVA
Seal:
Beneficiary

VANDANA GLOBAL LTD. RAIPUR (C.G.)

ALOK TIWARI
Asstt. Engineer
Chhattisgarh State Renewable Energy Development Agency
Regional Office, Raipur

ABSTRACT OF JOINT COMMISSIONING CERTIFICATE (JCC) OF SPV POWER PLANTS

JCC No. District Raipur RO Raipur Dated

(1) Name of the Installation Site: Vandana Global Ltd, near staff quarter south facing boundary wall
(2) Capacity of the SPV Power Plants installed : 100kWp Plant No. 03
(3) Work order No: VGL/SOLAR/LANCO/12-13/16A Date: 10.5.12
(4) Sanction No. 14139/SPV/MNRE Sanction (Part XX)/11-12 Date:
(5) Actual date of commissioning: 24-11-12 08.03.13 Alimahi
(6) Stipulated date of commissioning as per W.O: 30.11.12
(7) Extension granted till: — vide HO letter no. — dated —
(8) Name & address of the contractor:
M/s LANCO Solar Energy Pvt Ltd, Plot No.229
Udyog Vihar Phase-1, Gurgaon – 122016

This is hereby certified that the contractor M/s LANCO Solar Energy Pvt Ltd has successfully installed and commissioned the 100kWp SPV power plant at Vandana Global Ltd staff quarter south facing wall on 24.11.12 (date) with major components as mentioned in Annexure I appended herewith as per the terms and conditions of the work order mentioned at Sr. No. (3) above.

The work has been fully executed as per the work order and the SPV power plant at Vandana Global Ltd, Raipur of 100 kWp capacity is handed over in good working condition. We shall provide complete warranty against all manufacturing defects and defective/erroneous installation for a period of 5 years from the date of handing over. (The warranty certificate, operation & maintenance manual, necessary spare parts, tool kit & engineering documents have been handed over to Vandana Global Ltd. The above-mentioned the SPV power plant has been handed over by the contractor to Vandana Global Ltd, Raipur in fully satisfactory working condition.

Date: Sign:
Place: Seal:
(Contractor's representative)

Solar photovoltaic power plant at Vandana Global Ltd near staff quarter south facing wall of 100 kWp verified and taken over.

Date: 25.11.12 Name:
Place: Raipur Seal:
LANCO Representative

Name: MUKESH BHARGAVA
Seal:
Beneficiary

VANDANA GLOBAL LTD. RAIPUR (C.G.)

ALOK TIWARI
Asstt. Engineer
Chhattisgarh State Renewable Energy Development Agency

ABSTRACT OF JOINT COMMISSIONING CERTIFICATE (JCC) OF SPV POWER PLANTS

District Raipur RO Raipur Dated

(1) Name of the Installation Site: Vandana Global Ltd near gate 4 west facing boundary wall
(2) Capacity of the SPV Power Plants installed : 50 kWp Plant No. 04
(3) Work order No: VGL/SOLAR/LANCO/12-13/16A Date: 10.5.12
(4) Sanction No. 14139/SPV/MNRE Sanction (Part XX)/11-12 Date:
(5) Actual date of commissioning: ~~24-11-2012~~ 14.02.13 Alimahi
(6) Stipulated date of commissioning as per W.O: 30.11.2012
(7) Extension granted till: — vide HO letter no. — dated —
(8) Name & address of the contractor:
M/s LANCO Solar Energy Pvt Ltd, Plot No.229
Udyog Vihar Phase-1, Gurgaon – 122016

This is hereby certified that the contractor M/s LANCO Solar Energy Pvt Ltd has successfully installed and commissioned the 50 kWp SPV power plant at Vandana Global Ltd near gate 4 west wall on 24.11.12 (date) with major components as mentioned in Annexure I appended herewith as per the terms and conditions of the work order mentioned at Sr. No. (3) above.

The work has been fully executed as per the work order and the SPV power plant at Vandana Global Ltd of 50 kWp capacity is handed over in good working condition. We shall provide complete warranty against all manufacturing defects and defective/erroneous installation for a period of 5 years from the date of handing over. (The warranty certificate, operation & maintenance manual, necessary spare parts, tool kit & engineering documents have been handed over to Vandana Global Ltd. The above-mentioned the SPV power plant has been handed over by the contractor to Vandana Global Ltd, Raipur in fully satisfactory working condition.

Date: Sign:
Place: Seal:
(Contractor's representative)

Solar photovoltaic power plant at Vandana Global Ltd near gate 4 west facing wall of 50 kWp verified and taken over.

Date: Name:
Place: Seal:
LANCO Representative

Name: MUKESH BHARGAVA
Seal:
Beneficiary

VANDANA GLOBAL LTD. RAIPUR (C.G.)

ABSTRACT OF JOINT COMMISSIONING CERTIFICATE (JCC) OF SPV POWER PLANTS

JCC No. RO Raipur Dated 10/6/12

Name of the Installation Site: Vandana Global Ltd, Siltara Works, Admin bldg & staff quarter. (Plant 1)

Capacity of the SPV Power Plants installed : 100 kWp Plant No. SPVPP

Work order No: VGL/SOLAR/LANCO/11-12/262 (Sanction no. 1116/SPV/MNRE/141140/Tech(CA)/SPV) Date:

Actual date of commissioning: 10.6.12

Stipulated date of commissioning as per W.O: 31.5.12

Extension granted till: ____-__ vide HO letter no. __-____dated___-____

Name & address of the contractor:

M/s .LANCO Solar Energy Pvt Ltd, Phase 1,

Udyog Vihar, Gurgaon – 122016

This is hereby certified that the contractor M/s LANCO Solar Energy Pvt Ltd, Gurgaon

Has successfully installed and commissioned the 100kWp SPV power plant at Vandana Global Ltd, Siltara works on ___ with major components as mentioned in Annexure I appended herewith as per the terms and conditions of the work order mentioned at Sr. No. (3) above.

The work has been executed as per the work order and the SPV power plant of 100 kWp capacity is handed over in good working condition. We shall provide complete warranty against all manufacturing defects and defective/erroneous installation for a period of five years from the date of handing over. The above-mentioned the SPV power plant has been handed over by the contractor to ~~the Executive Engineer, Regional Office, CREDA, Raipur~~ beneficiary (M/s Vandana Global) in fully satisfactory working condition.

Date:
Place:

Sign:
Seal:
(Contractor's representative)

Solar photovoltaic power plant at Vandana Global Ltd. Administrative bldg and Staff quarter of 100kWp verified and taken over.

Date: 10/10/13

Place:

RAJEEV GYANI
Executive Engineer
Chhattisgarh Renewable Energy Development Agency (CREDA)
Regional Office, Raipur

ALOK TIWARI
Asstt. Engineer
Chhattisgarh State Renewable Energy Development Agency (CREDA)
Regional Office, Raipur

Name: MUKESH BHARGAVA
Seal:
Vandana Global Ltd

ABSTRACT OF JOINT COMMISSIONING CERTIFICATE (JCC) OF SPV POWER PLANTS

RO Raipur Dated_____

Name of the Installation Site: Vandana Global Ltd, Siltara Works, Cooling tower of power plant (Plant 2)

Capacity of the SPV Power Plants installed : 100 kWp Plant No. SPVPP

Work order No: VGL/SOLAR/LANCO/11-12/262 [Sanction dated 23.1.12 1116/SPV/MNRE/SPV] Date:

Actual date of commissioning: 10.6.12

Stipulated date of commissioning as per W.O: 31.5.12

Extension granted till: ____-__ vide HO letter no. __-____dated___-____

Name & address of the contractor:

M/s .LANCO Solar Energy Pvt Ltd, Phase 1,

Udyog Vihar, Gurgaon – 122016

This is hereby certified that the contractor M/s LANCO Solar Energy Pvt Ltd, Gurgaon

Has successfully installed and commissioned the 100kWp SPV power plant at Vandana Global Ltd, Siltara on 10.6.12 with major components as mentioned in Annexure I appended herewith as per the terms and conditions of the work order mentioned at Sr. No. (3) above.

The work has been executed as per the work order and the SPV power plant of 100 kWp capacity is handed over in good working condition. We shall provide complete warranty against all manufacturing defects and defective/erroneous installation for a period of five years from the date of handing over. The above-mentioned the SPV power plant has been handed over by the contractor to the Executive Engineer, Regional Office, CREDA, Raipur in fully satisfactory working condition. Beneficiary

Date:
Place:

Sign:
Seal:
(Contractor's representative)

Solar photovoltaic power plant at VANDANA GLOBAL LTD, SILTARA, Cooling tower of power plant of 100kWp verified and taken over.

Date: 10/10/13

Place:

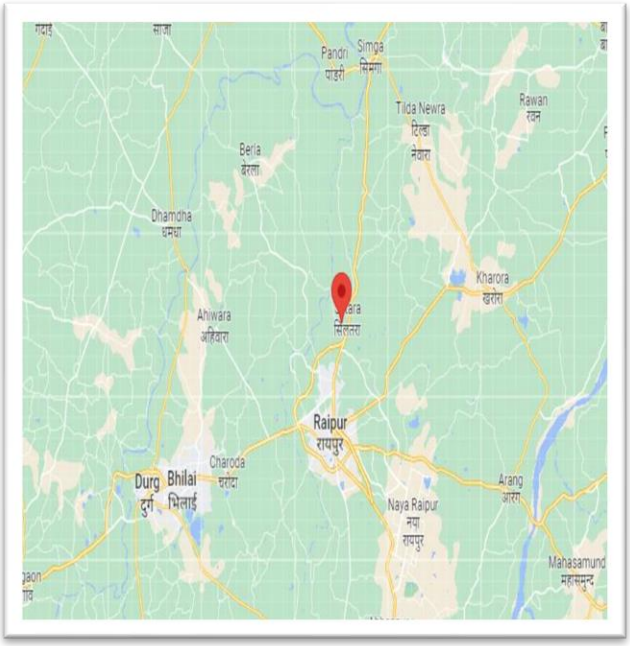
Name:
RAJEEV GYANI
Executive Engineer
Chhattisgarh Renewable Energy Development Agency (CREDA)
Regional Office, Raipur

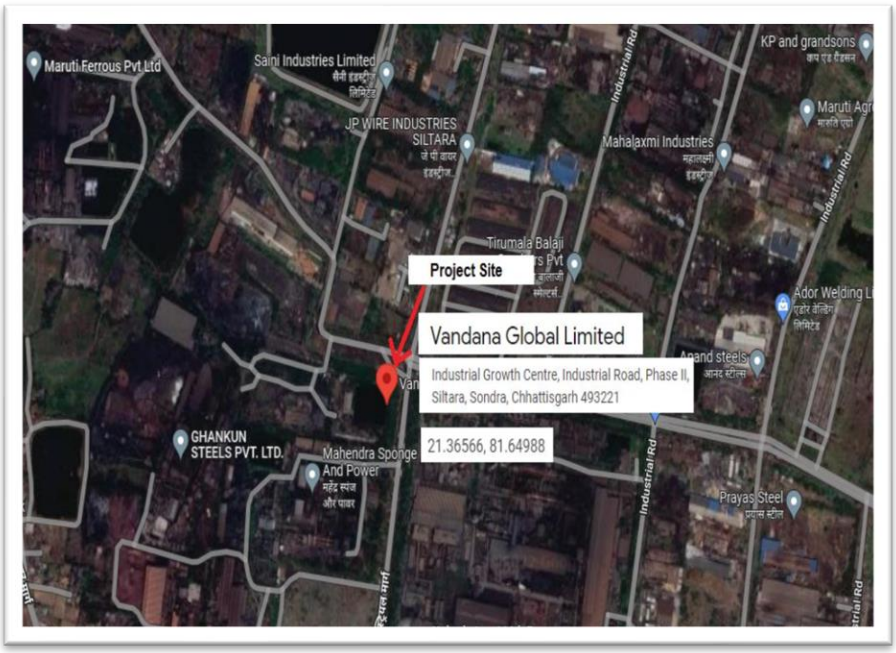
Name:
ALOK TIWARI
Asstt. Engineer
Chhattisgarh State Renewable Energy Development Agency (CREDA)
Regional Office, Raipur

Name: MUKESH BHARGAVA
Seal:
Vandana Global Ltd
RAIPUR (C.G.)

Location of project activity:

Country	: India
Industrial Area	: Siltara
Village	: Sondra
District	: Raipur
Latitude	: 21° 21' 56.3754"N
Longitude	: 81° 38' 59.5674"





Scope:

The scope covers verification of emission reductions from the project 550 KW Solar Power Project Vandana Global Ltd, Chhattisgarh (UCR ID – 216)

Criteria:

Verification criteria is as per the requirements of UCR Standard.

Description of project:

The purpose of the proposed project activity is to generate electricity for captive usage using a clean and renewable source of energy i.e., solar radiation. The generation of power from solar photovoltaic is a clean technology as there is no fossil fuel fired or no GHG gases are emitted during the process. Thus, project activity leads to reduce the GHG emissions as it displaces power from fossil fuel-based electricity generation in the regional grid.

Relevant dates for the project activity:

Unit	Capacity	Total no. of Solar PV Panels	Rating of each Solar PV Panels	Make of Solar PV Panels	Make of Main Meter	Commissioning Date
1	SOLAR-1 (100KW)	708	280	LANCO SOLAR	L&T	08.03.2013
	SOLAR-2 (100KW)					08.03.2013
2	SOLAR-3 (50KW)	540				14.02.2013
	SOLAR-4 (100KW)					14.02.2013
3	SOLAR-5 (100KW)	720				10.06.2012
	SOLAR-6 (100KW)					10.06.2012
TOTAL		**1968**				

The total GHG emission reductions achieved in this monitoring period is as follows:

Summary of the Project Activity and ERs Generated for the Monitoring Period	
Start date of this Monitoring Period	01/01/2013
Carbon credits s (CoUs) claimed up to	31/12/2022
Total ERs generated in this crediting period (tCO_{2eq})	4,148 (expressed as CoUs)
Project Emission	0
Leakage	0

United Nations Sustainable Development Goals:

The project activity generates electrical power using solar energy there by displacing non-renewable fossil resources resulting in sustainable, economic and environmental development. In the absence of the project activity equivalent amount of power generation would have taken place through fossil fuel dominated power generating stations.

Thus, the renewable energy generation from project activity will result in reduction of the greenhouse gas emissions. Positive contribution of the project to the following Sustainable Development Goals:

- ✓ SDG13: Climate Action
- ✓ SDG 7: Affordable and Clean Energy
- ✓ SDG 8: Decent Work and Economic Growth

Development Goals	Targeted SDG	Target Indicator (SDG Indicator)
 SDG 13: Climate Action	13.2: Integrate climate change measures into national policies, strategies and planning Target: 4148 tCO_2 for the Monitored Period 01	13.2.1: Number of countries that have communicated establishment or operationalization of an integrated policy/ strategy/ plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other)
 SDG 7: Affordable and Clean Energy	7.2: By 2030, increase substantially the share of renewable energy in the global energy mix Target: 4614 MWh for the Monitored Period 01	7.2.1: Renewable energy share in the total final energy consumption

8 DECENT WORK AND ECONOMIC GROWTH  SDG 8: Decent Work and Economic Growth	8.5: By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value Target: Training, O&M staff	8.5.1: Average hourly earnings of female and male employees, by occupation, age and persons with disabilities

Level of Assurance:

The verification report is based on the information collected remotely by way of video calls / verification, phone calls and submission of documents for verification through emails like Project Concept Note (PCN) / Monitoring Report (MR), submitted to SQAC. The verification opinion is assured provided the credibility of all the above.

Verification Methodology:

Review of the following documentation was done by SQAC Lead Verifier Mr. Santosh Nair who is experienced in such projects.

- Project Concept Note (PCN)
- Monitoring Report (MR)
- Commissioning Report
- Calibration report
- G Forms
- Data provided upon request of all the documents of the related projects.

Sampling:

Not applicable

Persons interviewed:

1. Mr. A. Chokkarao, GM-E&I, Power Plant - M/s Vandana Global Limited.
2. Mr. Aashish Ku. Gupta, Asst. Manager - Solar & E.A. - M/s Vandana Global Limited.
3. Mr. Rahul Kumar, Asst. Shift Incharge, Power Plant - M/s Vandana Global Limited.

Corrective Action Requests (CARs)

Corrective Action Requests (CARs) and their resolutions are listed below:

There are 2 CAR's:

CAR 1:

The commissioning dates of all the Solar units are mentioned as 01.09.2012 - however as per the documents submitted, it should be - Commissioning Date: 08.03.2013, 08.03.2013, 14.02.2013, 14.02.2013, 10.06.2012 & 10.06.2012.

Response from Project Participant

The correction has been made in the Monitoring Report (V03) and PCN (V02) has been released after incorporating the related corrections.

Conclusion by Verification Team

Verified Monitoring Report (V03) and PCN (V02) for correction and found to be matching as per requirement. Hence Corrective Action Request CAR-1 is closed.

CAR 2:

The crediting period stated in MR is 01.01.2013 till 31.12.2022 – however as per the documents submitted, it should be from 01.01.2014 till 31.12.2022.

Response from Project Participant

Since the first solar project was commissioned on 10/06/2012 (actual date), the project is eligible to earn CoU's under UCR beginning 01/01/2013. However, as per PP there are no records for the 2013 period - hence no credits are being claimed for the 2013 vintage, the MR shows 2013 ERs as nil on technical grounds.

Hence, the crediting period remains unchanged on technical grounds - i.e., 2013-2022.

Conclusion by Verification Team

Explanation found satisfactory. Hence Corrective Action Request CAR-2 is closed.


ADVANCED ENERG
INV NO -10


Electronic Trivector Meter ER300P
kWh
kVArh
WR300BC5200
12010973
Mar 2012
BATT
RST
LARSEN & TOUBRO LIMITED, MYSORE, INDIA


Electronic Trivector Meter ER300P
kWh
kVArh
0.000
WR300BC5200
12010955
Mar 2012
BATT
RST


READY
ON
ALARM
348 W
431.6 V
379 V
7.1 kWh
Operation
F1
F2
ESC


Schneider
Conzerv EM6400NG
9419
5.237
kWh
kVAh
kVARh
OK


1
Wh
38.96
1828
EM 6436-3
CONZERV

CALIBRATION CERTIFICATE

Certificate No. : BA/2K21/489A/01
Indenter : M/s. VANDANA GLOBAL LIMITED
PHASE-II, SILTARA INDUSTRIAL GROUTH CENTER,
SILTARA, RAIPUR, CHHATISGARH

Format No. : QS 19 F, Status – 02

Gauge for Calibration	ENERGY METER	
Make/Model	LT/ER300P	
Range	ASSORTED	
Least Count	ASSORTED	
CT Ratio.	200/5A	
Instrument Sr. No.	09591079	
Instrument Id. No.	EM-1	
Location	JIGGING AREA	
Accuracy	Class 0.5S	
Visual Inspection	OK	
Date of Calibration		10/10/2021
Suggested Due Date of Calibration		09/10/2022
ENVIRONMENTAL CONDITION		
Temperature	25 ±2 °C	
Humidity	50±10%RH	

Equipment & Master Used For Calibration

1. 3 Ph ENERGY METER
Make : CONZERV
Sr.No. : 340180044083
Certificate No. : C &IJ/CAL/20-10/055
Next Due Date : 16/10/2021
Traceability : C&IJ
CC-2216

URL NO-CC221620000001476F

Calibration performed: At site
Discipline: Electro Technical Calibration [Group – Others Energy]
Calibration Results:

Sr. No.	PARAMETER	Difference indicated Value on UUC	Measured Reading on Master	Error	Error in %
1	Mode : 3P 4W	(Wh)	(Wh)	± Wh	
	AC POWER	1000	999.865	0.135	0.014
	Freq:50 Hz	1000	999.755	0.245	0.025
	PF: Unity	1000	999.585	0.415	0.042
	Voltage : 440 V	1000	999.465	0.535	0.054
	Load : 100% (5A)	1000	999.365	0.635	0.064

Uncertainty of Measurement: ±0.037% (The uncertainty stated is the expanded uncertainty of measurement Obtained by multiplying the standard uncertainty by the coverage factor k=2 corresponds to confidence level of 95.45%)

NOTE: -
1. The calibration results reported in this certificate are valid at the time of and the stated condition of measurement.
2. This report should not be reproduced except in full without our prior permission in writing.
3. Calibration certificate without signature are not valid.
4. All our certificates are Traceable to National standard.
5. UUC: Unit under calibration, GUT: Gauge under testing.

Calibrated By (Manish Kumar)

Issued / Approved By
(Mrs. Ruby Jha)
Dy. Technical Manager

BHARTI AUTOMATION PVT LTD
Plot no.-354, Sec-7, IMT Manesar, Gurgaon, Haryana-122051

CALIBRATION CERTIFICATE

Certificate No. : BA/2K21/489A /02
Indenter : M/s. VANDANA GLOBAL LIMITED
PHASE-II, SILTARA INDUSTRIAL GROUTH CENTER,
SILTARA, RAIPUR, CHHATISGARH

Format No. : QS 19 F, Status – 02

Gauge for Calibration	ENERGY METER	
Make/Model	LT/ER300P	
Range	ASSORTED	
Least Count	ASSORTED	
CT Ratio.	200/5A	
Instrument Sr. No.	09591042	
Instrument Id. No.	EM-2	
Location	JIGGING AREA	
Accuracy	Class 0.5S	
Visual Inspection	OK	
Date of Calibration		10/10/2021
Suggested Due Date of Calibration		09/10/2022
ENVIRONMENTAL CONDITION		
Temperature	25 ±2 °C	
Humidity	50±10%RH	

Equipment & Master Used For Calibration

1. 3 Ph ENERGY METER
Make : CONZERV
Sr.No. : 340180044083
Certificate No. : C &IJ/CAL/20-10/055
Next Due Date : 16/10/2021
Traceability : C&IJ
CC-2216

URL NO-CC221620000001476F

Calibration performed: At site
Discipline: Electro Technical Calibration [Group – Others Energy]
Calibration Results:

Sr. No.	PARAMETER	Difference indicated Value on UUC	Measured Reading on Master	Error	Error in %
1	Mode : 3P 4W	(Wh)	(Wh)	± Wh	
	AC POWER	1000	999.675	0.325	0.033
	Freq:50 Hz	1000	999.588	0.412	0.041
	PF: Unity	1000	999.475	0.525	0.053
	Voltage : 440 V	1000	999.375	0.625	0.063
	Load : 100% (5A)	1000	999.156	0.844	0.084

Uncertainty of Measurement: ±0.037% (The uncertainty stated is the expanded uncertainty of measurement Obtained by multiplying the standard uncertainty by the coverage factor k=2 corresponds to confidence level of 95.45%)

NOTE: -
1. The calibration results reported in this certificate are valid at the time of and the stated condition of measurement.
2. This report should not be reproduced except in full without our prior permission in writing.
3. Calibration certificate without signature are not valid.
4. All our certificates are Traceable to National standard.
5. UUC: Unit under calibration, GUT: Gauge under testing.

Calibrated By (Manish Kumar)

Issued / Approved By
(Mrs. Ruby Jha)
Dy. Technical Manager

BHARTI AUTOMATION PVT LTD
Plot no.-354, Sec-7, IMT Manesar, Gurgaon, Haryana-122051

CALIBRATION CERTIFICATE

Certificate No. : BA/2K21/489A/03
Indenter : M/s. VANDANA GLOBAL LIMITED
PHASE-II, SILTARA INDUSTRIAL GROUTH CENTER,
SILTARA, RAIPUR, CHHATISGARH

Format No. : QS 19 F, Status – 02

Gauge for Calibration	ENERGY METER	
Make/Model	LT/ER300P	
Range	ASSORTED	
Least Count	ASSORTED	
CT Ratio.	-/5A	
Instrument Sr. No.	12010955	
Instrument Id. No.	EM-3	
Location	CINTER AREA	
Accuracy	Class 0.5S	
Visual Inspection	OK	
Date of Calibration		10/10/2021
Suggested Due Date of Calibration		09/10/2022
ENVIRONMENTAL CONDITION		
Temperature	25 ±2 °C	
Humidity	50±10%RH	

Equipment & Master Used For Calibration

1. 3 Ph ENERGY METER
Make : CONZERV
Sr.No. : 340180044083
Certificate No. : C &IJ/CAL/20-10/055
Next Due Date : 16/10/2021
Traceability : C&IJ
CC-2216

URL NO-CC221620000001476F

Calibration performed: At site
Discipline: Electro Technical Calibration [Group – Others Energy]
Calibration Results:

Sr. No.	PARAMETER	Difference indicated Value on UUC	Measured Reading on Master	Error	Error in %
1	Mode : 3P 4W	(Wh)	(Wh)	± Wh	
	AC POWER	1000	999.886	0.114	0.011
	Freq:50 Hz	1000	999.866	0.134	0.013
	PF: Unity	1000	999.846	0.154	0.015
	Voltage : 440 V	1000	999.827	0.173	0.017
	Load : 100% (5A)	1000	999.807	0.193	0.019

Uncertainty of Measurement: ±0.037% (The uncertainty stated is the expanded uncertainty of measurement Obtained by multiplying the standard uncertainty by the coverage factor k=2 corresponds to confidence level of 95.45%)

NOTE: -
1. The calibration results reported in this certificate are valid at the time of and the stated condition of measurement.
2. This report should not be reproduced except in full without our prior permission in writing.
3. Calibration certificate without signature are not valid.
4. All our certificates are Traceable to National standard.
5. UUC: Unit under calibration, GUT: Gauge under testing.

Calibrated By (Manish Kumar)

Issued / Approved By
(Mrs. Ruby Jha)
Dy. Technical Manager

BHARTI AUTOMATION PVT LTD
Plot no.-354, Sec-7, IMT Manesar, Gurgaon, Haryana-122051

CALIBRATION CERTIFICATE

Certificate No. : BA/2K21/489A/04
Indenter : M/s. VANDANA GLOBAL LIMITED
PHASE-II, SILTARA INDUSTRIAL GROUTH CENTER,
SILTARA, RAIPUR, CHHATISGARH

Format No. : QS 19 F, Status – 02

Gauge for Calibration	ENERGY METER	
Make/Model	LT/ER300P	
Range	ASSORTED	
Least Count	ASSORTED	
CT Ratio.	-/5A	
Instrument Sr. No.	12023582	
Instrument Id. No.	EM-4	
Location	CINTER AREA	
Accuracy	Class 0.5S	
Visual Inspection	OK	
Date of Calibration		10/10/2021
Suggested Due Date of Calibration		09/10/2022
ENVIRONMENTAL CONDITION		
Temperature	25 ±2 °C	
Humidity	50±10%RH	

Equipment & Master Used For Calibration

1. 3 Ph ENERGY METER
Make : CONZERV
Sr.No. : 340180044083
Certificate No. : C &IJ/CAL/20-10/055
Next Due Date : 16/10/2021
Traceability : C&IJ
CC-2216

URL NO-CC221620000001476F

Calibration performed: At site
Discipline: Electro Technical Calibration [Group – Others Energy]
Calibration Results:

Sr. No.	PARAMETER	Difference indicated Value on UUC	Measured Reading on Master	Error	Error in %
1	Mode : 3P 4W	(Wh)	(Wh)	± Wh	
	AC POWER	1000	999.864	0.136	0.014
	Freq:50 Hz	1000	999.775	0.225	0.023
	PF: Unity	1000	999.687	0.313	0.031
	Voltage : 440 V	1000	999.665	0.335	0.034
	Load : 100% (5A)	1000	999.575	0.425	0.043

Uncertainty of Measurement: ±0.037% (The uncertainty stated is the expanded uncertainty of measurement Obtained by multiplying the standard uncertainty by the coverage factor k=2 corresponds to confidence level of 95.45%)

NOTE: -
1. The calibration results reported in this certificate are valid at the time of and the stated condition of measurement.
2. This report should not be reproduced except in full without our prior permission in writing.
3. Calibration certificate without signature are not valid.
4. All our certificates are Traceable to National standard.
5. UUC: Unit under calibration, GUT: Gauge under testing.

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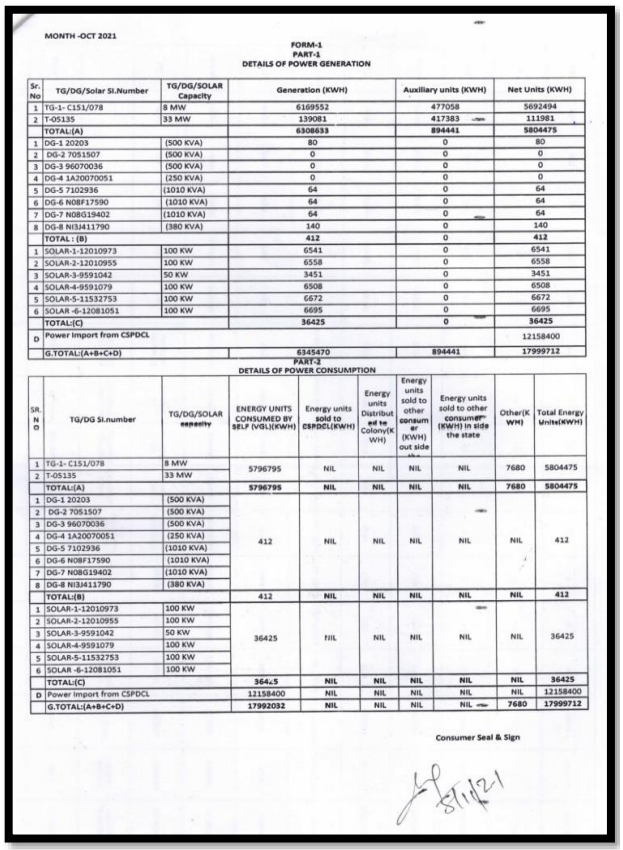
(Mrs. Ruby Jha)
Dy. Technical Manager

BHARTI AUTOMATION PVT LTD
Plot no.-354, Sec-7, IMT Manesar, Gurgaon, Haryana-122051



MONTH -OCT 2021

FORM-1
PART-1
DETAILS OF POWER GENERATION

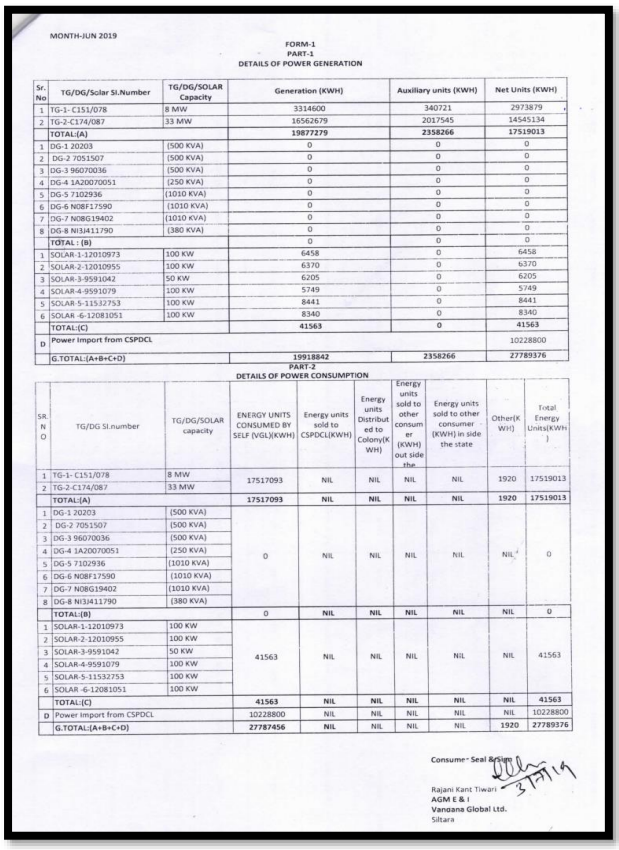
Sr. No	TG/DG/Solar Sl.Number	TG/DG/SOLAR Capacity	Generation (KWH)	Auxiliary units (KWH)	Net Units (KWH)
1	TG-1- C151/078	8 MW	6169552	477058	5692494
2	T-05135	33 MW	139081	417383	111981
	TOTAL:(A)		6308633	894441	5804475
1	DG-1 20203	(500 KVA)	80	0	80
2	DG-2 7051507	(500 KVA)	0	0	0
3	DG-3 96070036	(500 KVA)	0	0	0
4	DG-4 1A20070051	(250 KVA)	0	0	0
5	DG-5 7102936	(1010 KVA)	64	0	64
6	DG-6 N08F17590	(1010 KVA)	64	0	64
7	DG-7 N08G19402	(1010 KVA)	64	0	64
8	DG-8 NI3J411790	(380 KVA)	140	0	140
	TOTAL : (B)		412	0	412
1	SOLAR-1-12010973	100 KW	6541	0	6541
2	SOLAR-2-12010955	100 KW	6558	0	6558
3	SOLAR-3-9591042	50 KW	3451	0	3451
4	SOLAR-4-9591079	100 KW	6508	0	6508
5	SOLAR-5-11532753	100 KW	6672	0	6672
6	SOLAR -6-12081051	100 KW	6695	0	6695
	TOTAL:(C)		36425	0	36425
D	Power Import from CSPDCL				12158400
	G.TOTAL:(A+B+C+D)		6345470	894441	17999712

PART-2
DETAILS OF POWER CONSUMPTION

SR. N O	TG/DG Sl.number	TG/DG/SOLAR capacity	ENERGY UNITS CONSUMED BY SELF (VGL)(KWH)	Energy units sold to CSPDCL(KWH)	Energy units Distributed to Colony(KWH)	Energy units sold to other consumer (KWH) out side the	Energy units sold to other consumer (KWH) in side the state	Other(KWH)	Total Energy Units(KWH)
1	TG-1- C151/078	8 MW	5796795	NIL	NIL	NIL	NIL	7680	5804475
2	T-05135	33 MW							
	TOTAL:(A)		5796795	NIL	NIL	NIL	NIL	7680	5804475
1	DG-1 20203	(500 KVA)	412	NIL	NIL	NIL	NIL	NIL	412
2	DG-2 7051507	(500 KVA)							
3	DG-3 96070036	(500 KVA)							
4	DG-4 1A20070051	(250 KVA)							
5	DG-5 7102936	(1010 KVA)							
6	DG-6 N08F17590	(1010 KVA)							
7	DG-7 N08G19402	(1010 KVA)							
8	DG-8 NI3J411790	(380 KVA)							
	TOTAL:(B)		412	NIL	NIL	NIL	NIL	NIL	412
1	SOLAR-1-12010973	100 KW	36425	NIL	NIL	NIL	NIL	NIL	36425
2	SOLAR-2-12010955	100 KW							
3	SOLAR-3-9591042	50 KW							
4	SOLAR-4-9591079	100 KW							
5	SOLAR-5-11532753	100 KW							
6	SOLAR -6-12081051	100 KW							
	TOTAL:(C)		36425	NIL	NIL	NIL	NIL	NIL	36425
D	Power Import from CSPDCL		12158400	NIL	NIL	NIL	NIL	NIL	12158400
	G.TOTAL:(A+B+C+D)		17992032	NIL	NIL	NIL	NIL	7680	17999712

Consumer Seal & Sign

5/11/21



MONTH-JUN 2019

FORM-1
PART-1
DETAILS OF POWER GENERATION

Sr. No	TG/DG/Solar Sl.Number	TG/DG/SOLAR Capacity	Generation (KWH)	Auxiliary units (KWH)	Net Units (KWH)
1	TG-1- C151/078	8 MW	3314600	340721	2973879
2	TG-2-C174/087	33 MW	16562679	2017545	14545134
	TOTAL:(A)		19877279	2358266	17519013
1	DG-1 20203	(500 KVA)	0	0	0
2	DG-2 7051507	(500 KVA)	0	0	0
3	DG-3 96070036	(500 KVA)	0	0	0
4	DG-4 1A20070051	(250 KVA)	0	0	0
5	DG-5 7102936	(1010 KVA)	0	0	0
6	DG-6 N08F17590	(1010 KVA)	0	0	0
7	DG-7 N08G19402	(1010 KVA)	0	0	0
8	DG-8 NI3J411790	(380 KVA)	0	0	0
	TOTAL : (B)		0	0	0
1	SOLAR-1-12010973	100 KW	6458	0	6458
2	SOLAR-2-12010955	100 KW	6370	0	6370
3	SOLAR-3-9591042	50 KW	6205	0	6205
4	SOLAR-4-9591079	100 KW	5749	0	5749
5	SOLAR-5-11532753	100 KW	8441	0	8441
6	SOLAR -6-12081051	100 KW	8340	0	8340
	TOTAL:(C)		41563	0	41563
D	Power Import from CSPDCL				10228800
	G.TOTAL:(A+B+C+D)		19918842	2358266	27789376

PART-2
DETAILS OF POWER CONSUMPTION

SR. N O	TG/DG Sl.number	TG/DG/SOLAR capacity	ENERGY UNITS CONSUMED BY SELF (VGL)(KWH)	Energy units sold to CSPDCL(KWH)	Energy units Distributed to Colony(KWH)	Energy units sold to other consumer (KWH) out side the	Energy units sold to other consumer (KWH) in side the state	Other(KWH)	Total Energy Units(KWH)
1	TG-1- C151/078	8 MW	17517093	NIL	NIL	NIL	NIL	1920	17519013
2	TG-2-C174/087	33 MW							
	TOTAL:(A)		17517093	NIL	NIL	NIL	NIL	1920	17519013
1	DG-1 20203	(500 KVA)	0	NIL	NIL	NIL	NIL	NIL	0
2	DG-2 7051507	(500 KVA)							
3	DG-3 96070036	(500 KVA)							
4	DG-4 1A20070051	(250 KVA)							
5	DG-5 7102936	(1010 KVA)							
6	DG-6 N08F17590	(1010 KVA)							
7	DG-7 N08G19402	(1010 KVA)							
8	DG-8 NI3J411790	(380 KVA)							
	TOTAL:(B)		0	NIL	NIL	NIL	NIL	NIL	0
1	SOLAR-1-12010973	100 KW	41563	NIL	NIL	NIL	NIL	NIL	41563
2	SOLAR-2-12010955	100 KW							
3	SOLAR-3-9591042	50 KW							
4	SOLAR-4-9591079	100 KW							
5	SOLAR-5-11532753	100 KW							
6	SOLAR -6-12081051	100 KW							
	TOTAL:(C)		41563	NIL	NIL	NIL	NIL	NIL	41563
D	Power Import from CSPDCL		10228800	NIL	NIL	NIL	NIL	NIL	10228800
	G.TOTAL:(A+B+C+D)		27787456	NIL	NIL	NIL	NIL	1920	27789376

Consumer Seal & Sign

3/7/19

Rajani Kant Tiwari
AGM E & I
Vandana Global Ltd.
Sitara

Application of methodologies and standardized baselines

References to methodologies and standardized baselines

SECTORAL SCOPE – 01 Energy industries (Renewable/Non-renewable sources)

TYPE I – Renewable Energy Projects

CATEGORY – AMS-I.F. – Renewable electricity generation for captive use and mini-grid, ver 05

This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass that supply electricity to user(s). The project activity will displace electricity from an electricity distribution system that is or would have been supplied by at least one fossil fuel fired generating unit, i.e., in the absence of the project activity, the users would have been supplied electricity from:

(a) A national or a regional grid (grid hereafter)

Methodology key elements

Typical project(s)	Production of electricity using renewable energy technologies such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass that supply electricity to user(s).
Type of GHG emissions mitigation action.	Renewable energy: displacement of electricity that would be provided to the user(s) by more-GHG-intensive means.

Applicability of methodologies and standardized baselines

- This project is included within the UCR Standard Positive List of technologies and are within the small-scale CDM thresholds (e.g., installed capacity up to 15 MW). The positive list comprises of: (a) renewable electricity generation technologies of installed capacity up to 15 MW, (b) Solar technologies (photovoltaic and solar thermal electricity generation);
- Project activity involves installation of captive use solar photovoltaic power generation with capacity 550 KW which is less than 15MW.
- The project activity involves installation of Solar PV (SPV). Hence, the activity is not a Hydro power project or combined heat and power (co-generation) systems.
- Project displaces grid electricity consumption (e.g., grid import).
- The project activity is a new installation, it does not involve any retrofit measures nor any replacement.
- Landfill gas, waste gas, wastewater treatment and agro-industries projects are not relevant to the project activity. No biomass is involved, the project is only a solar power project.
- The technology/measure allowed under the grid connected Solar PV based generation systems displace equivalent quantity of electricity from the regional grid in India. The testing/certifications; all the equipment of the solar project activity will be complying with applicable national/ international standards. The above details may be verified from one or more of the following documents:
    - Technology Specification provided by the technology supplier.
    - Purchase order copies
    - EPC contracts
    - Power Purchase Agreement
    - Project commissioning certificates
- The project activity is a voluntary coordinated action
- As per the Ministry of Environment and Forest (MoEF), Govt. of India Office Memorandum dated 13/05/2011, it had received specific clarification regarding the applicability of EIA

Notification, 2006 in respect of Solar Photo Voltaic (PV) Power plants. It was further clarified in the above memorandum that both Solar PV power projects are not covered under the ambit of EIA Notification, 2006 and no environment clearance is required for such projects under provisions thereof.

- This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass that supply electricity to user(s). Hence this methodology is applicable and fulfilled for the solar project activity.
- The project activity involves installation of new power plants at listed sites where there was no renewable energy power plant operating prior to implementation of project.
- Project and leakage emissions from biomass are not applicable.

Applicability of double counting emission reductions

The renewable electricity units are monitored with a unique energy meter located within the project activity boundary. The project activity will not apply to India's NDC carbon ecosystem/market and has not been registered under any other GHG mechanism for carbon offsets/credits in the past. Agreement for Double Counting Avoidance from Proponent has been provided duly signed on 14.09.2023.

Project boundary, sources and greenhouse gases (GHGs)

The spatial extent of the project boundary includes s industrial, commercial facilities consuming energy generated by the system and encompasses the physical, geographical site of the solar power plant and the energy metering equipment.

	Source	GHG	Included?	Justification/Explanation
Baseline	Grid connected electricity.	**CO_2**	**Included**	**Major source of emission**
		CH_4	Excluded	Excluded for simplification. This is conservative.
		N_2O	Excluded	Excluded for simplification. This is conservative.
Project Activity	Greenfield Solar Power Project	CO_2	Excluded	Excluded for simplification. This is conservative.
		CH_4	Excluded	Excluded for simplification. This is conservative.
		N_2O	Excluded	Excluded for simplification. This is conservative.

Establishment and description of baseline scenario (UCR Protocol)

The baseline scenario is the product of amount electricity displaced with the electricity produced by the renewable generating unit and an emission factor.

Total Installed Capacity: 550 KWh

Commissioning Date of first installation: 10/06/2012

Annual Emission Reductions: $BE_y = EG_{BL,yl} \times EF_{CO2, GRID, y}$

BEy = Emission reductions in a year y.

where:

$EG_{BL,y}$ = Quantity of net electricity supplied to the grid as a result of the implementation of the UCR project activity in year y (MWh)

$EF_{Grid,CO2,y}$ = CO_2 emission factor of the grid in year y (tCO_2/MWh) as determined by the UCR Standard.

A "grid emission factor" refers to a CO_2 emission factor (tCO_2/MWh) which will be associated with each unit of electricity provided by an electricity system. The UCR recommends an emission factor of 0.9 tCO_2/MWh for the 2013-2020 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Also, for the vintage 2021-22, the combined margin emission factor calculated from CEA database in India results into same emission factors as that of the default value. Hence, the same emission factor has been considered to calculate the emission reduction.

Net GHG Emission Reductions and Removals

Thus, **ERy = BEy – PEy – LEy**

Where:

ER_y = Emission reductions in year y (tCO_2/y)

BE_y = Baseline Emissions in year y (t CO_2/y);

PE_y = Project emissions in year y (tCO_2/y)

LE_y = Leakage emissions in year y (tCO_2/y)

Baseline Emissions

Baseline emissions include only CO_2 emissions from electricity generation in 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 (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 this project activity in year y (MWh).
$EF_{y,grid}$ = UCR recommended emission factor of 0.9 tCO_2/MWh has been considered, this is conservative as compared to the combined margin grid emission factor which can be derived from Database of Central Electricity Authority (CEA), India.

Project Emissions

$PE_y = 0$

Leakage Emissions
All projects other than Biomass projects have zero leakage.
Hence, $LE_y = 0$

Issuance Period: 10 years 0 month – 01/01/2013 to 31/12/2022

Total Emission Reduction (ER) by the project activity for the current monitoring period is calculated as below:

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total KWH	MWH	ER (tCO_2)
2013	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2014	60381	62700	68275	68155	70761	62828	46510	35818	36105	51078	64487	67177	694275	694.275	624
2015	62697	57445	63469	62016	62596	50429	27290	43781	51538	40282	50533	52122	624198	624.198	561
2016	61053	59349	61858	55666	59057	53878	49600	55231	53037	54339	53007	48687	664762	664.762	598
2017	54609	48538	54779	53478	54991	50363	51985	51284	53167	52359	49997	46032	621582	621.582	559
2018	49995	45216	51314	49808	49934	47078	43329	44519	38201	44843	44544	39737	548518	548.518	493
2019	40811	34251	40467	39641	43229	41563	36227	34532	33765	38153	38153	41581	462373	462.373	415
2020	39451	36099	32368	0	42201	37199	32990	22933	17109	18439	23731	24607	327127	327.127	294
2021	31169	29969	38819	36020	36007	34973	34934	35986	34727	36425	35208	35302	419539	419.539	377
2022	32841	34000	37154	35153	32159	13363	7500	8774	8872	14579	13155	15199	252749	252.749	227
														Total	**4148**

Total Emission Reductions (ER_y) = 4,148 CoUs (4,148 tCO_2eq)

Conclusions:

Based on the audit conducted on the basis of UCR Protocol, which draws reference from UCR Protocol Standard Baseline & Emission Factor, UNFCCC Methodology Category AMS-I.F. Small-scale Methodology, Renewable electricity generation for captive use and mini-grid Ver 05, the audit conducted remotely by way of video calls / verification, phone calls and the documents verified and submitted during the verification including the Data, Project Concept Note (PCN) / Monitoring Report (MR), SQAC is able to certify that the emission reductions from the project - 550 KW Solar Power Project Vandana Global Ltd, Chhattisgarh (UCR ID – 216) for the period **01/01/2013 to 31/12/2022** amounts to **4,148 CoUs (4,148 tCO_2eq)**

Santosh Nair Lead Verifier (Signature)	Praful Shinganapurkar Senior Internal Reviewer (Signature)

Date: 09/10/2023