



Monitoring Report

CARBON OFFSET UNIT (CoU) PROJECT



Title: 30 MW Solar Power Project TKSPL, Tamil Nadu, India.

UCR PROJECT ID: 419

MR Version 1.0

MR Date: 01/04/2024

First CoU Issuance Period: 31/03/2016 to 31/12/2023 (07 years, 08 months)

First Monitoring Period: 31/03/2016 to 31/12/2023 (07 years, 08 months)

8 DECENT WORK AND
ECONOMIC GROWTH



13 CLIMATE
ACTION



7 AFFORDABLE AND
CLEAN ENERGY





**Monitoring Report (MR)
CARBON OFFSET UNIT (CoU) PROJECT**

Monitoring Report	
Title of the project activity	30 MW Solar Power Project TLKSPL, Tamil Nadu, India.
UCR Project Registration Number	419
Version	1.0
Scale of the project activity	Large Scale
Completion date of the MR	01/04/2024
Project participants	Project Proponent: IndiGrid Limited. Mumbai, Maharashtra-400098, India. UCR ID: 310768132
Host Party	India
SDGs	SDG 7: Affordable and Clean Energy SDG 8: Decent Work and Economic Growth SDG 13: Climate Action
Applied methodologies and standardized baselines	Type I (Renewable Energy Projects) UNFCCC CDM Methodology Category UNFCCC Methodology Category, “ACM0002: Grid-connected electricity generation from renewable sources - Version 21.0 UCR Protocol Standard Baseline Emission Factor
Sectoral scopes	01 Energy industries (Renewable / Non-renewable Sources)
Estimated amount of GHG emission reductions for r the crediting period per year.	2016: 33,651 CoUs (33,651 tCO₂eq)
	2017: 42,571 CoUs (42,571 tCO₂eq)
	2018: 50,133 CoUs (50,133 tCO₂eq)
	2019: 50,639 CoUs (50,639 tCO₂eq)
	2020: 46,954 CoUs (46,954 tCO₂eq)
	2021: 47,866 CoUs (47,866 tCO₂eq)
	2022: 48,470 CoUs (48,470 tCO₂eq)
	2023: 49,711 CoUs (49,711 tCO₂eq)
	Total: 3,69,995 CoUs (3,69,995 tCO₂eq)

SECTION A. Description of project activity

A.1. Purpose and general description of project activity >>

The project activity 30 MW Solar Power Project TKSPL, Tamil Nadu, India is located in Village Alliyandal, Taluka Chengam, District Tirunnamalai, State Tamil Nadu, India.

Purpose of the project activity:

Terralight Kanji Solar Pvt. Ltd. (TKSPL) Solar Power Project stands as a ground-mounted solar energy generation hub located in Village Alliyandal, Tamil Nadu, India. With an impressive capacity of 30 MW of Solar PV plant, it harnesses photovoltaic (PV) technology to convert solar energy into electricity, thereby contributing to India's renewable energy objectives and combating carbon emissions by replacing fossil fuel-based electricity generation with clean, sustainable solar power.

Promoted by Terralight Kanji Solar Private Limited (TKSPL), a subsidiary of INDIGRID, also called as Project Proponent (PP), this project epitomizes innovation and sustainability in the power transmission sector. As part of INDIGRID, India's pioneering Infrastructure Investment Trust (InvIT), TKSPL is aligned with a larger mission of owning, operating, and managing power transmission networks and renewable energy assets across the nation. TKSPL is just one among thirty-five power projects within IndiGrid's diverse Portfolio Assets, which includes operational transmission projects, greenfield ventures, and solar generation projects dispersed across 20 states and 1 union territory in India.

Operating in Tirunnamalai, Tamil Nadu, TKSPL's project activity represents a new venture (Greenfield), exporting electricity to the Indian grid and effectively displacing fossil fuel-generated power. This strategic move ensures that electricity generated by the project replaces an equivalent amount that would otherwise be sourced from the fossil fuel-dominant grid. In essence, the project mitigates the need for additional grid-connected power plants and new generation sources, thereby paving the way for a greener, more sustainable energy landscape.

The primary objective of this project is to generate clean electricity through renewable solar energy sources. It involves the installation of 30 MW solar projects as part of a bundled project activity.

TKSPL specializes in establishing, generating, and distributing renewable power from its ground-mounted solar power plants situated in Tiruvannamalai, Tamil Nadu. Through a Power Purchase Agreement (PPA) with TANGEDCO, TKSPL has committed to implementing a 36.00 MWp (30.00 MW AC) solar photovoltaic power generation unit in Tamil Nadu. This agreement allows TKSPL to sell electricity to TANGEDCO for a duration of 25 years from the Commercial Operation Date (COD). The project is fully owned by the Project Proponent (PP).

Operating as an operational activity, this project continuously reduces greenhouse gas emissions. It is currently enrolled in the "Universal Carbon Registry" (UCR), a program that rewards solar

initiatives with carbon credits. These credits serve as incentives for promoting positive climate action in the Global South, distinguishing it from carbon finance in other international voluntary carbon programs.

As of March 2023, India has made significant strides in the realm of renewable energy. The installed capacity for renewable energy has surged from 115.94 GW in March 2018 to 172.00 GW in March 2023, marking a remarkable increase of approximately 1.48 times. Throughout the year 2022-23, the nation generated a total of 365.60 billion units (BU) of electricity from renewable sources, demonstrating a strong commitment to sustainable energy practices.

On a global scale, India stands as the fourth-largest nation in terms of installed renewable energy capacity, as per the Renewable Energy Statistics 2023 released by the International Renewable Energy Agency (IRENA).

India has set an ambitious target to achieve around 450 GW of installed renewable energy capacity by 2030, with solar energy expected to contribute over 60% of this capacity. Projections from the International Energy Agency (IEA) indicate that India's installed renewable energy capacity is on track to reach 174 GW by 2023, accounting for approximately 37% of the country's total energy supply.

This remarkable growth underscores India's unwavering commitment to sustainable energy practices and its transition towards cleaner and more eco-friendly power sources. Carbon incentive policies, such as the UCR CoU program, are poised to play a crucial role in driving India closer to achieving its renewable energy goals.

a) Purpose of the project activity:

The proposed project aims to generate electricity using clean and renewable solar radiation as its source of energy. By harnessing solar power, the project activity effectively reduces grid electricity consumption at the user end, thus displacing the need for grid imports. With a total capacity of 36 MWh, the project involves the installation and operation of a solar power plant located in the Tirunannamalai district of Tamil Nadu.

Village	Taluka	District	State	Type	Total installed capacity MW	Commissioning Date
Alliyandal	Chengam	Tirunannamalai	Tamil Nadu	Ground mounted	30	26.03.2016

As per the ex-post calculations, this project generated approximately **4,11,110 MWh** of renewable electricity over the entire monitored period. The project employs Polycrystalline solar photovoltaic

technology to generate environmentally friendly energy.

Solar photovoltaic power generation inherently contributes to environmental sustainability by avoiding the combustion of fossil fuels and the associated greenhouse gas (GHG) emissions. Each photovoltaic module comprises interconnected photovoltaic cells enclosed in an environmentally protective laminate. These modules serve as the fundamental building blocks of a complete photovoltaic generating unit. When multiple photovoltaic panels are arranged on a frame, they form a photovoltaic array. By displacing fossil fuel-based electricity generation within the regional grid, this project plays a significant role in reducing GHG emissions.

TAMILNADU GENERATION AND DISTRIBUTION CORPORATION LTD

From
Er.M.Noormohamed, B.E., MIE.,
Superintending Engineer,
TEDC/Thiruvannamalai

✓
M/s Shapoorji Pallonji Solar PV Pvt Ltd,
Allyyandal Village,
Chengam Taluk,
Thiruvannamalai Dt.,

Lr.No. SE/TEDC/T.V.malai/AEE/Dev/AE/Solar/D.No.330/16,dt, 29.03.2016.

Sir,

Sub: TEDC- Solar EHT SC.No.001-Commissioning on 26.03.2016
Intimation – Reg.

Ref: 1. Memo.No.DIR/GEN/CE/NCES/SE/Solar/EE/SCB/AEE2/FMS
Shapoorji/D.254/16,dt,24.03.2016.

2. Lr.No.EE/O&M/CGM/DM/Solar/D.No.334/16,dt,26.03.2016

3. Lr.No.EE/O&M/CGM/DM/F.Test Report/D.No.339/15-16,
dt,24.3.16.

30MW Capacity Solar Power Plant of M/s Shapoorji Pallonji Solar PV Pvt
Ltd, at Allyyandal Village, Chengam Taluk, Thiruvannamalai has been commissioned on
26.03.2016. the Particulars of Generation are as below.

Sl.No.	Village	Capacity	HT SC No. & Date of Commissioning
1	Allyyandal Village, Chengam Taluk Thiruvannamalai Dt	30 MW	TVM Solar EHT SC No. 001 Dt, 26.03.2016.

Superintending Engineer,
TEDC/Thiruvannamalai.

Copy to the Executive Engineer/O&M/Chengam.
Copy to the Assistant Executive Engineer/O&M/Pudupalayam
Copy to the Deputy Financial Controller/Central Office/T.malai & Accounts Officer /
Rev/ CO/T.Malai.

भारतीय गैर न्यायिक
एक सौ रुपये **Rs. 100**
रु. 100 **ONE**
HUNDRED RUPEES

भारत INDIA
INDIA NON JUDICIAL

AZ 653908
V. DEVAN
S.V.L. No. 9 / B3 / 2000
No.24, Nymiappan St., Ch-1

12-730
19-9-2015
SHAPORJI PALLONJI SOLAR PV PVT LTD
**ENERGY PURCHASE AGREEMENT FOR SOLAR POWER PLANTS COVERED
UNDER ORDER NO.7 OF 2014, DATED 12.09.2014**

This agreement made at Chennai on this 19th day of September Two
thousand and Fifteen between M/s.Shapoorji Pallonji Solar PV Private
Limited having its registered office at 70, Nagindas Master Road, Fort, Mumbai –
400 023. hereinafter called the Solar Power Generator or SPG (which expression
shall wherever the context so permits means and include its successors in interest,
executors, administrators and permitted assigns) represented by
Thiru.K.Venkatarao, Authorized Signatory and the Tamil Nadu Generation
and Distribution Corporation Limited (TANGEDCO), a Corporation incorporated
under the Companies Act, 1956 and wholly owned by the Government of Tamil
Nadu, having its registered office at No.144, Anna Salai, Chennai – 600 002,
hereinafter called the Distribution Licensee (which expression shall wherever the

For SHAPORJI PALLONJI SOLAR PV PVT. LTD.
Authorized Signatory

Superintending Engineer
SOLAR ENERGY
Non Conventional Energy Sources
Tamilnadu Generation & Distribution Corp. Ltd.
No: 144, Anna Salai, Chennai-600 002.

context so permits means and include its successors in interest, and permitted assigns) represented by the **Superintending Engineer/ Solar Energy/ NCES/ TANGEDCO**.

WHEREAS the SPG has sent a proposal to the Distribution Licensee to sell solar energy generated from its solar power plant as detailed below, having total capacity of 30 MW ac.

Sl.No.	SF.No. & Address	Capacity	Plant Number
1.	Enclosed in the Annexure	30 MW	

AND WHEREAS the Distribution Licensee has accepted the said proposal and has agreed to buy the solar energy from the SPG from their/his aforesaid generator vide Lr.No.CE/NCES/SE/Solar/EE/SCB/AEE2/F.Shapoorji Pallonji/D.1093/15, dated 19.09.15 on the terms and conditions hereinafter agreed to.

NOW THESE PRESENTS WITNESSETH AND THE PARTIES HEREBY AGREE AS FOLLOWS:

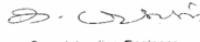
1. Definitions

In this agreement-

- (a) "Billing Period" means the time period between the date of meter reading in a particular month and the corresponding reading in the immediately succeeding month and month shall mean a month reckoned in the British Calendar.
- (b) "Commission" means the Tamil Nadu Electricity Regulatory Commission;
- (c) "Date of Commercial operation" or "COD" means COD as defined in the regulation 2(m) of the TNERC (Terms and Conditions for the Determination of Tariff) Regulations 2005.

For SHAPOORJI PALLONJI SOLAR PV PVT. LTD.



 Authorised Signatory


 Superintending Engineer
SOLAR ENERGY
 Non Conventional Energy Sources
 Taminadu Generation & Distribution Corp. Ltd.
 No: 144, Anna Salai, Chennai-600 002.

- (ii) Acts of any Government domestic or foreign, including but not limited to war declared or undeclared, hostilities, priorities, quarantines, embargoes;
- (iii) Riot or Civil Commotion; and
- (iv) Grid / Distribution System's failure not attributable to parties to this agreement.



In witness whereof **Thiru.K.Venkatarao**, Authorized Signatory acting for and on behalf of **M/s.Shapoorji Pallonji Solar PV Private Limited** and **Thiru.K.Manoharan**, **Superintending Engineer/Solar Energy/NCES/ TANGEDCO** (Name, designation and officer, concerned of the Distribution Licensee) acting for and on behalf of the Distribution Licensee have hereunto set their hands on the day, month and year hereinabove first mentioned.


In the presence of witnesses

1.  (V. Mohan)
 No. 4, 3rd Cross Street
 R. N. Puram, Chennai-600 029
2.  (A. KUMAR)
 No: 2/102, MALVI GATE Street
 ANSAL NAGAR, POOR Chennai-116


 Signature
 Solar Power Generator
 Common Seal


In the presence of witnesses

1.  (R. ADHINARAYAN)
 AEE (LOCAL)
2.  (S. RAJESH)
 AEE (LOCAL)


 Signature
 Authorized Officer of the
 Distribution Licensee
Superintending Engineer
SOLAR ENERGY
 Non Conventional Energy Sources
 Taminadu Generation & Distribution Corp. Ltd.
 No: 144, Anna Salai, Chennai-600 002.

Annexure


Sl.No	Village	Survey Numbers	Document No.	Extent Of Land in Acres	Date of Registration
1	Alliyandhal	15/6	1389/2015	6.32	15.05.2015
2	Alliyandhal	20/5	1388/2015	0.56	15.05.2015
3	Alliyandhal	6/5	1317/2015	2.65	08.05.2015
4	Alliyandhal	12/2	1319/2015	0.35	08.05.2015
5	Alliyandhal	12/2&14/2	1318/2015	2.25	08.05.2015
6	Alliyandhal	6/4	1361/2015	2.54	13.05.2015
7	Alliyandhal	5/3	1360/2015	2.59	13.05.2015
8	Alliyandhal	20/5	1316/2015	2.39	08.05.2015
9	Alliyandhal	21/4	1320/2015	1.40	08.05.2015
10	Alliyandhal	20/7	1094/2015	0.78	09.04.2015
11	Alliyandhal	12/1A,12/1B&12/1D	1095/2015	1.72	09.04.2015
12	Alliyandhal	4/2&4/4	1096/2015	4.95	09.04.2015
13	Alliyandhal	17/4	1097/2015	1.13	09.04.2015
14	Alliyandhal	17/9	1098/2015	0.88	09.04.2015
15	Alliyandhal	15/10	1126/2015	0.74	09.04.2015
16	Alliyandhal	15/8	1443/2015	2.16	21.05.2015
17	Alliyandhal	7/4	1460/2015	1.40	21.05.2015
18	Alliyandhal	12/2&14/2	1459/2015	4.40	21.05.2015
19	Alliyandhal	15/7	1452/2015	0.96	21.05.2015
20	Alliyandhal	13/6	1455/2015	2.35	21.05.2015
21	Alliyandhal	20/8	1448/2015	1.16	21.05.2015
22	Alliyandhal	14/1&15/4	1438/2015	5.92 1/2	21.05.2015
23	Alliyandhal	4/5 & 4/6	1446/2015	2.96	21.05.2015
24	Alliyandhal	7/5 & 7/6	1445/2015	4.33	21.05.2015
25	Alliyandhal	13/2,13/3&15/9	1451/2015	5.54	21.05.2015
26	Alliyandhal	13/5	1457/2015	3.01	21.05.2015
27	Alliyandhal	21/6	1461/2015	1.65	21.05.2015
28	Alliyandhal	8/6	1462/2015	1.62	21.05.2015
29	Alliyandhal	3/2 & 3/4	1442/2015	2.69	21.05.2015
30	Alliyandhal	3/3	1444/2015	1.39	21.05.2015
31	Alliyandhal	16/1B1,16/1B3,16/3B,16/3E & 17/2B	1441/2015	1.70	21.05.2015
32	Alliyandhal	5/4 & 6/3	1440/2015	5.09	21.05.2015
33	Alliyandhal	21/2	1447/2015	1.72	21.05.2015
34	Alliyandhal	20/7	1450/2015	1.50	21.05.2015
35	Alliyandhal	17/9	1449/2015	0.70	21.05.2015
36	Alliyandhal	8/7& 8/8	1456/2015	3.06	21.05.2015
37	Alliyandhal	20/8	1525/2015	1.16	27.05.2015
38	Alliyandhal	4/7	1509/2015	3.00	26.05.2015
39	Alliyandhal	6/1	1926/2015	2.52	02.07.2015
40	Oravandhavadi	172/2	1881/2015	5.06	29.06.2015

Superintending Engineer
SOLAR ENERGY
 Non Conventional Energy Sources
 Taminadu Generation & Distribution Corp. Ltd.
 No: 144, Anna Salai, Chennai-600 002.

41	Oravandhavadi	172/1	1882/2015	5.00	29.06.2015
42	Oravandhavadi	171/2	1889/2015	5.00	30.06.2015
43	Oravandhavadi	171/1	1891/2015	4.38	30.06.2015
44	Oravandhavadi	170/2	1907/2015	4.05	01.07.2015
45	Oravandhavadi	170/3	1906/2015	4.79	01.07.2015
46	Oravandhavadi	148/1	2048/2015	5.01	13.07.2015
47	Oravandhavadi	148/2	1908/2015	4.61	01.07.2015
48	Oravandhavadi	148/3	1910/2015	4.25	01.07.2015
49	Oravandhavadi	149/3	1911/2015	4.50	01.07.2015
50	Oravandhavadi	149/4	1909/2015	3.96	01.07.2015
				Total	143.855

For SHAPOORJI PALLONJI SOLAR PV PVT. LTD.

 Authorised Signatory


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SOLAR ENERGY
 Non Conventional Energy Sources
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The average estimated reduction in CO₂e emissions resulting from the project activity is **3,69,995** tCO₂e over the first monitoring period. As the project generates electricity using solar energy, a clean and renewable source, it has no adverse impact on the environment and actively contributes to climate change mitigation efforts.



b) Brief description of the installed technology and equipment>>

The project employs clean renewable solar energy to generate electricity. The utilized technology is regarded as one of the most environmentally friendly options available, as the operation of Solar photovoltaic systems does not emit any greenhouse gases (GHGs) or other harmful substances, unlike conventional power plants.

A Photovoltaic module comprises numerous photovoltaic cells connected by circuits and enclosed in an environmentally protective laminate. These modules serve as the fundamental components of

the complete PV generating unit. Multiple PV panels mounted on a frame are collectively referred to as a PV Array. The project has adopted a reliable and well-established technology to ensure that only environmentally safe and sustainable practices are employed, thereby contributing to the reduction of GHG emissions.

Each power production unit will in general constitute the following equipment:

- ✓ Solar Photovoltaic modules
- ✓ Inverters
- ✓ Transformers
- ✓ Circuit breakers
- ✓ Mounting structures
- ✓ Cables and hardware.
- ✓ Junction box and distribution boxes.
- ✓ Earthing kit.
- ✓ Control room equipment.
- ✓ System for control and monitoring.
- ✓ Evacuation system

In contrast to fossil fuel-fired power plants, the technology utilized in this project poses no environmental threat. It is a proven and reliable technology, ensuring safety and soundness in its application. Importantly, the project does not entail the transfer of technology from any Annex 1 country, nor does it receive any public funding from Official Development Assistance (ODA) or Annex I countries.

Parameter	Description
Total number of Photovoltaic Modules	116172
Rating of Photovoltaic Module	310 WP- watt peak
Technology	Poly Crystalline Silicon
Solar Panel Maker	Talesun
Commissioning Date	26.03.2016
Inverter Make	Shilchar Technologies Limited

c) Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods, etc.)>>

UCR Project ID: 419

Commissioning Date: 26.03.2016

1st CoU Issuance Period: 31/03/2016 to 31/12/2023 (07 years 08 months)

1st Monitoring Period: 31/03/2016 to 31/12/2023 (07 years 08 months)

d) Total GHG emission reductions achieved or net anthropogenic GHG removals by sinks achieved in this monitoring period>>

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	31/03/2016
Carbon credits claimed up to	31/12/2023
Total ERs generated (tCO ₂ eq)	3,69,995 tCO ₂ eq
Leakage	0
Project Emissions	0

e) Baseline Scenario>> As per the approved consolidated methodology AMS-I.F. Version 05

Methodology key elements

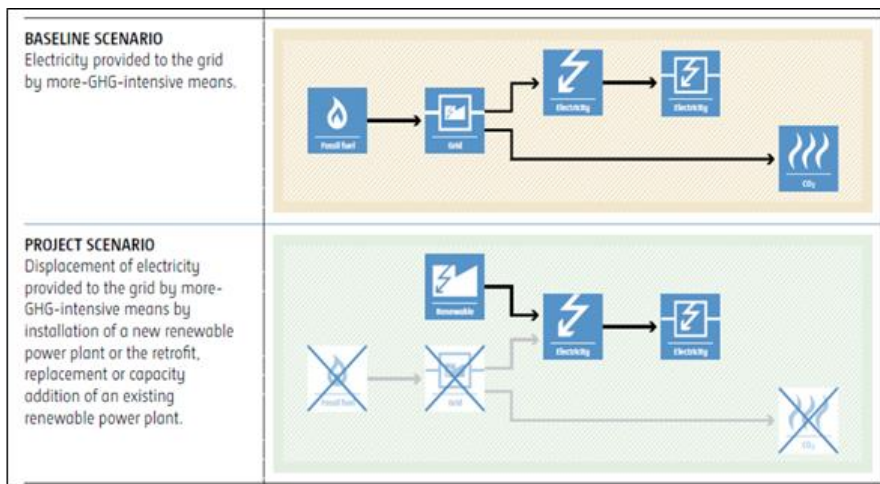
Typical project(s)	Retrofit, rehabilitation (or refurbishment), replacement or capacity addition to an existing power plant or construction and operation of a new power plant/unit that uses renewable energy sources and supplies electricity to the grid. Battery energy storage system can be integrated under certain conditions
Type of GHG emissions mitigation action	Renewable energy: Displacement of electricity that would be provided to the user(s) by more-GH-intensive means.

The baseline scenario identified at the MR stage of the project activity is:

As per the UNFCCC Methodology, if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

“The electricity delivered to the grid by the project activity that would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources.”

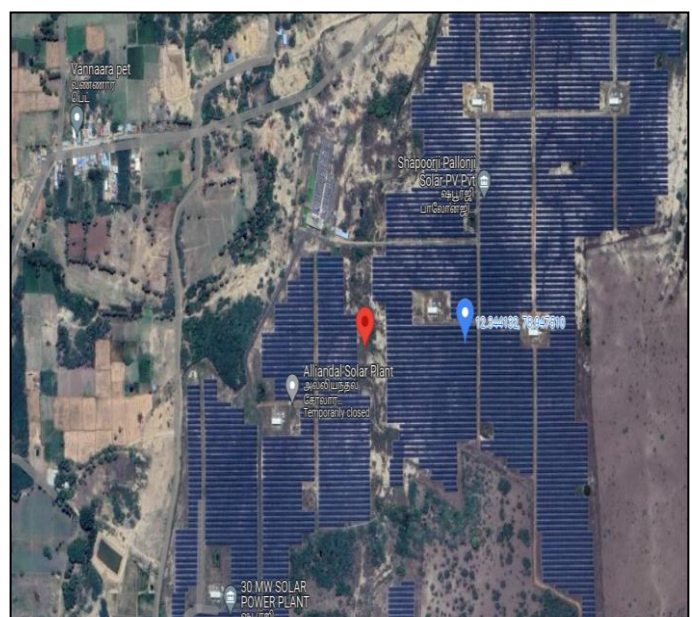
Schematic diagram showing the baseline scenario:

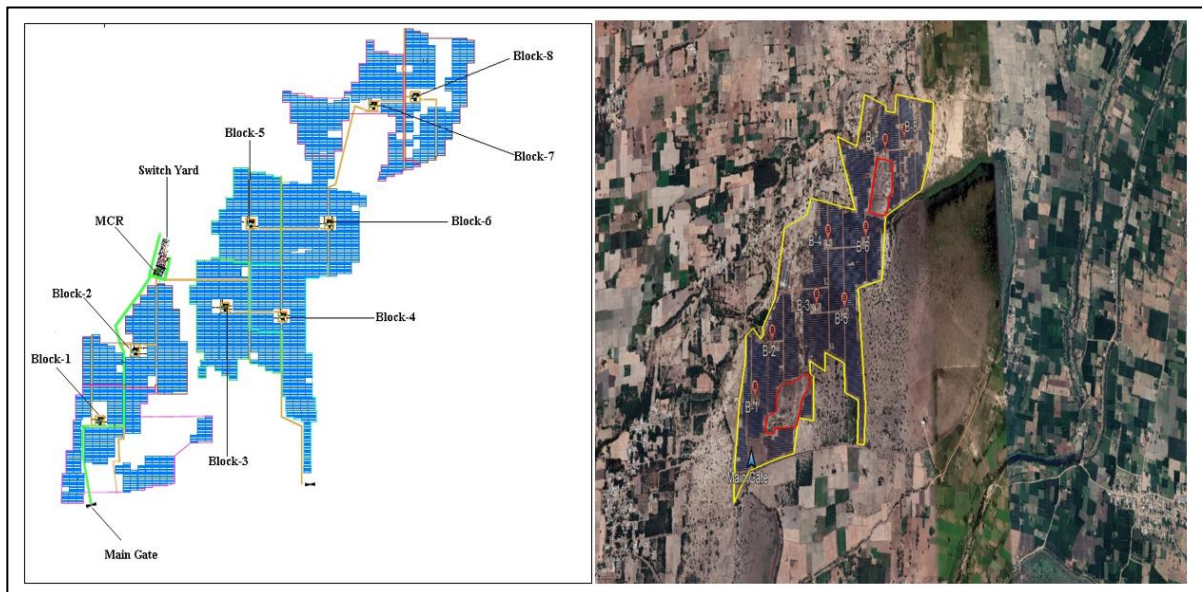


A.2. Location of project activity>>

Country : India.
 District : Tirunnamalai
 Village : Alliyandal
 Taluka : Chengam
 State : Tamil Nadu
 Latitude : 12.3441527797 "N
 Longitude : 78.9459970541 E
 Project Commissioning Year : 26.03.2016

The representative location map is included below:





A.3. Parties and project participants >>

Party (Host)	Participants
India	<p>Project Proponent: IndiGrid Limited.</p> <p>Address: Unit No 101, First Floor, Windsor, Village Kole Kalyan Off CST Road, Vidyanagari Marg, Santacruz (East), Mumbai, Maharashtra - 400098, India.</p> <p>Contact Person: Ankur Agarwal - Assistant Manager</p> <p>Email id: ankur.agarwal@indigrid.com</p> <p>UCR ID: 310768132</p>

A.4. References to methodologies and standardized baselines >>

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

TYPE I - Renewable Energy Projects

CATEGORY - ACM0002, “(Title: Large-scale Consolidated Methodology: Grid-connected electricity generation from renewable sources, Ver 21.0)

The project activity involves the generation of grid-connected electricity from renewable solar

energy. The project activity has an installed capacity of 30 MW which qualifies for a large-scale project. The project status corresponds to the methodology ACM0002., version 21, and the applicability of the methodology is discussed below:

A.5. Crediting period of project activity >>

First CoU Issuance Period: 31/03/2016 to 31/12/2023 (07 years, 08 months)

First Crediting Period: 31/03/2016 to 31/12/2023 (07 years, 08 months)

A.6. Contact information of responsible persons/entities >>

UCR Aggregator: Ankur Agarwal

UCR ID: 310768132

Email Address: ankur.agarwal@indigrid.com

Company Name: IndiGrid Limited. (PP)

Company Website: <https://www.indigrid.com>

SECTION B. Implementation of project activity

B.1. Description of implemented registered project activity >>

a) Provide information on the implementation status of the project activity during this monitoring period in accordance with UCR PCN>>

The project activity is using clean renewable solar energy to produce electricity. The applied technology is considered to be one of the most environment friendly technologies available as the operation of the Solar photovoltaic does not emit any GHGs or any other harmful gases unlike the operation of conventional power plants.

Photovoltaic module consists of a number of photovoltaic cells connected by circuits and sealed in an environmentally protective laminate, which forms the fundamental building blocks of the complete PV generating unit. Several PV panels mounted on a frame are termed as PV Array. The project activity has used the reliable and proven technology to ensure that an environmentally safe and sound technology is only being implemented in the proposed project activity leading to the GHG reduction.

The technology used does not pose any threat to the environment in comparison to the fossil fuel-fired power plants. The technology to be applied in the project activity is proven technology and can hence be considered safe and sound technology. The project does not involve any transfer of technology from any Annex 1 country. There is no Public funding (ODA and/ or Annex I countries) for the project activity.

This MR uses the methodology - UNFCCC Methodology, if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

“The electricity delivered to the grid by the project activity that would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources.”

b) For the description of the installed technology(ies), technical process and equipment, include diagrams, where appropriate>>

Parameter	Description
	30 MW
Total number of Photovoltaic Modules	116172
Rating of Photovoltaic Module	310 Wp
Module Make	Crystalline (TP672P-310)
Technology	Poly Crystalline Silicon
Solar Panel Maker	JA Solar
Commissioning Date	26.03.2016
EHT SC No.	001
Inverter model no.	PVS-800-57-1000kW-C
Inverter Rooms	8
Inverter Transformer Make	Shilchar Technologies Limited
Rating	2200/1100 - 1100



PHOTOVOLTAIC MODULE
Type: TP672P-310

TALESUN

Maximum Power (Pmax)	310W
Power Tolerance	+3%
Open Circuit Voltage(Voc)	45.2V
Short Circuit Current(Isc)	9.07A
Operating Voltage(Vmpp)	36.3V
Operating Current(Imp)	8.55A
Maximum Series Fuse	15A
Maximum System Voltage	1000VDC
Nominal Operating Cell Temperature(NOCT)	45±2°C
Module Weight	24Kg
Module Dimensions	1960×990×50mm
Application Class	Class A
STC:1000W/m ² : AM1.5, 25°C	

WARNING

ONLY qualified personnel should install or perform maintenance work on these modules.
BE AWARE of dangerous high DC voltage when connecting modules.
DO NOT damage or scratch the rear surface of the module.

IEC  **CE** 


Zhongli Talesun Solar Co.,Ltd
No.1 Talesun Road, Shajiangang, Changshu,
Suzhou, Jiangsu Province, P.R. China 215542. Phone: +86 400 885 1098
www.talesun.com

Machine Capacity (kw)	30000	OWN SS
Injecting Voltage		110KV

Import Slot				Export Slot					
Initial Reading	Final Reading	Difference	kwh(Unit)	Initial Reading	Final Reading	Difference	kwh (Unit)	Net	
C1	0.10	0.11	.01	2000	128.34	130.77	2.43	480000	484000
C2	1.75	1.79	.04	8000	0.19	0.19	0	0	0
C3	0.59	0.60	.01	2000	0.00	0.00	0	0	0
C4	0.91	0.93	.02	4000	842.77	838.50	15.73	3146000	3142000
C5	4.01	4.10	.09	18000	0.06	0.06	0	0	0


Generation Summaries				
	Initial	Final	Difference	Units
rKvah	2.87	2.97	.1	20000
Kvah		8.44	0	0
Total Import				34000
Total Export				3632000
Tariff	SOLAR		7.01	Rs.25418260

Applicable Charges (Rs)		
Charge Code	Charge Description	Total Charges
C005	RKvah Penalty	2900
C006	Negative Energy Charges	191643
C008	Other Charges	0
C001	AMR Meter Reading Charges	500
	Net Applicant Charges	Rs.25223217

To,
-MS. MS Shapooji Pallonji
For Shapooji Pallonji Solar PV Pvt. Ltd.,

SARAVANA KUMAR,S
MANAGER-O & M

for SUPERINTENDING ENGINEER/EDC/ THIRUVANNAMALAI

GLOBAL EPC INDIA PRIVATE LIMITED
D-No:11-269, Sree Harsha Complex, Tulasi Nagar, Vijayawada, Krishna District, Andhra Pradesh - 520007.
Phone: 0866 2556066 Mobile : 8903476163, 91500 12150, 94984 11833
E-mail : info@globalepc.in, globalepcindia@gmail.com
website : www.globalepc.in


CC-3022

CALIBRATION CERTIFICATE

ULR No. :- CC302223000001744F

Calibration Certificate Number :- GEPCC / 2023 - 24 / 302 / CC / 1744	Calibrated On :- 20-Jul-2023	Recommended Calibration Due :- 20-Jul-2024	Page 1	No. of Pages 2
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(1) Customer Name & Address :-
M/s. Terra Light Kanji Solar Pvt Ltd,
30MW Solar Plant, Aliyandhal - Village,
Chengam (TK), Tiruvannamalai (Dt) - 606705
HTSC029414140001

(2) Customer's Reference :-
SRF No. :- 2023 - 24 / 302
AT Permanent Laboratory


(3) Calibration Location :-
Location Name :- 110 kv EB Yard,
Terra Light Kanji Solar Pvt Ltd.


(4) Details of Equipment Under Calibration :-
Name :- Current Transformer
Make :- Mehru Electrical And Mechanical Engineers P
Sl.No :- DC 6408 / 3 / 4 / 16
Gases :- 0.2s
Ratio :- 200 A / 1 A
Burden :- 10 VA
EUC Received Date :- 20-Jul-2023
EUC Condition on Receipt :- Satisfactory
Calibration Procedure No. :- GEPCCP - 06
Primary Terminal :- P1 - P2
Secondary Terminal :- 151 - 152
GEPC Seal No. :- Nil


(5) Environmental Conditions :-
Temperature :- 32.5 - 36.5 °C
Humidity :- 48 - 52 %



(6) Witnessed by :-
Department / Company Name Signature
AE / MRT / METERING / TIRUVANNAMALAI Er. C. Ponmusamy
JE / O&M / Karapattu Er. V.Suresh
Deputy Manager / Virescent Terra Light Kanji Solar Pvt Ltd Mr. Mohanraju

This calibration certificate documents the traceability to national standards, which realize the units of measurements according to the International System of Units (SI). This calibration certificate may not be reproduced other than in full except with the permission of the issuing laboratory. Calibration certificate without signature are not valid.



Prepared by

N. Saravankumar
(Calibration Engineer)

Checked by

P. Balachandran
(Sr. Calibration Engineer)


Approved by

Suresh Singh
(Director Technical)

GEPCCP/07A, Issue No.3, Dt. 01.08.2023

B.2 Do no harm or Impact test of the project activity>>

The Indian economy heavily relies on coal as a primary fuel for energy generation and production processes. Thermal power plants, being the major consumers of coal in India, struggle to meet the basic electricity needs of a significant portion of the population. Consequently, there is a surge in electricity demand, placing substantial strain on the environment.

Addressing the issue of coal consumption entails adopting a multifaceted approach. This includes strategies aimed at reducing demand, minimizing energy wastage, and maximizing the utilization of renewable energy sources (RE). The current project, being a greenfield initiative, operates within the framework of grid power as the baseline. While renewable power generation gradually increases its contribution to the grid, the grid emission factor remains relatively high, delineating the grid as a distinct baseline.

The Government of India, recognizing the importance of sustainable development, has outlined specific indicators in the interim approval guidelines for projects involved in GHG mitigation efforts. These indicators encompass economic, social, environmental, and technological well-being.

It is envisioned that the project will foster sustainable development through various means:




- Compliance: The solar project falls under the "White category" as per the Central Pollution Control Board, indicating minimal environmental impact and exempting it from the need for Environmental Clearance or Consent to Operate from the Pollution Control Board.
- Regulatory Exemptions: Small-scale Solar Projects are not subject to Environmental and Social Impact Assessment requirements according to Indian regulations, as discussed in the preceding section.
- Community Engagement: The project offers employment opportunities to local communities through both construction and maintenance activities, thereby contributing to local economic development and empowerment.

United Nations Sustainable Development Goals:

The project generates electrical power by harnessing solar energy through photovoltaic cells, effectively replacing non-renewable fossil resources. This transition contributes to sustainable economic and environmental development. Without the project, the equivalent power generation would have relied on fossil fuel-dominated power stations.

Consequently, the renewable energy generation from the project leads to a reduction in 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)
<p>13 CLIMATE ACTION</p>  <p>SDG 13: Climate Action</p>	<p>13.2: Integrate climate change measures into national policies, strategies and planning</p> <p>Target: 3,69,995 tCO₂ avoided for the Monitored Period 01</p>	<p>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)</p>
<p>7 AFFORDABLE AND CLEAN ENERGY</p>  <p>SDG 7: Affordable and Clean Energy</p>	<p>7.2: By 2030, increase substantially the share of renewable energy in the global energy mix</p> <p>Target: 4,11,110 MWh renewable power supplied for the Monitored Period 01</p>	<p>7.2.1: Renewable energy share in the total final energy consumption</p>
<p>8 DECENT WORK AND ECONOMIC GROWTH</p>  <p>SDG 8: Decent Work and Economic Growth</p>	<p>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</p> <p>Target: Training, O&M staff</p>	<p>8.5.1: Average hourly earnings of female and male employees, by occupation, age and persons with disabilities</p>

B.3. Baseline Emissions>>

If the project activity were absent, the equivalent amount of electricity would have been sourced from the regional grid, which is connected to the unified Indian Grid system. This grid predominantly relies on fossil fuel-based power plants, making it carbon-intensive.

Therefore, this project activity represents a voluntary investment, replacing an equivalent amount of electricity sourced from the Indian grid. The project proponent was under no obligation to undertake this investment, as it was not mandated by national or sectoral policies. Consequently, the ongoing operation of the project will continue to displace fossil fuel-based power plants, contributing to the mitigation of climate change impacts. The Project Proponent anticipates that carbon incentives offered by the UCR program under the CoU from 2019-2023 vintage years, accrued through generated carbon credits, will assist in repaying project costs, expanding project capacity, and ensuring ongoing maintenance. The baseline scenario identified at the MR stage of the project activity is:

- *“The electricity delivered to the grid by the project activity that would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources.”.*

B.4. Debundling>>

This project activity is not a debundled component of a larger carbon or GHG registered project activity.

SECTION C. Application of methodologies and standardized baselines

C.1. References to methodologies and standardized baselines >>

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

TYPE I - Renewable Energy Projects

CATEGORY - ACM0002, “(Title: Large-scale Consolidated Methodology: Grid-connected electricity generation from renewable sources, Ver 21.0)

The project activity involves the generation of grid-connected electricity from renewable solar energy. The project activity has an installed capacity of 30 MW which qualifies for a large-scale project. The project status corresponds to the methodology ACM0002., version 21, and the applicability of the methodology is discussed below.

C.2. Applicability of methodologies and standardized baselines >>

<p>This project activity is included within the UCR Standard Positive List of technologies and is within the large-scale CDM thresholds (i.e., installed capacity is above 15 MW). The positive list comprises of the project being a greenfield plant /unit.</p>
<p>Project activity involves installation of a 30 MWh renewable electricity generation plant (solar farm) connected to the regional power grid.</p>
<p>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.</p>
<p>Project is not an activity that involves switching from fossil fuels to renewable energy at the site of the project activity.</p>
<p>The project activity is a new installation, it does not involve any retrofit measures nor any replacement.</p>
<p>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.</p>
<p>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:</p> <ul style="list-style-type: none">• Technology Specification provided by the technology supplier.• Purchase order copies• EPC contracts• Power purchase agreement• Project commissioning certificates, etc
<p>The project activity is a voluntary coordinated action.</p> <p>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.</p>
<p>This methodology comprises renewable energy generation units, such as photovoltaic, hydro,</p>

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.

C.3 Applicability of double counting emission reductions >>

Renewable electricity units undergo rigorous digital monitoring, facilitated by specialized energy meters strategically placed within the project's boundaries. It's crucial to emphasize that the project will not engage in India's NDC carbon ecosystem/market and has not been enrolled in any other greenhouse gas (GHG) mechanism for carbon offsets or credits in the past.

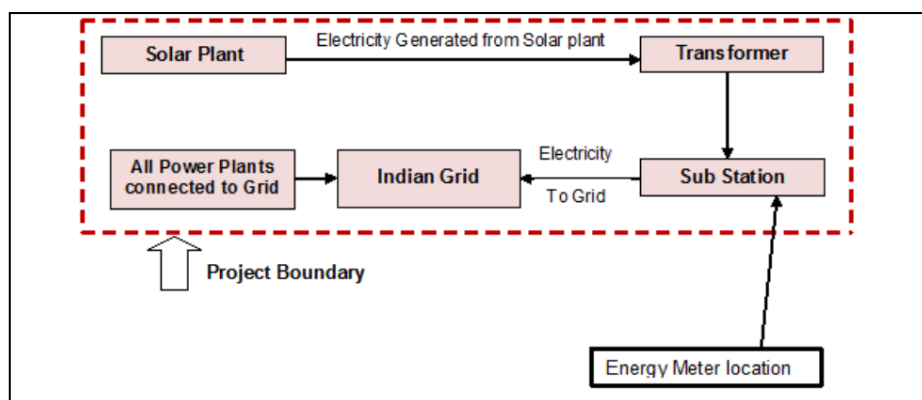
C.4. Project boundary, sources and greenhouse gases (GHGs)>>

The project activity consists of the utilization of the solar radiation as input source of energy. This solar radiation is converted to direct current (DC) through Photovoltaic cell modules and further converted to alternate current (AC) through inverters and fed into the regional grid. There are no sources of gas generation or involvement of gas either as fuel or as exhaust.

As per applicable methodology ACM0002. version - 21, “The spatial extent of the project boundary includes the project power plant and all power plants connected physically to the electricity system that the project power plant is connected to.”

Thus, the project boundary includes the Solar Power Plant and the Indian grid system.

A diagrammatic representation of the project boundary of the project activity is provided:



	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 ₂ O	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 ₂ O	Excluded	Excluded for simplification. This is conservative.

Total Installed Capacity: 30 MW

Commissioning Date of the first installation: 26.03.2016

C.5. Establishment and description of baseline scenario (UCR Protocol) >>

As per the approved consolidated methodology ACM0002. version - 21, if the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is the following:

“The baseline scenario is that the electricity delivered to the grid by the project activity would have otherwise, been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid”.

Project Activity and Baseline: The project involves establishing a new solar power plant to harness green energy from solar sources. The electricity generated will serve as a captive supply for a specific purpose. In the absence of this project, an equivalent amount of power would have been sourced from the Indian grid, which primarily relies on fossil fuel-fired plants.

Therefore, the baseline for the project activity is the same amount of power produced by the Indian grid.

Grid Emission Factor: The term “grid emission factor” refers to the CO₂ emission factor (measured in tCO₂/MWh) associated with each unit of electricity provided by an electricity system. For Indian projects not previously verified under any GHG program, the UCR recommends using a conservative estimate of 0.9 tCO₂/MWh for the years 2013-2020. Additionally, for the vintage 2021-2022, the combined margin emission factor calculated from the CEA database in India indicates higher emissions than the default value. Consequently, the

same emission factor has been applied to calculate emission reductions using a conservative approach.

Net GHG Emission Reductions and Removals

Thus, $ER_y = BE_y - PE_y - LE_y$

Where:

ER_y = Emission reductions in year y (tCO₂/y)

BE_y = Baseline Emissions in year y (t CO₂/y)

PE_y = Project emissions in year y (tCO₂/y)

LE_y = Leakage emissions in year y (tCO₂/y)

Baseline Emission Reductions:

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

BE_y = Baseline emissions in year y (tCO₂)

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the UCR project activity in year y (MWh)

$EF_{grid,y}$ = UCR recommended emission factor of 0.9 tCO₂/MWh has been considered.

Year	Net Export Units in KWh	Net Export Units in MWh
2016	3,73,90,000	37,390
2017	4,73,01,615	47,302
2018	5,57,04,000	55,704
2019	5,62,66,000	56,266
2020	5,21,72,000	52,172
2021	5,31,85,016	53,185
2022	5,38,56,403	53,856
2023	5,52,34,977	55,235
	Total	4,11,110

Project Emissions (PE_y)

As per ACM0002. version - 21, only emissions associated with fossil fuel combustion, emissions from the operation of geothermal power plants due to the release of non-condensable gases, and emissions from a water reservoir of Hydro should be accounted for the project emission. Since the project activity is a solar electric power project, it's emission from renewable energy plants is nil. Thus, **PE = 0**

Leakage Emission

As per ACM0002. version - 21, 'If the energy generating equipment is transferred from another activity, leakage is to be considered.' In the project activity, there is no transfer of energy-generating equipment, and therefore the leakage from the project activity is considered zero. Hence, **LE = 0**

Net GHG Emission Reductions

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y = Emission reductions in year y (tCO₂/y)

BE_y = Baseline Emissions in year y (tCO₂/y)

PE_y = Project emissions in year y (tCO₂/y)

LE_y = Leakage emissions in year y (tCO₂/y)

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

Year	ER _y (tCO ₂)
2016	33651
2017	42571
2018	50133
2019	50639
2020	46954
2021	47866
2022	48470
2023	49711
Total	3,69,995

C.6. Prior History>>

The project activity is a large-scale solar project and this project was never applied under any other GHG mechanism prior to this registration with UCR. Also, the capacity or the total project as a whole has not been applied for any other environmental crediting or certification mechanism. Hence project will not cause double accounting of carbon offset units or credits (i.e., CoUs).

C.7. Monitoring period number and duration>>

Monitoring Period No: 01

1st Monitoring Period: 31/03/2016 to 31/12/2023 (07 years, 08 months)

C.8. Changes to start date of crediting period >>

There are no changes applicable.

C.9. Permanent changes from PCN monitoring plan, applied methodology or applied standardized baseline >>

There are no changes applicable.

Applied Methodology

ACM0002, “(Title: Large-scale Consolidated Methodology: Grid-connected electricity generation from renewable sources, Ver 21.0)

This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass that supply electricity to user(s).

C.10. Monitoring plan>>

As the project implementer, PP assumes responsibility for overseeing and monitoring the electricity generated by the project activity. Comprehensive electronic archiving of relevant data has been ongoing since 31/03/2016.

To maintain data reliability and transparency, PP has instituted robust Quality Assurance and Quality Control (QA&QC) measures. These measures are aimed at efficiently managing and overseeing data reading, recording, auditing, and archiving, along with associated documents. Daily monitoring of data ensures timely submission to PP.

Additionally, PP has implemented QA&QC measures to calibrate metering devices and ensure operational safety. Regular calibration and inspection of metering devices adhere to state electricity board specifications and requirements, thereby ensuring accuracy in readings and compliance with Universal CO2 Emission and Offset Registry Private Ltd.

Data/Parameter	EGy																														
Data unit	<p>MWh</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Net Export Units in KWh</th> <th>Net Export Units in MWh</th> </tr> </thead> <tbody> <tr> <td>2016</td> <td>3,73,90,000</td> <td>37,390</td> </tr> <tr> <td>2017</td> <td>4,73,01,615</td> <td>47,302</td> </tr> <tr> <td>2018</td> <td>5,57,04,000</td> <td>55,704</td> </tr> <tr> <td>2019</td> <td>5,62,66,000</td> <td>56,266</td> </tr> <tr> <td>2020</td> <td>5,21,72,000</td> <td>52,172</td> </tr> <tr> <td>2021</td> <td>5,31,85,016</td> <td>53,185</td> </tr> <tr> <td>2022</td> <td>5,38,56,403</td> <td>53,856</td> </tr> <tr> <td>2023</td> <td>5,52,34,977</td> <td>55,235</td> </tr> <tr> <td></td> <td>Total</td> <td>4,11,110</td> </tr> </tbody> </table>	Year	Net Export Units in KWh	Net Export Units in MWh	2016	3,73,90,000	37,390	2017	4,73,01,615	47,302	2018	5,57,04,000	55,704	2019	5,62,66,000	56,266	2020	5,21,72,000	52,172	2021	5,31,85,016	53,185	2022	5,38,56,403	53,856	2023	5,52,34,977	55,235		Total	4,11,110
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2022	5,38,56,403	53,856																													
2023	5,52,34,977	55,235																													
	Total	4,11,110																													
Description	Quantity of net electricity displaced in year y																														
Source of data Value(s) applied	Main Meter Unit Readings, Direct measurement.																														
Measurement methods and procedures	Daily: Direct measurement using electricity meters																														
Monitoring frequency	<p>Continuously, aggregated at least annually.</p> <p>Calibration Frequency: The calibration is done following the relevant applicable National Guidelines updated from time to time during the operation of the project activity.</p> <p>Entity responsible: Aggregator</p> <p>The electricity meter is subject to regular maintenance and testing in accordance with the stipulation of the meter supplier or national requirements. The calibration of meters, including the frequency of calibration, is done in accordance with national standards or requirements set by the meter supplier. The accuracy class of the meters is in accordance with the stipulation of the meter supplier or national requirements. The PP calibrates the meters every 3 years and uses the meters with at least 0.5 accuracy class (e.g. a meter with 0.2 accuracy class is more accurate and thus it is accepted)</p>																														
QA/QC procedures:	<p>Monitoring frequency: Continuous</p> <p>Measurement frequency: Hourly</p> <p>Recording frequency: Monthly</p>																														
Purpose of data	Calculation of baseline emissions																														



GLOBAL EPC INDIA PRIVATE LIMITED

D-No:11-269, Sree Harsha Complex, Tulasi Nagar, Vijayawada, Krishna District, Andhra Pradesh - 520007.

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website : www.globalepc.in



CC-3022

CALIBRATION CERTIFICATE

ULR No. :- CC302223000001732F

Calibration Certificate Number :- GEPCC / 2023 - 24 / 302 / CC / 1732 Calibration Certificate Issue Date :- 20-Jul-2023	Calibrated On :- 20-Jul-2023	Recommended Calibration Due :- 20-Jul-2024	Page 1	No. of Pages 3
(1). Customer Name & Address :- M/s. Terra Light Kanji Solar Pvt Lvt., 30MW Solar Plant, Alliyandhal - Village, Chengam (TK), Tiruvannamalai (Dt) - 606705 HTSC.029414140001				
(2). Customer's Reference :- SRF No. :- 2023 - 24 / 302 Date :- 20-Jul-2023				
(3). Calibration Location :- AT Permanent Laboratory <input type="checkbox"/> - <input type="checkbox"/> AT Onsite <input checked="" type="checkbox"/>				
Location Name :- Control Room Terra Light Kanji Solar Pvt Lvt.;				
(4). Details of Equipment Under Calibration :- Name :- Electronic Trivector Energy Meter Make :- Larsen & Toubro Limited. EUC Received Date :- 20-Jul-2023 Model :- ER300P EUC Condition on Receipt :- Satisfactory Type :- P3E Calibration Procedure No. :- GEPCCP - 04 Sl.No. :- 16193197 Meter Constant :- 50000(Imp / kWh) Class :- 0.2S Unit :- (kWh, kVARh) Voltage :- 3 x 63.5 V (P-N) GEPC Seal No. :- G0005722 Current :- 1b 1A I _{max} 2A Frequency :- 50 Hz				
(5). Environmental Conditions :- Temperature :- 25.7 - 28.2 °C Humidity :- 52 - 54 %				
(6). Witnessed by :-				
Department /Company	Name	Signature		
AE / MRT / METERING / TIRUVANNAMALAI	Er. C.Ponnusamy			
JE /O&M / Karapattu	Er.V.Suresh			
Deputy Manager / Virescent Terra Light Kanji Solar Pvt Lvt.,	Mr. Mohanraju			
This calibration certificate documents the traceability to national standards, which realize the unit of measurements according to the International System of Units(SI). This calibration certificate may not be reproduced other than in full except with the permission of the issuing laboratory. Calibration certificates without signature are not valid.				



Prepared by

S. Logesh
(Calibration Engineer)

Checked by

S. Logesh
(Calibration Engineer)



Approved by

Suresh Singh
(Director Technical)

GEPC/F07A, Issue No.3, Dt. 01.05.2022

Data / Parameter:	EF, CO ₂ , GRID, y
Data unit:	tCO ₂ /MWh
Value of data applied	0.9 UCR Standard Protocol as per Standard
Description:	Fixed
Measurement procedures:	A "grid emission factor" refers to a CO ₂ emission factor (tCO ₂ /MWh) which will be associated with unit of electricity provided by an electricity system. The UCR recommends an emission factor of 0.9 tCO ₂ /MWh for the 2019 - 2023 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program. Hence, the same emission factor has been considered to calculate the emission reduction under conservative approach.
Monitoring frequency:	NA
Purpose of data:	To estimate baseline emissions
Additional comment:	The combined margin emission factor as per CEA database (current Version 16, Year 2021 and 2022) results into higher emission factor. Hence for 2021-22 vintage UCR default emission factor remains conservative.