



Monitoring Report

CARBON OFFSET UNIT (CoU) PROJECT



Title: 23 MW Bundled Solar Grid Power Project TNSPEPL, Tamil Nadu, India.

UCR PROJECT ID: 420

MR Version 1.0

MR Date: 26/03/2024

First CoU Issuance Period: 29/09/2015 to 31/12/2023 (08 years, 03 months, 02 days)

First Monitoring Period: 29/09/2015 to 31/12/2023 (08 years, 03 months, 02 days)



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

Monitoring Report	
Title of the project activity	23 MW Bundled Solar Grid Power Project TNSPEPL, Tamil Nadu, India.
UCR Project Registration Number	420
MR Version	1.0
Scale of the project activity	Large Scale
Completion date of the MR	26/03/2024
Project participants	<u>Project Proponent: IndiGrid Limited.</u> 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 ACM0002: Grid-connected electricity generation from renewable sources - Version 21.0 UCR Protocol Standard Baseline EF
Sectoral scopes	01 Energy industries (Renewable / Non-renewable Sources)
Estimated amount of GHG emission reductions for the crediting period per year.	2015: 4,117 CoUs (4,117 tCO ₂ eq)
	2016: 36,896 CoUs (36,896 tCO ₂ eq)
	2017: 35,676 CoUs (35,676 tCO ₂ eq)
	2018: 37,719 CoUs (37,719 tCO ₂ eq)
	2019: 37,524 CoUs (37,524 tCO ₂ eq)
	2020: 36,671 CoUs (36,671 tCO ₂ eq)
	2021: 36,311 CoUs (36,311 tCO ₂ eq)
	2022: 36,375 CoUs (36,375 tCO ₂ eq)
2023: 36,478 CoUs (36,478 tCO ₂ eq)	
Total	2,97,767 CoUs (2,97,767 tCO ₂ eq)

SECTION A. Description of project activity

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

The 23 MW Bundled Solar Grid Power Project, operated by TNSPEPL in Tamil Nadu, India, comprises three ground-mounted renewable solar energy projects situated at the following locations within the state:

Sr. No.	Village	District	Type	Installed Total Capacity	Commissioning Date
1	Perumpalli	Dindigul	Ground mounted	5 MW	28.12.2015
2	Muthuramalingapuram	Virudhunagar	Ground mounted	8 MW	28.09.2015
3	Chitthavanayakanpatti	Tuticorin	Ground mounted	10 MW	02.11.2015

The power generated by the 10MW, 8MW, and 5MW solar energy projects is transmitted to the respective substations situated at Vilathikulam, Muthuramalingapuram, and Eriyodu for evacuation.

TN Solar Power Energy Private Limited (TNSPEPL), a subsidiary of 'INDIGRID,' serves as the driving force behind the project activity, acting as the Project Proponent (PP) and holding full ownership. 'INDIGRID,' recognized as India's leading Infrastructure Investment Trust (InvIT) in power transmission, oversees the management of power transmission networks and renewable energy assets, ensuring a consistent electricity supply nationwide. Its diverse portfolio encompasses thirty-five power projects, including operational transmission and solar generation projects, strategically spread across 20 states and 1 union territory in India.

The project boasts a total installed capacity of 23 MW of Solar PV plants situated in Tamil Nadu, India, with facilities located across three sites: 10 MW in Chitthavanayakanpatti, 8 MW in Muthuramalingapuram, and 5 MW in Perumpalli. As a new facility (Greenfield), the project will export generated electricity to the Indian electricity grid, effectively displacing fossil fuel-generated electricity. In the absence of the project, electricity would have been sourced from grid-connected power plants or new generation sources.

Functioning as an operational activity, the project continuously reduces greenhouse gas (GHG) emissions and is currently enlisted under the "Universal Carbon Registry" (UCR). This registry rewards solar initiatives with carbon incentives, aligning with global efforts to accelerate clean technology adoption by 2030 and mitigate climate change risks. India's ambitious targets of achieving 450 GW of renewables and 500 GW of non-fossil capacity by 2030 underscore the importance of initiatives like the UCR CoU program in driving sustainable energy transition.

Purpose of the project activity:

The proposed project aims to harness clean and renewable energy from solar radiation to generate electricity. By doing so, it effectively reduces grid electricity consumption (e.g., grid import) at the user end. The project entails the installation and operation of a 23 MWh total capacity solar power plant in the state of Tamil Nadu, as detailed below:

Installed Total Capacity	Village	District	State	Type	Coordinates	Commissioning Date
5 MW	Perumpalli	Dindigul	Tamil Nadu	Ground mounted	10°28'50.90"N 78°3'42.87"E	28.12.2015
8 MW	Muthuramalingapuram	Virudhunagar			9°26'25.38°N 78°10'4.71°E	28.09.2015
10 MW	Chitthavanayakanpatti	Tuticorin			9°07'3.98°N 78°6'28.52°E	02.11.2015

Based on the ex-post calculations, this project generated approximately **3,30,859 MWh** of renewable electricity over the entire monitored period.

The project employs Polycrystalline solar photovoltaic technology to generate environmentally friendly energy.

Photovoltaic Cells: These cells, typically composed of silicon, directly convert sunlight into electricity by exciting electrons upon exposure to sunlight, thus generating a flow of direct current (DC) electricity.

Solar Panels or Modules: These interconnected cells form solar panels or modules, commonly found on rooftops or in solar farms, capturing sunlight and converting it into electricity.

Working Principle: Sunlight energizes electrons within the photovoltaic cells, creating an electric current that can be used directly for various applications.

Grid Integration: Solar-generated electricity is converted into alternating current (AC) using inverters to seamlessly integrate with the existing power grid.

When multiple PV panels are mounted on a frame, they form a PV Array. By displacing fossil fuel-based electricity generation in the regional grid, this project significantly reduces greenhouse gas (GHG) emissions. Solar PV technology offers clean, renewable energy, low operating costs, and opportunities for job creation, playing a pivotal role in our transition to a sustainable energy future.

5 MW



TANGEDCO LTD

FROM
Er.S.Stephen Arockiaraj, B.E.,
Superintending Engineer,
Dindigul Electricity Distribution Circle,
Dindigul.2.

✓ TO
The TN Solar Power Energy P/Ltd,
No:560-562,4-D, 4th Floor,
Century Plaza,Teynampet,
Chennai - 600 018

Lr.No:-SE/DEDC/DGL/AEE/GE/AE/IE/SPG/D.No. 42716, Dt.30.05.2016

Sir,
Sub:- Elected -DEDC-M/s. Tamil Nadu Solar Power Energy (P)Ltd-Establishment of 1 x5 MW solar Power Plant at SF No:97/2,97/3,99/1,99/2,101/1 to 101/3,104/1,105/1 to 105/8,106,107/1 to 107/3,127/1B and 133/1 of Perumpalli village,Dindigul District- Parallel operation with TANGEDCO Grid- Grid synchronization-Intimation-Regarding.

We are glad to inform that 1 x 5 MW solar Power Plant at SF No: 97/2,97/3,99/1,99/2,101/1 to 101/3,104/1,105/1 to 105/8,106,107/1 to 107/3,127/1B and 133/1 of Perumpalli village, Dindigul District has been successfully synchronized with TANGEDCO GRID on 28.12.2015.

[Signature]
Superintending Engineer,
DEDC/Dindigul.

Copy Submitted to the Chief Engineer/Distribution/Madurai.
Copy submitted to the Chief Engineer/NCES/Chennai.
Copy to the Superintending Engineer/NCES/Udumalpet
Copy to the Executive Engineer/Distribution/North/Dindigul

भारतीय गैर न्यायिक एक सौ रुपये Rs. 100

रु. 100 ONE HUNDRED RUPEES

भारत INDIA INDIA NON JUDICIAL

TAMILNADU AV 745667

21639
16 MAY 2016

T.N SOLAR Power & Energy (P) Ltd
Chennai T. SHANMUGAN

L.No. 91601, 23/10/10 The 20-4-2010
No. 602, Anna Salai, Thousand Lights,
Chennai-600 096.

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 20th day of May Two thousand and Fifteen between **M/s. TN Solar Power Energy (P) Limited**, a company incorporated under the Companies Act, 1956 having its registered office at **No. 4-D, 4th floor, Century Plaza, Anna Salai, Teynampet, Chennai - 600 018** 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.C.Rajesh Srinivasan, Director** and the Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO), a Corporation incorporated under the Companies Act, 1956 and wholly

For TN SOLAR POWER ENERGY PVT LTD
[Signature]
Authorized Signatory

[Signature]
Superintending Engineer
SOLAR ENERGY
Non Conventional Energy Sources
Tamilnadu Generation & Distribution Corp. Ltd
144, Anna Salai, Chennai-600 092

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 context so permits means and include its successors in interest, and permitted assigns) represented by 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 No.1 as detailed below, having total capacity of 5 MWac.

Sl.No.	SF.No. & Address	Capacity	Plant Number
1.	97/2, 97/3, 99/1, 99/2, 101/1 to 101/3, 104/1, 105/1 to 105/8, 106, 107/1 to 107/3, 127/1B and 133/1 of Perumpalli village, Vedasandur Taluk, Dindigul District	5 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/AEE 3/F.TN Solar Energy 1/D.672/15, dated 16.5.15 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;

[Signature]
Superintending Engineer
SOLAR ENERGY
Non Conventional Energy Sources
Tamilnadu Generation & Distribution Corp. Ltd
144, Anna Salai, Chennai-600 008

For TN SOLAR POWER ENERGY PVT.LT.
[Signature]
Authorized Signatory

"Force Majeure" events means any event which is beyond the control of the parties involved which they could not foresee or with a reasonable amount of diligence could not have been foreseen or which could not be prevented and which substantially affect the performance by either party such as but not limited to:-

- Acts of natural phenomena, including but not limited to floods, droughts, earthquakes, lightning and epidemics;
- Acts of any Government domestic or foreign, including but not limited to war declared or undeclared, hostilities, priorities, quarantines, embargoes;
- Riot or Civil Commotion; and
- Grid / Distribution System's failure not attributable to parties to this agreement.

In witness whereof **Thiru. C.Rajesh Srinivasan, Director** acting for and on behalf of **M/s. TN Solar Power Energy (P) Limited** (Name of SPG) 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.

For TN SOLAR POWER ENERGY PVT LTD
[Signature]
Authorized Signatory
Solar Power Generator
Common Seal

In the presence of witnesses
1. *[Signature]*
(A. R. GIRISHARAN)

2. *[Signature]*
(M. RANGHARATHAN)

In the presence of witnesses
1. *[Signature]*
(S. RAJESH)
ATTENDES.

2. *[Signature]*
M. SUDHAKAR
DEPT/NCES

[Signature]
Superintending Engineer
of the
Distribution Licensee
SOLAR ENERGY
Non Conventional Energy Sources
Tamilnadu Generation & Distribution Corp. Ltd
144, Anna Salai, Chennai-600 002

13

8 MW



TAMILNADU GENERATION AND DISTRIBUTION CORPORATION LTD

From: Er. A. Ashok Kumar, B.E.,
Superintending Engineer,
Virudhunagar Eley. Distn. Circle,
TANGEDCO / Virudhunagar

To: M/s. TN Solar Power Energy (P) Ltd,
Muthuramalingapuram Village,
Aruppukottai Taluk,
Virudhunagar District.

Lr.No:SE/VREDC/VDR/AEE/GI/AE.1/F. SOLAR/D.No: 18/1/15, DT:19.10.2015

Sir,

Sub: VDR Solar HT SC No: 015 - Commissioning on 28.09.2015
intimation - Reg

Ref:1. Memo.No:DIR/GEN/CE/NCES/SE/Solar/EE/SCB/A3/F. M/s TN Solar /D.1125/15 dt: 26.09.2015
2. Lr.No:EE/D/APK/TAI/F.Solar/D.No:808/15 dt: 19.10.2015

8 MW Capacity Solar Power Plant of M/s. TN Solar Power Energy (P) Ltd, has been commissioned on 28.09.2015. The Particulars of Generation are as below:

Sl No	Village	Capacity	HT.SC.No. & Date Of Commissioning
1	Muthuramalingapuram Village, Aruppukottai (Taluk) Virudhunagar (Dist)	8 MW	VDR Solar HT SC No: 015, DT:28.09.2015

Superintending Engineer,
Virudhunagar Eley. Distn. Circle,
TANGEDCO / Virudhunagar

Copy to: The Executive Engineer / Distn / Aruppukottai.
Copy to: The Asst Executive Engineer / Rural/Aruppukottai
Copy to: DFC/CO/Virudhunagar & A. O / REV / VREDC / VDR

भारतीय गैर न्यायिक
एक सौ रुपये Rs. 100
रु. 100 ONE HUNDRED RUPEES
भारत INDIA
INDIA NON JUDICIAL

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 5th day of March Two thousand and Fifteen between M/s. TN Solar Power Energy (P) Limited, a company incorporated under the Companies Act, 1956 having its registered office at No. 4-D, 4th floor, Century Plaza, Anna Salai, Teynampet, Chennai – 600 018 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.C.Rajesh Srinivasan, Director and the Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO), a Corporation incorporated under the Companies Act, 1956 and wholly

For TN SOLAR POWER ENERGY PVT. LTD.
C. Rajesh
Authorized Signatory

Superintending Engineer
SOLAR ENERGY
Non Conventional Energy Sources
Tamilnadu Generation & Distribution Corp. Ltd
144, Anna Salai, Chennai-600 002

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 context so permits means and include its successors-in interest, and permitted assigns) represented by 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 No.1 as detailed below, having total capacity of 8 MWac.

Sl.No.	SF.No. & Address	Capacity	Plant Number
1.	206/5, 206/6A, 207/5, 207/6, 207/7, 209/5B1, 209/5A, 209/5B2, 209/6, 209/8, 214/2, 214/3, 210/5, 210/7, 210/9, 210/10, 211/2, 212/1 to 212/3, 212/5, 213/1B, 213/2B, 213/3, 218/1, 218/4A, 218/5A, and 225/15A of Muthuramalingapuram village, Virudhunagar District	8 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/AEE 3/F.TN Solar Energy 3/D.293/15, dated 4.3.15 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;

For TN SOLAR POWER ENERGY PVT. LTD.
Superintending Engineer

"Force Majeure" events means any event which is beyond the control of the parties involved which they could not foresee or with a reasonable amount of diligence could not have been foreseen or which could not be prevented and which substantially affect the performance by either party such as but not limited to:-

(i) Acts of natural phenomena, including but not limited to floods, droughts, earthquakes, lightning and epidemics;

(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. C.Rajesh Srinivasan, Director acting for and on behalf of M/s. TN Solar Power Energy (P) Limited (Name of SPG) 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 hereinaabove first mentioned.

In the presence of witnesses
1. Sunil Kulkarni
2. N. Subramaniam

In the presence of witnesses
1. C. Rajesh
2. C. Rajesh

Signature
Solar Power Generator
Common Seal

Signature
Authorized Officer of the
Distribution Licensee
Superintending Engineer
SOLAR ENERGY
Non Conventional Energy Sources
Tamilnadu Generation & Distribution Corp. Ltd
144, Anna Salai, Chennai-600 002

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

The project utilizes clean renewable solar energy for electricity generation, employing a technology widely recognized for its environmental friendliness. Unlike conventional power plants, Solar photovoltaic operations produce no greenhouse gases (GHGs) or other harmful emissions. The project activity is 23 MW solar PV based power generation.

A Photovoltaic module comprises interconnected photovoltaic cells sealed within an environmentally protective laminate, forming the essential components of the complete PV generating unit. When multiple PV panels are mounted on a frame, they form a PV Array. The project has adopted reliable and proven technology to ensure the implementation of environmentally safe practices, ultimately contributing to greenhouse gas reduction.

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

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

Parameter	Description		
	5 MW	8 MW	10 MW
Total number of Photovoltaic Modules	11508 + 7518	15456 + 15288	23184 + 15288
Rating of Photovoltaic Module	310 Wp and 315 Wp		
Technology	Poly Crystalline Silicon		
Solar Panel Maker	JA Solar		
Commissioning Date	26.03.2016	28.09.2015	02.11.2015
Inverter Make	ABB		

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

UCR Project ID: 420

1st CoU Issuance Period: 29/09/2015 to 31/12/2023 (08 years, 03 months, 02 days)

1st Monitoring Period: 29/09/2015 to 31/12/2023 (08 years, 03 months, 02 days)

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	29/09/2015
Carbon credits claimed up to	31/12/2023
Total ERs generated (tCO ₂ eq)	2,97,767 tCO ₂ eq
Leakage	0
Project Emissions	0

e) Baseline Scenario>> As per the approved consolidated methodology ACM0002, “(Title: Large-scale Consolidated Methodology: Grid-connected electricity generation from renewable sources, Ver 21.0)

Methodology key elements

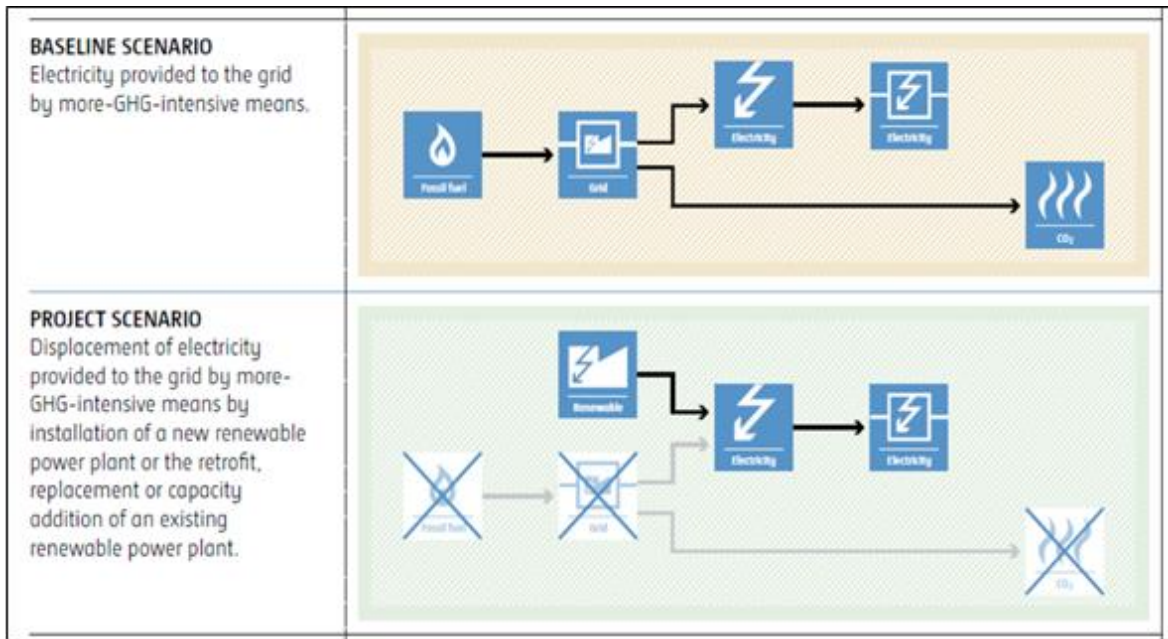
Typical project(s)	Retrofit, rehabilitation (or refurbishment), replacement or capacity addition to an existing power plant or construction and operation of a new power plant/unit that uses renewable energy sources and supplies electricity to the grid. Battery energy storage system can be integrated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

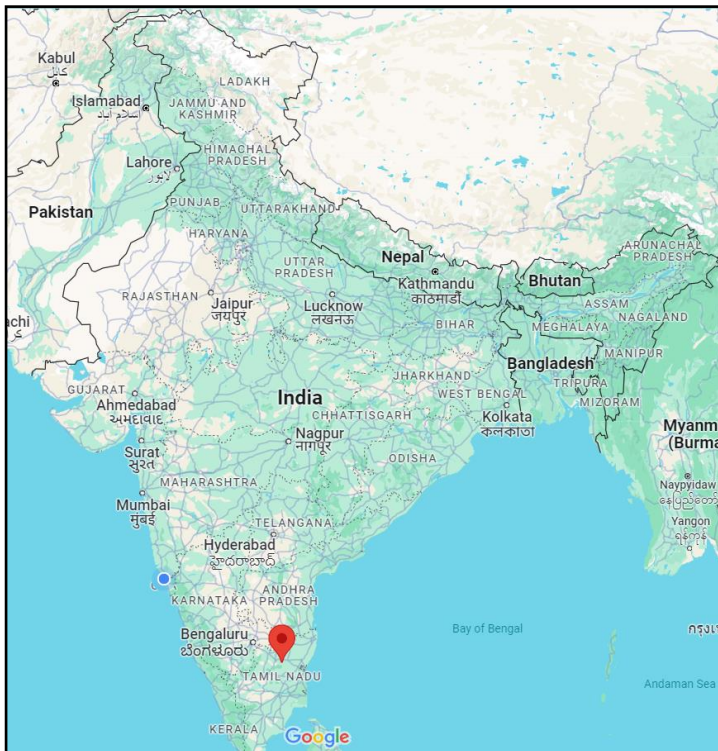
Schematic diagram showing the baseline scenario:



A.2. Location of project activity>>

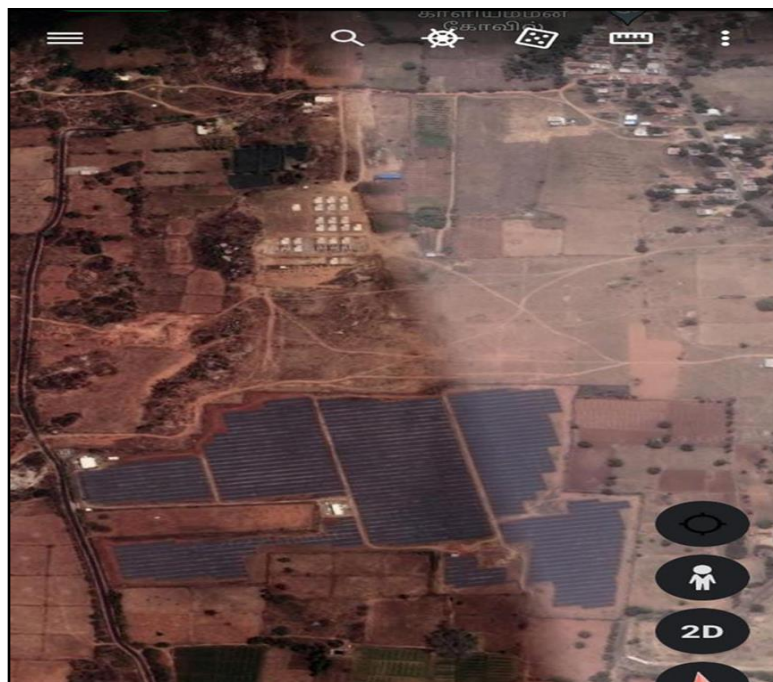
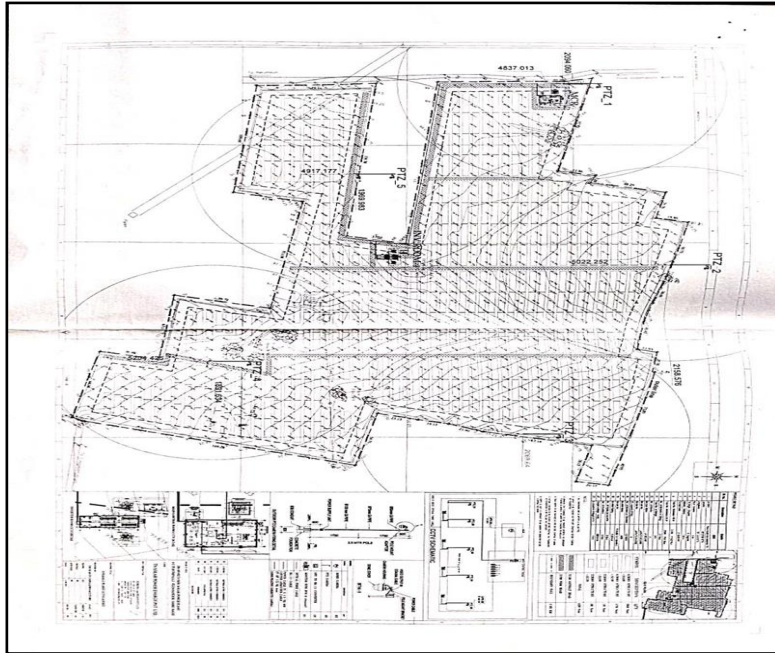
Country : India.
State : Tamil Nadu

The representative location map is included below:



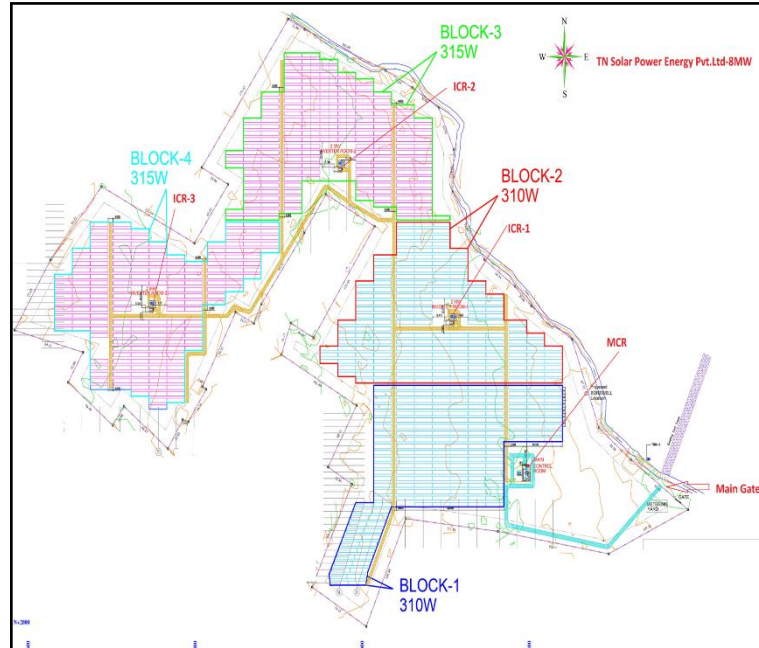
5 MW Solar Project

District : Dindigul
Village : Perumpalli
Taluka : Vedasandur
State : Tamil Nadu
Latitude : 10°28'50.90"N
Longitude : 78°3'42.87"E
Project Commissioning Year : 28.12.2015



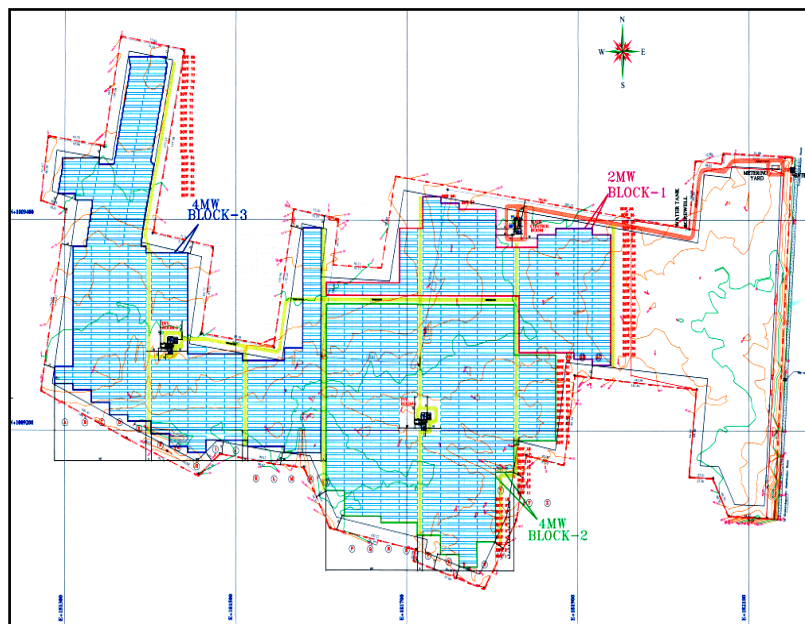
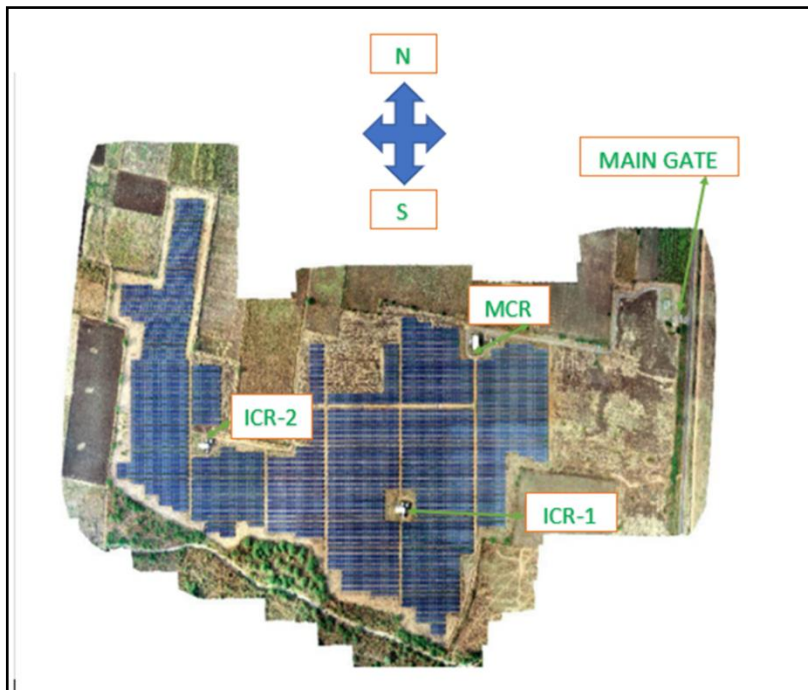
8 MW Solar Project

Country : India.
District : Virudhunagar
Village : Muthuramalingapuram
State : Tamil Nadu
Latitude : 9°26'25.38°N
Longitude : 78°10'4.71°E
Project Commissioning Year : 28.09.2015



10 MW Solar Project

Country : India.
District : Tuticorin
Village : Chitthavanayakanpatti
Taluka : Vilathikulam
State : Tamil Nadu
Latitude : 9°07'3.98°N
Longitude : 78°6'28.52°E
Project Commissioning Year : 01.11.2015



A.3. Parties and project participants >>

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

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 23 MW which qualifies for a large-scale project. The project status corresponds to the methodology ACM0002., version 21.

A.5. Crediting period of project activity >>

First CoU Issuance Period: 29/09/2015 to 31/12/2023 (08 years, 03 months, 02 days)

First Crediting Period: 29/09/2015 to 31/12/2023 (08 years, 03 months, 02 days)

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.

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

The technology utilized in the project does not present any environmental threats when compared to fossil fuel-fired power plants. It is a well-established and proven technology, ensuring safety and reliability. Importantly, there is no transfer of technology from any Annex 1 country involved in the project. Additionally, the project does not receive any public funding from Official Development Assistance (ODA) or Annex I countries.

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.”

Parameter	Description		
	5 MW	8 MW	10 MW
Total number of Photovoltaic Modules	11508 + 7518	15456 + 15288	23184 + 15288
Rating of Photovoltaic Module	310 Wp and 315 Wp		
Module Model no. for 310 W	JA P6-72-310/3BB		
Module Model no. for 315 W	JA P6-72-315/3BB		
Technology	Poly Crystalline Silicon		
Solar Panel Maker	JA Solar		
Commissioning Date	28.12.2015	28.09.2015	02.11.2015
HT SC No.	DGL 007	015/VDR	243/TTN
Inverter Make	ABB		
Inverter model no.	PVS-800-57-1000kW		
Inverter Rooms	2	4	3
Inverter Transformer Make	VoltAmp		
Rating	1100 & 2200 kva		22000 kva
Sub-Station Details	Eriyodu 110kV/33kV/11kV	Muthuramalingapuram 110kV/33kV/11kV	Villathikulam 110kV/33kV/11kV



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

No harmful effects were identified from the project, and as a result, no mitigation measures are deemed necessary.


- Rational: As per ‘Central Pollution Control Board (Ministry of Environment & Forests, Govt. of India)’, final document on revised classification of Industrial Sectors under Red, Orange, Green and White Categories (07/03/2016), it has been declared that solar project activity falls under the “White category”. White Category projects/industries do not require any Environmental Clearance such as ‘Consent to Operate’ from PCB as such project does not lead to any negative environmental impacts. Additionally, as per Indian Regulation, Environmental and Social Impact Assessment have been exempt from traditional environmental impact assessments, it’s crucial to consider social and environmental aspects to ensure sustainable and responsible solar energy development in India. Additionally, there are social, environmental, economic and technological benefits which contribute to sustainable development. The key details have been discussed in the previous section. Provides employment to local communities through construction and maintenance of units.



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:

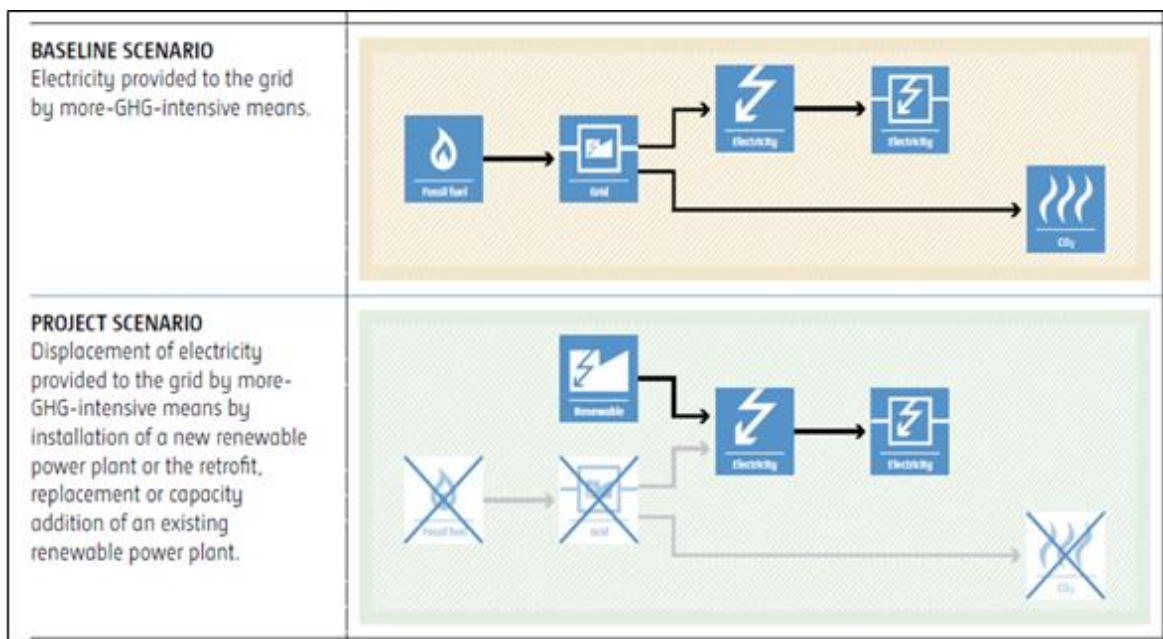
- SDG13: Climate Action
- SDG 7: Affordable and Clean Energy
- SDG 8: Decent Work and Economic Growth

Development Goals	Targeted SDG	Target Indicator (SDG Indicator)
 <p>SDG 13: Climate Action</p>	<p>13.2: Integrate climate change measures into national policies, strategies and planning</p> <p>Target: 2,97,767 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: 3,30,859 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 a bundled component of a three-project activity of 5MW, 8MW & 10MW.

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 23 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 (e.g. installed capacity is 23 MW). The positive list comprises of the project being a greenfield plant /unit.</p>
<p>Project activity involves installation of a 23 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, 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.</p>
<p>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.</p>
<p>Project and leakage emissions from biomass are not applicable.</p>

C.3 Applicability of double counting emission reductions >>

Double accounting of emission reductions in the project activity is avoided due to several reasons:

1. **Uniquely Identifiable Project:** The project is identifiable based on its precise location coordinates, ensuring that emission reductions are accurately attributed to this specific project.
2. **Dedicated Commissioning Certificate and Connection Point:** The project possesses a dedicated commissioning certificate and connection point, providing clear documentation and verification of its existence and operation.
3. **Dedicated Energy Meters:** The project is equipped with energy meters dedicated to measuring the electricity consumption at the project site, ensuring that emission reductions are accurately quantified and not erroneously attributed to other sources.

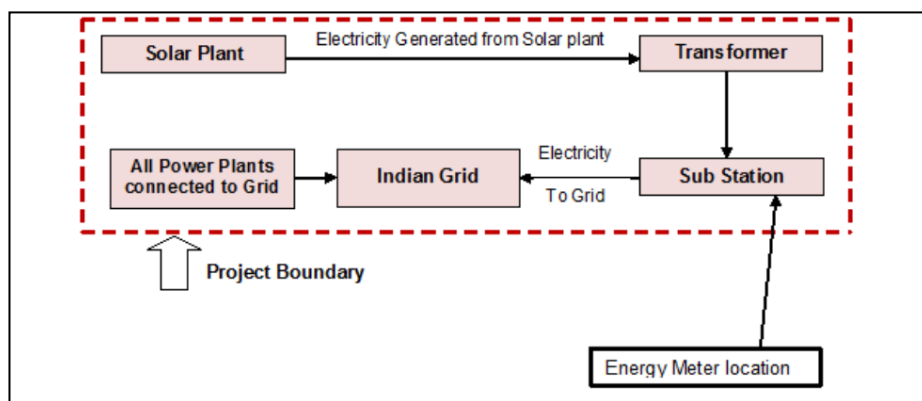
These measures collectively ensure transparency and accountability in tracking emission reductions, mitigating the risk of double accounting and ensuring the integrity of the project's environmental impact assessments.

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: 23 MW

Commissioning Date of the first installation: 28.09.2015

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”.

The project activity involves establishing a new solar power plant to harness green energy from solar sources. The electricity generated will serve as a captive source for PP. In the absence of this project, an equivalent amount of power would have been supplied by the Indian grid, which is fed mainly by fossil fuel-fired plants. Hence, the baseline for the project activity is the equivalent amount of power produced at the Indian grid.

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:

Baseline emissions include only CO₂ 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:

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

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.

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**

Total Emission Reduction:

$$ER_y = BE_y - PE_y - LE_y$$

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

Year	Total Net Export in MWh	ERy (tCO₂)
2015	4,575	4,117
2016	40,997	36,896
2017	39,640	35,676
2018	41,911	37,719
2019	41,694	37,524
2020	40,747	36,671
2021	40,346	36,311
2022	40,418	36,375
2023	40,532	36,478
Total	3,30,859	2,97,767

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: 29/09/2015 to 31/12/2023

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 is no changes applicable.

C.10. Monitoring plan>>

PP, as the project implementer, oversees and monitors the electricity generated by the project activity. Data pertaining to this is electronically archived and has been stored since 31/03/ 2016.

To uphold reliability and transparency in the data, PP has instituted Quality Assurance and Quality Control (QA&QC) measures. These measures are designed to efficiently manage and oversee data reading, recording, auditing, as well as the archiving of data and associated documents. Data is monitored on a daily basis and submitted to PP accordingly.

PP has also implemented QA&QC measures to calibrate and ensure the accuracy of metering devices, as well as the safety aspects of project operation. Metering devices are calibrated and inspected regularly and in accordance state electricity board's specifications and requirements to ensure accuracy in readings.

Data/Parameter	EGy																						
Data unit	<table border="1"> <thead> <tr> <th>Year</th> <th>Total Net Export in MWh (23 MWh)</th> </tr> </thead> <tbody> <tr> <td>2015</td> <td>4,575</td> </tr> <tr> <td>2016</td> <td>40,997</td> </tr> <tr> <td>2017</td> <td>39,640</td> </tr> <tr> <td>2018</td> <td>41,911</td> </tr> <tr> <td>2019</td> <td>41,694</td> </tr> <tr> <td>2020</td> <td>40,747</td> </tr> <tr> <td>2021</td> <td>40,346</td> </tr> <tr> <td>2022</td> <td>40,418</td> </tr> <tr> <td>2023</td> <td>40,532</td> </tr> <tr> <td>Total</td> <td>3,30,859</td> </tr> </tbody> </table>	Year	Total Net Export in MWh (23 MWh)	2015	4,575	2016	40,997	2017	39,640	2018	41,911	2019	41,694	2020	40,747	2021	40,346	2022	40,418	2023	40,532	Total	3,30,859
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Total	3,30,859																						
Description	Quantity of net electricity displaced in year y																						
Source of data Value(s) applied	Joint meter reading report/Energy generation report.																						
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																						

TANGEDCO
DINDIGUL ELECTRICITY DISTRIBUTION CIRCLE/METRO, DINDIGUL
STATEMENT OF SOLAR POWER GENERATION

DATE OF READING : 27.03.2017 to 31.03.2017 MONTH 03/17
CATEGORY : Solar (Sale to Board)

NAME OF THE GENERATOR : M/s. TN Solar Power Energy (P.) LTD.
HT Sc.No : SPG DGL 007
Parallel Operation Approval : Memo.No:CE/NCES/SE/SOLAR/EE/SCB/AEE.2/F.M/STN Solar.P.LTD./D.1028/15.
Dl.01.09.2015 No. of days in the month 4
Capacity: 5 MW Inj. Voltage : 22 M.Factor : 6000

Reading Details	Reading Date	Export					
		C1	C2	C3	C4	C5	C
Final Reading	31.03.2017	205.97	1.13	0.00	1815.77	0.00	2022.88
Initial Reading	27.03.2017	203.65	1.11	0.00	1797.51	0.00	2002.28
Difference		2.32	0.02	0.00	18.26	0.00	20.60
Resultant		13920.00	120.00	0.00	109560.00	0.00	123600.00

Reading Details	Reading Date	Import						RKVAH (Import)
		C1	C2	C3	C4	C5	C	
Final Reading	31.03.2017	0.31	2.83	0.95	2.29	6.21	12.61	91.69
Initial Reading	27.03.2017	0.31	2.80	0.94	2.28	6.16	12.51	90.81
Difference		0.00	0.03	0.01	0.01	0.05	0.10	0.88
Resultant		0.00	180.00	60.00	60.00	300.00	600.00	5280.00

PARTICULARS	UNITS
TOTAL EXPORT	123600.00
(-) IMPORT	600.00
NET EXPORT	123000.00
Claim @ Rs.7.01 p.u	862230.00
Less payable charges	3386.40
Net Payable Amount	858843.60

LT Import charges	UNITS
EXCESS IMPORT	0.00
CC Charges @ 12 pu	0.00
E.Tax on CC	0.00
System Operating Charges:	2400.00
Reactive Power charges	686.40
Meter reading Charges	300.00
Total amount payable	3386.40

San. D. Sankaranarayanan
ACCOUNTS OFFICER/REVENUE
FOR SUPERINTENDING ENGINEER,
DEDC / DINDIGUL

TANGEDCO
OFFICE OF THE SUPERINTENDING ENGINEER/VREDC/VIRUDHUNAGAR
STATEMENT OF SOLAR POWER GENERATION

Billing Period : From 25.5.17 To 25.6.17 Month & Year- Jun-17
CATEGORY : Solar (Sale to board) HT Sc.No : SPG VDR /015
NAME OF THE GENERATOR : M/s. TN Solar Power Energy Private Limited.
Parallel Operation Approval : Memo.No: DIR/GEN/CE/NCES/SE/SOLAR/EE/SCB/AEE.3/F M/S TN Solar 3/D1125/15 Dt.26.09.2015
Plant Capacity : 5MW Inj. Voltage: 33,000 Volt M.Factor : 9600

Reading Details	Reading Date	EXPORT					
		C1	C2	C3	C4	C5	C
Final Reading	25.6.17	287.2	1.28	0	2277.48	0	2565.95
Initial Reading	25.5.17	271.29	1.17	0	2166.97	0	2439.44
Difference		15.91	0.11	0.00	110.51	0.00	126.51
Resultant		152,736	1,056	0	1,060,896	0	1,214,496

Reading Details	Reading Date	IMPORT						RKVAH
		C1	C2	C3	C4	C5	C	
Final Reading	25.6.17	0.34	2.73	0.94	2.43	6.87	13.33	81.45
Initial Reading	25.5.17	0.33	2.59	0.89	2.37	6.5	12.70	77.95
Difference		0.01	0.14	0.05	0.06	0.37	0.63	3.50
Resultant		96	1,344	480	576	3,552	6,048	33,600

PARTICULARS	UNITS
TOTAL EXPORT	1214496.00
(-) IMPORT	6048.00
NET EXPORT	1208448.00
Claim @ Rs.7.01 p.u	8471220.48
Less payable charges	27300.00
Net Payable Amount	8443920.48
Net Payable Amount(R.off)	8443920

LT Import charges	UNITS
EXCESS IMPORT	0.00
CC Charges @ 12 pu	0.00
E.Tax on CC	0.00
System Operating Charges	18600.00
Reactive Power Charges	8400.00
Meter Reading Charges	300.00
Total Amount Payable	27300.00

M. Sankaranarayanan
SUPERINTENDING ENGINEER
VREDC/VIRUDHUNAGAR

✓ Copy to M/s. T. N. Solar



TAMIL NADU GENERATION AND DISTRIBUTION CORPORATION LIMITED
OFFICE OF THE SUPERINTENDING ENGINEER/ TUTICORIN
 Statement Showing the Energy Generated for
 February, 2020

Company Name	M/s. TN SOLAR POWER ENERGY PVT.LTD	Generation Date	01-03-2020
Service Number/isRec	079414700243/Non-Rec	Multiplication Factor	12000
Initial Statement Date	01.02.2020	Net Generation (units)	1541400
Final Statement Date	29.02.2020	Category/Type of SS	SALE-TO-BOARD / TANGEDCO OWN SS
Machine Capacity (kw)	10000	Injecting Voltage	11KV

Import Slot				Export Slot				
Initial Reading	Final Reading	Difference	kwh(Unit)	Initial Reading	Final Reading	Difference	kwh (Unit)	Net
C1	0.25	0.29	.04	480				
C2	2.63	2.76	.13	1560	253.44	264.965	11.525	138300
C3	0.895	0.95	.055	660	1.355	1.45	.095	1140
C4	1.35	1.4	.05	600	0.0	0.0	0	0
C5	6.215	6.535	.32	3840	2043.025	2160.04	117.015	1404180
					0.0	0.0	0	0

Generation Summaries

	Initial	Final	Difference	Units
rKvah	73.445	77.94	4.495	53940
Kvah	42.54	44.68	126.655	1519860
Total Import				7140
Total Export				1543620
Tariff	SOLAR		7.01	Rs.10805214

Applicable Charges (Rs)

Charge Code	Charge Description	Total Charges
C005	RKvah Penalty	7822
C006	Negative Energy Charges	32145
C008	Other Charges	0
C001	AMR Meter Reading Charges	200
	Net Applicant Charges	Rs.10765047

To,
 M/s. M/s. TN SOLAR POWER ENERGY PVT LTD

for SUPERINTENDING ENGINEER/EDC/ TUTICORIN

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.