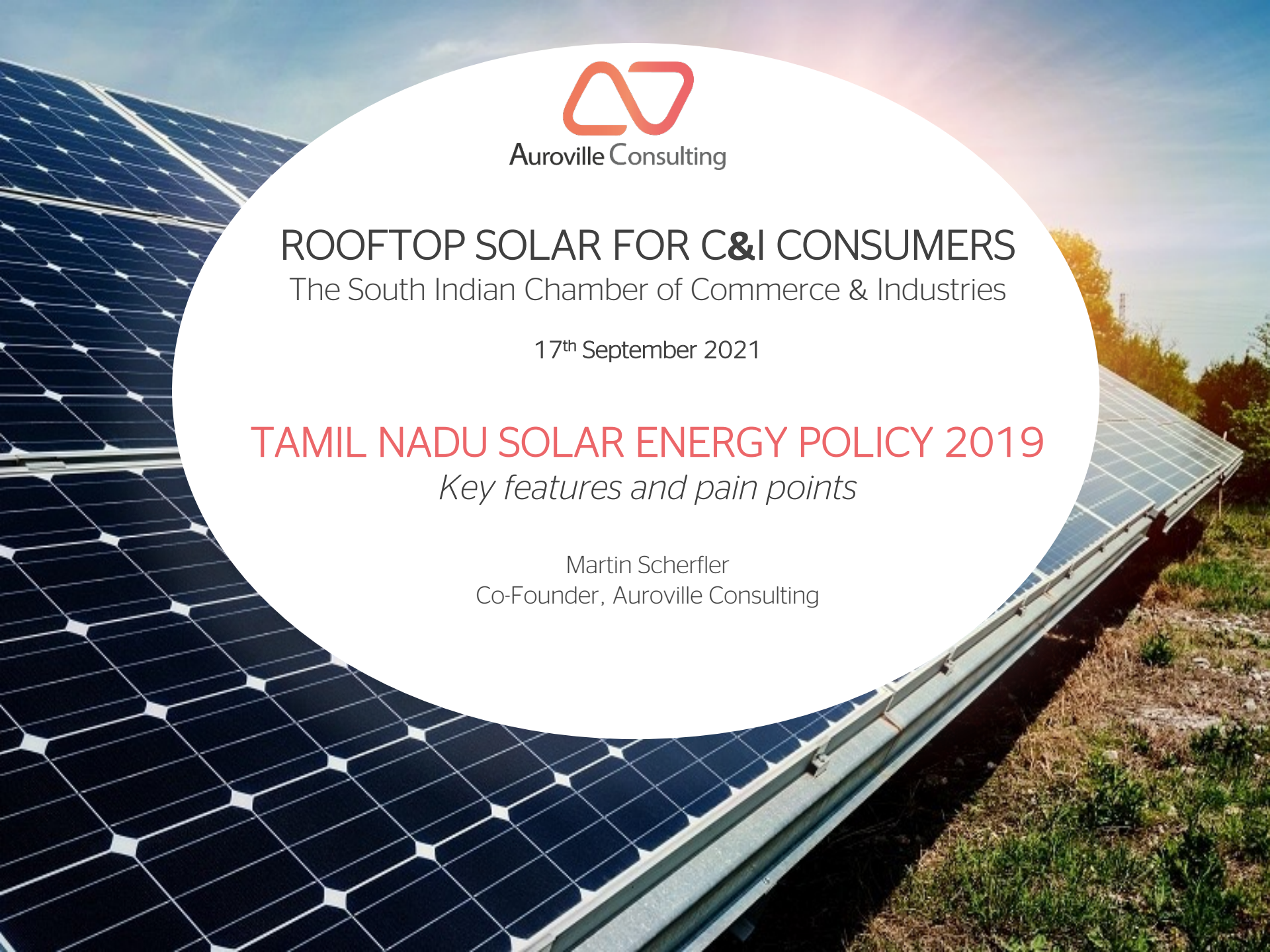


Auroville Consulting

ROOFTOP SOLAR FOR C&I CONSUMERS

The South Indian Chamber of Commerce & Industries

17th September 2021

TAMIL NADU SOLAR ENERGY POLICY 2019

Key features and pain points

Martin Scherfler
Co-Founder, Auroville Consulting

AGENDA

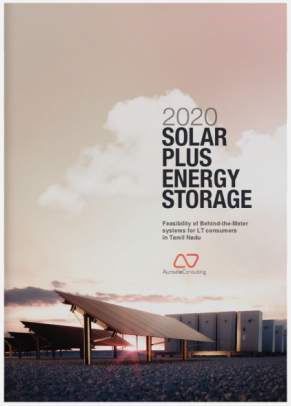
1. **Introduction and welcome** – Mr. K. Shankar, Member, Executive Committee, SICCI and Mr. Vinod Solomon, Secretary, SICCI

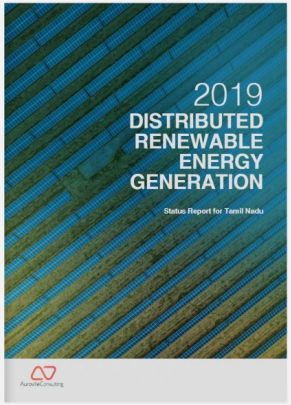
2. **Tamil Nadu Solar Energy Policy** – Mr. Martin Scherfler, Auroville Consulting

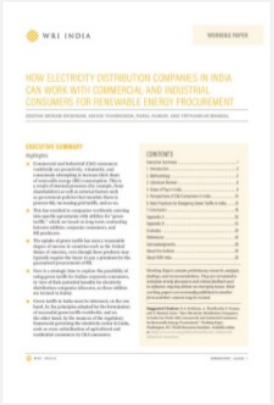
3. **Financial viability of Rooftop Solar for C&I consumers**, Hari Subbhish Kumar Subramanian, Auroville Consuling

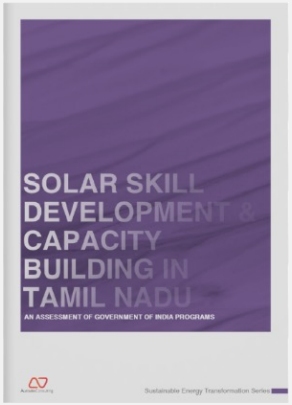
4. **Credit lines for Rooftop Solar** – Ms. Sadhana Mankad, State Bank of India

Followed by a Q&A









Sustainable Energy Transformation – Tamil Nadu (SET-TN)

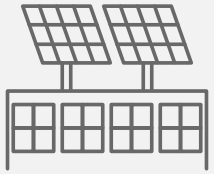
SET aims to facilitate higher clean energy deployment in the State by working with stakeholders in order to find sustainable and equitable solutions. SET is a collaborative initiative by Auroville Consulting (AVC), Citizen Consumer and civic Action Group (CAG), the World Resources Institute India (WRI).

For more information, visit our website: https://settn.energy/

Do we have an enabling Solar Energy Policy?

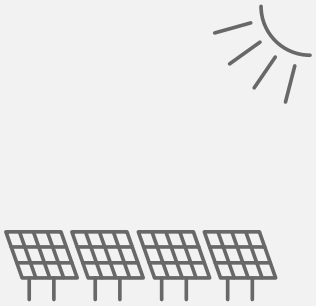
- Key features
- Pain points

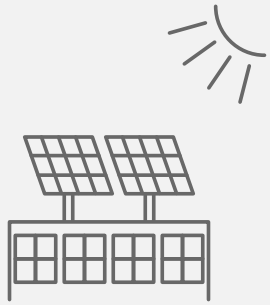
SOLAR TARGETS 2023



	Total Capacity	=	Utility Category	+	Consumer Category (Rooftop)
• Target 2023	9,000		5,400		3,600
• Achieved (March 2021)	4,431		4,049		325
• Additional capacity needed	4,626		1,351		3,275

In energy terms…





	Total Capacity Target	=	Utility Category	+	Consumer Category **(**Rooftop**)**
• Capacity Targets (MW)	9,000		5,400		3,600
• Electrical Energy Contribution (MU)	13,876		8,515		5,361
• Percentage (%)	10.31		6.33		3.98

Note: Total Tamil Nadu electrical energy consumption in FY 2021-22 assumed as 1,34,550 MU (CEA)

KEY FEATURES OF TN SOLAR ENERGY POLICY 2019

This policy uses the terms “utility category systems” and “consumer category systems”, which are defined as follows:

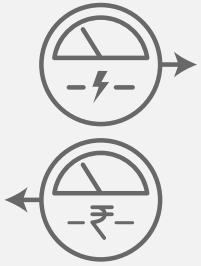
Utility Category Systems

where the objective is sales of solar energy to a distribution licensee or a third party or self consumption at a remote location (wheeling). For these systems the grid connection is through a dedicated gross metering interface.

Consumer Category Systems

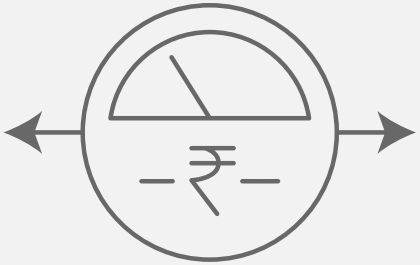
where the objective is self-consumption of solar energy and export of surplus energy to the grid. For these systems the grid connection is through a consumer service connection of a distribution licensee.

KEY FEATURES OF TN SOLAR ENERGY POLICY 2019



Solar energy gross feed-in (Utility Category)

at all voltage levels, subject to applicable wheeling and grid charges and conditions for various voltage levels as may be determined by TNERC.



Solar energy net feed-in (Consumer Category)

available to all LT electricity consumer categories and tariffs.

METERING CONCEPTS

Net Metering

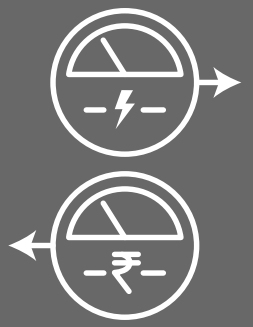
Grid Import
-
Solar Export
x
Consumer tariff

Grid-import is reduced through behind-the-meter consumption of solar

Net Feed in

Grid Import
x
Consumer Tariff
–
Solar Export
(after self-consumption)
x
Solar Tariff

Grid-import is reduced through behind-the-meter consumption of solar



Gross Feed In

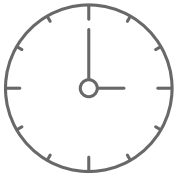
Solar Export
X
Solar Tariff

No behind-the-meter consumption of solar

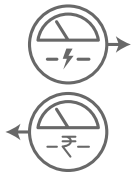
PAIN POINTS

Self-generation Tax

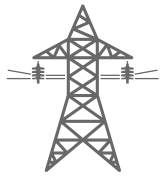
Net feed-in tariff



Time of the day tariff



Gross energy meter



HT Consumers excluded

Inspection by Chief Electrical Inspectorate

PAIN POINTS

Self-generation Tax

Exemption from self-generation tax for the consumer category has been retained, but only for two years.

To promote the installation of solar PV systems by consumers, consumer category solar energy generation may be exempted from the self-generation tax.

PAIN POINTS

Net feed-in mechanism for all consumers

The net feed-in mechanism has been permitted only for LT consumers (clause 8.1.2). Many institutional, governmental, industrial and commercial entities are HT consumer and have installed rooftop solar or are planning to do so.

The only option available to an HT consumer for on-site generation of solar power is through ‘paralleling’ operation in which any excess generation has to be curtailed. Further, parallel operation of a rooftop solar plant attracts a monthly parallel operation charge (currently at Rs. 15,000 per MW/month)

Net feed-in Tariff

TNERC has fixed the net feed-in tariff by its order dated 25-03-2019 (Order on Rooftop Solar Generation). The tariff has been fixed as the lowest of the following:

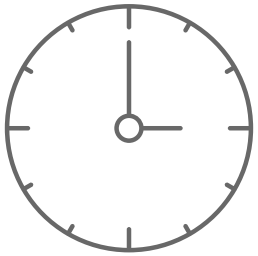
- 75% of the pooled cost of power purchase notified by the Commission for the respective financial year in the orders issued on pooled cost of power purchase under Renewable Energy Power Purchase Obligations, 2010
- 75% of last feed in tariff determined by the Commission
- 75% of tariff discovered in latest bidding whichever is less.

For the financial year 2019-2020 this tariff works out to Rs. 2.28 per kWh (as stated in Memo. No. CE/Comml/EE/R&C/AEE1/F.Solar NFI/D. 099 /19, dt.10.05.2019 of TANGEDCO).

For the financial year 2020-2021 the tariff works out to **Rs. 2.08 per kWh**

The net feed-in tariff as now determined does not allow consumers to recover their investment.

PAIN POINTS

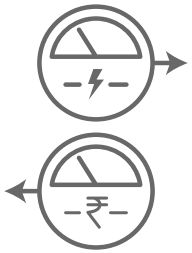


Time-of -the-day Tariff

The Solar Energy Policy 2019 also suggests a time-of-the-day solar energy feed-in tariffs to encourage solar energy producers and solar energy storage operators to feed energy into the grid when energy demand is high (clause 9.2). The TNERC order on rooftop solar energy generation did not address these points.

A well-designed time-of-day tariff will incentivise consumers to add battery storage. Energy storage will also be essential to address grid management issues related to increasing renewable energy penetration.

PAIN POINTS



Gross Energy Meter

TNERC in their Order on rooftop solar energy generation of 25-03-2019 has provided for a second energy meter (in addition to the TANGEDCO bidirectional service connection meter) to record gross generation. As per the TNERC order this second meter needs to be installed close to the service connection meter.

The gross energy meter increases overall system cost and is often technically not feasible. Neither is it required for the net feed-in mechanism. TANGEDCO has kept this requirement on hold for the time being.

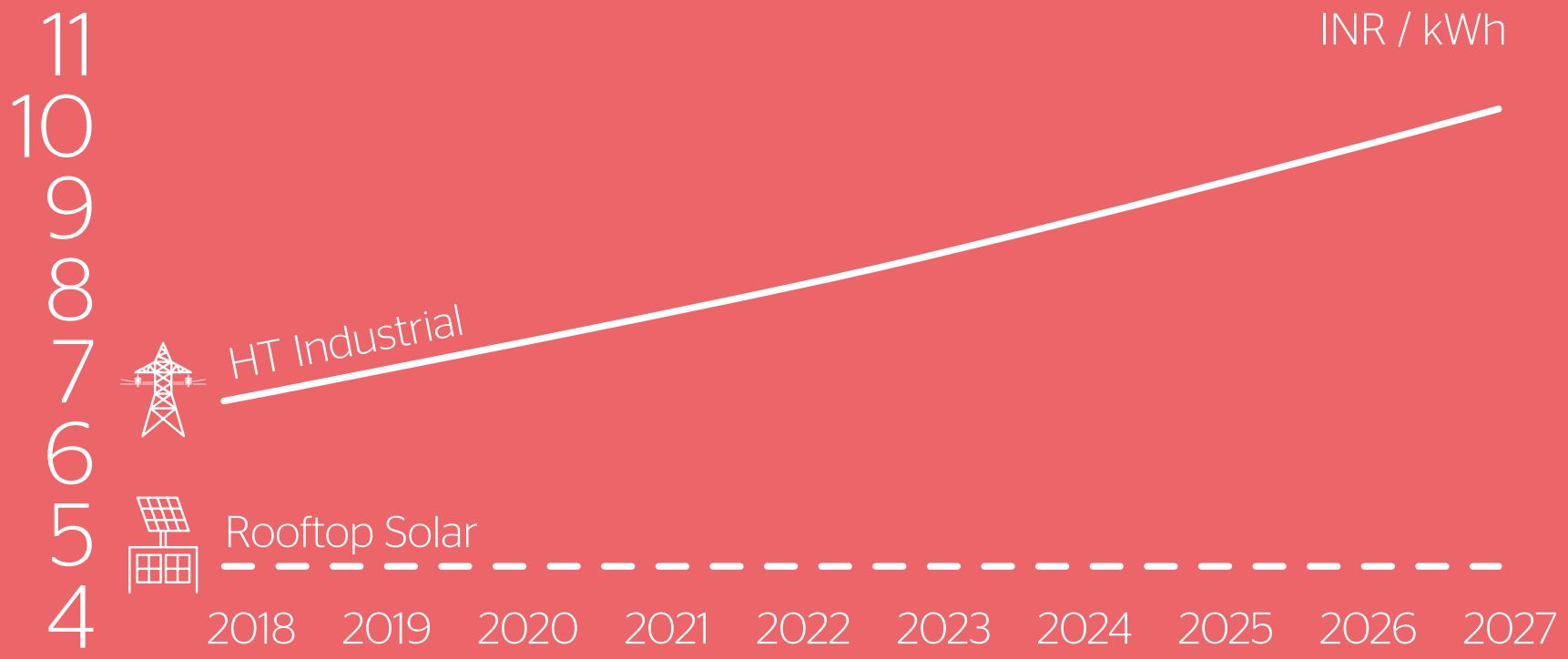
PAIN POINTS

Inspection

In Tamil Nadu solar energy systems of more than 10kW require a safety certificate issued by the Chief Electrical Inspectorate. This can lead to delays in commissioning of solar PV systems.

It is suggested that the inspection of the Electrical Inspector may be limited to solar PV systems of more than 100kW of HT consumers. For LT consumers the inspection may be done by the TANGEDCO Section Officer / Assistant Engineer. This will ensure timely commissioning of solar PV systems.

LT: net feed-in
HT: paralleling



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