Tamil Nadu Draft Solar Energy Action Plan 2023 (SEAP)

AurovilleConsulting

Sustainable Energy Transformation Series

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September 2020

Sustainable Energy Transformation Series

ACKNOWLEDGMENT

This publication forms part of the Sustainable Energy Transformation, Tamil Nadu (SET-TN) series of documents and activities. SET-TN aims to facilitate higher clean energy deployment in the State by working with all stakeholders in order to find sustainable and equitable solutions. SET-TN is a collaborative initiative by Auroville Consulting (AVC), Citizen consumer and civic Action Group (CAG) and the World Resources Institute India (WRI).

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PREFACE

In January 2020, the Tamil Nadu Government released its Tamil Nadu Solar Energy Policy 2019. The 2019 policy includes an overall solar energy PV target of 9,000 MW to be achieved by 2023 (TEDA 2019). This Draft Solar Energy Action Plan 2023 (SEAP 2023) prepared by Auroville Consulting outlines various initiatives and programs which are designed to achieve the solar energy targets as per the Tamil Nadu Solar Energy Policy 2019. SEAP 2023 includes annual targets for Utility Category solar PV capacity and Consumer Category solar PV capacity. In this action plan the Consumer Category solar PV capacity targets are further allocated to consumer segments as detailed in table 1.

Table 1: Proposed Solar PV Capacity allocation for each consumer segment

Sl. No	Consumer Segment
1	Industrial
2	Agriculture
3	Commercial
4	Government Institutions
5	Municipal
6	Private Institutions
7	Railway Traction
8	Domestic

The following methodology has been used for arriving at the various targets. The solar PV energy targets as per Tamil Nadu Solar Energy Policy 2019 and the Renewable Energy Purchase Obligations (RPO) recommended by the Ministry for New and Renewable Energy for the year 2023 form the basis of target calculations.

To meet the Consumer Category solar energy target sub targets for various electricity consumer segments (refer to table 1) have been based on the future electricity requirements for the year 2023 of these electricity consumer segments. The target allocation to various electricity consumer segments are suggested to be reviewed from time to time to ensure that the SEAP 2023 Consumer Category solar energy targets are met.

SEAP 2023 includes various enabling initiatives such as implementation models, training and capacity building, pilot projects and communication and awareness campaigns. Policy and regulatory interventions needed for meeting the SEAP 2023 targets have also been included.
It is proposed that the Tamil Nadu Energy Agency (TEDA) will act as the overall coordinator of SEAP 2023. It is assumed that the capital expenditures for the solar energy generators will come mostly from the private sector, while public funding is required for the overall project management of SEAP 2023.

SEAP 2023 provides a road map for the realization of Tamil Nadu's solar energy target and gives an opportunity for a large number of stakeholders to contribute to Tamil Nadu retaining a leading position in renewable energy.

TABLE OF CONTENTS

1. INTRODUCTION

In recent years, the electricity demand-supply gap in Tamil Nadu has drastically reduced and reliability of electricity supply has significantly improved (MoP 2018). However, with an expected economic growth, there will be a need for continuous capacity additions in the State. During earlier periods of power shortage, in particular during the period 2010 to 2013 there was scheduled and unscheduled load shedding all over the State. Load shedding was the highest in rural areas and this affects economic development, especially of small and medium sized industries, manufacturing and commerce and educational institutions in these areas (World Bank 2019). In order to facilitate a continuous economic growth a parallel growth in the electrical energy sector will be required. This electricity will increasingly have to come from sustainable energy sources.

With the Solar Energy Policy 2012, Tamil Nadu was among the first Indian States that introduced net metering for rooftop solar. The 2012 Tamil Solar Energy Policy had set a rooftop solar target of 350 MW to be achieved by 2015 (TEDA 2012). By the year 2015 only a 50 MW of rooftop solar could be achieved (Bridge to India 2016). Though the 2012 Solar Energy Policy served as a model policy for other Indian States, it had several gaps that contributed to the fact that its rooftop solar target was not achieved. Certain consumer categories, for example industrial consumers, were excluded from the net metering mechanisms. The installation of bi-directional meters by TANGEDCO for solar net metering often came with delays , disbursement of capital subsidy by MNRE was delayed and consumer engagement and awareness creation efforts were limited (Auroville Consulting 2020f). A report, released by the World Resources Institute in 2018, found that 58% of the prosumers who installed rooftop solar experienced delays in processing of the net-metering agreement with TANGEDCO, the majority of which is accounted on non-availability of bi-directional meters. These delays were reported to range from two to six months. This points to a mismatch in the priorities of the electricity utility with the solar ambitions of the state (WRI 2018).

In the year 2020 this target was revised upwards with the Tamil Nadu Solar Energy Policy 2019. The overall solar energy target for Tamil Nadu is 9,000 MW by 2023.This target has been divided into a target of 5,400 MW for the Utility Category solar and 3,600 MW for the Consumer Category Solar (TEDA 2019). Consumer Category solar was defined as solar energy generation with the primary purpose as solar self-consumption (behind-the-meter consumption), whereas utility category solar was defined as solar energy generation with the primary purpose of sale of solar energy to the electricity utility or to third parties, regardless of its capacity and interconnection voltage.

As of March 2020, Tamil Nadu has an aggregated installed capacity of 3,916 MW of solar energy (MNRE 2020). In order to meet the solar energy targets of the Tamil Nadu Solar Energy Policy 2019 an accelerated deployment of solar energy generators is required. There is a strong focus on the Consumer Category solar energy in this plan. As of March 2020, there is an installed capacity for Consumer Category solar energy of 156 MW (MNRE 2020a), to achieve the target set for 2023 another 3,444 MW will need to be added. Consumer Category solar energy also deals with a more diverse set of consumers and therefore requires a substantial consumer awareness and information campaigns.

The objectives of the Tamil Nadu Solar Energy Action Plan 2023 (SEAP) are:

a) To meet Tamil Nadu's solar energy targets; (b) to increase energy security
c) To contribute to carbon friendly development as per United Nations Framework Convention for Climate Change (CP21)
d) To make a contribution to the quality and reliability of electricity supply in the State
e) To prepare the State to transition towards a distributed and interconnected sustainable energy future

2. SOLAR PV ENERGY TARGETS

2.1. Renewable Purchase Obligations

The Ministry for New and Renewable Energy (MNRE) has proposed solar energy RPOs of 8% for the states to be achieved by 2022[1]. As of August 2020, no solar energy RPOs have been set for the year 2023 and beyond

2.2. Installed and targeted solar PV energy capacity

As of March 2020, Tamil Nadu has the following aggregated renewable energy capacity:

Table 2 Solar PV capacity in Tamil Nadu

Date	Utility Category Solar PV (MW)	Consumer Category Solar PV (MW)	Total Solar PV (MW)
31st March 2020	3,759.89	156	3,915.89

Source: MNRE (2020)

2.3. Trajectory solar PV energy capacity addition

The following annual solar energy targets are proposed in this action plan for the period ending March 2023 to meet the State targets.

Table 3 Solar PV energy targets by year for Tamil Nadu

Year	Solar PV - Utility Category Cumulative Target (MW)	Solar PV – Consumer Category Cumulative Target (MW)	Cumulative Solar Energy target (MW)
Baseline up to 2020	3,759.89	156	3,915.89
2020-21	4,306.59	1,304.00	5,610.59
2021-22	4,853.30	2,452.00	7,305.30
2022-23	5,400.00	3,600.00	9,000.00

Source: MNRE (2020a)

Comment: Annual capacity addition targets for the Utility Category Solar PV and the Consumer Category Solar PV are assumed to be the same for each year.

[1] Secretary Government of India Ministry of New and Renewable Energy, letter from 11th February 2016. Renewable Energy provisions in the revised Tariff Policy – request to develop Action Plan to achieve Renewable Purchase Obligation (RPO) targets up to the year 2022.

Table 4 Impact of achieving the solar PV energy target by Utility and Consumer Category

Category	Target (MW)	Expected Solar Energy Generation (MU)	Solar energy generation as percentage of total electrical energy consumption[2]
Utility Category Solar	5,400.00	8,987.76	7.75%
Consumer Category Solar	3,600.00	5,991.84	5.17%
Total	9,000.00	14,979.60	12.92%

The expected solar energy generation, after achieving the total Consumer Category and Utility Category targets, meets 12.92% of the total projected electrical energy consumption of 2023 of the State.

2.4. Consumer Category Solar PV Energy sub-targets by Consumer Segment 2021-22

The Consumer Category solar energy targets to be achieved by March 2023 for each consumer segment have been listed below. These targets are based on the projection of electric energy consumption of the various electric energy consumer categories up to the year 2023.[3] A 156 MW capacity of Consumer Category solar has been achieved as of March 2020, a total capacity addition of 3,444 MW needs to be installed by March 2023 to meet the Consumer Category solar capacity target.

Table 5 Consumer Category Solar PV energy sub-targets by consumer segment

Consumer Segments	Consumer Category Solar Target March 2023 (MW)	Expected Solar Energy Generation (MU) FY 2022-23	% of solar energy on consumption (MU) FY 2022-23
Industries	1,168	1,944	1.68%
Agriculture	380	633	0.55%
Commercial	575	957	0.83%
Government Institutions	68	113	0.10%
Municipality	130	216	0.19%
Private Institutions	26	43	0.04%
Railway Traction	37	61	0.05%
Domestic	1,061	1,766	1.52%
Total	3,444	5,732	4.94%

[2] The electricity consumption forecast has been made by extrapolating the average annual increase in electricity consumption by consumer tariff (compound annual growth rate) from FS 2012-13 to FS 2018-19. The existing projections by the Central Electricity Authority (CEA 2019) were found to consistently higher than the actual electricity consumption achieved in the State. A Solar Capacity Utilization Factor (CUF) of 19% was assumed for arriving at the solar energy generation.

[3] The determination of targets for each Consumer Segment is done by allocating an equal percentage of the overall Consumer Category Solar PV target across all electricity tariffs and then aggregate the same into the consumer segments as defined in table 5.

3. ROAD MAP

3.1. Roles and responsibilites of stakeholders

Tamil Nadu Energy Development Agency (TEDA) will work closely with multiple stakeholders to achieve targets of SEAP 2023. Some of the key stakeholders identified are:

a) Tamil Nadu Generation and Distribution Corporation (TANGEDCO) (facilitation and implementation agency)
b) Municipal Corporations (implementation agencies)
c) Government Departments (implementation agencies)
d) Solar Skill Development Training Institutes (capacity building and training agencies)
e) Academic and Civil Society Organizations (research and advisory agencies)
f) Banks and financial institutions that provides solar financing program (financing agencies). Media organizations (communication and awareness creation agencies)
g) Consumers (implementation)

3.2. Policy interventions required

To achieve the SEAP 2023 targets an enabling environment needs to be created that facilitates participation of electricity consumers in Consumer Category solar energy generation and effective implementation and operation of Utility Category solar energy plants. Based on the lessons learned since the notification of the Tamil Nadu Solar Energy Policy 2012 and the Tamil Nadu Solar Energy Policy 2019 the following interventions and changes in existing regulations, guidelines and practices have been identified and are essential for the successful implementation of targets:

Utility Category Solar

a) Adherence to the “Must Run” status of all renewable energy systems in conjunction with forecasting mechanisms (TANGEDCO)
b) Implementation of necessary evacuation capacity such that all solar and other renewable energy generated in the state can be absorbed by the grid (TANGEDCO and TANTRANSCO)
c) Enforcement of RPO on obligated entities (TNERC).
d) Ensure timely payment of generators and honoring of power purchase agreements (PPA) (TANGEDCO).
e) Permission for grid interconnection of utility category at any voltage level and any solar capacity (TNERC)

Consumer Category Solar Energy

a) Inclusion of all electricity consumer categories in the solar net-feed-in metering facility (TNERC).
b) Setting net-feed in tariffs that take the real cost of Consumer Category solar into account (TNERC)
c) Introduction of additional net metering facilities such as group net-metering and virtual net-metering (TNERC)
d) Implementation of a fast-track solar net-metering application process with on-line registration and status tracking (TANGEDCO)
e) Update TANGECDO electricity billing software to account for bi-directional energy flow (TAGNEDCO)
f) Introduction of new implementation models targeted as specific consumer categories (TEDA and TANGEDCO)

3.3. Implementation programs

The realisation of the SEAP 2023 targets will be supported with innovative implementation models that will include:

a) Solar energy for agriculture (KUSUM) (TEDA and TANGEDCO)
b) Community solar energy systems (TEDA and TANGEDCO)[4]
c) Solar energy programs for a diverse set of electricity consumers including State Government Departments and Public Sector Undertakings (TEDA)

3.4. Engagement with Financial Institutions

A recent report found that one of the key issues for financing consumer category solar is the lack of awareness among consumers about the availability of credit lines, the limited number of bank branches that offer these, and the high collaterals demanded under the home loan category for consumer category solar energy (Auroville Consulting 2020d). In order to ensure availability, accessibility and affordability of loans for solar energy regular engagement with banks and financial institutions will be undertaken by TEDA. This may include an annual convening, regular round table discussions and a technical assistance programs in solar financing and risk assessment.

3.5. Communication and Awareness

In order to create wide-spread awareness about renewable energy among all stakeholders a five-year communication plan will be developed and implemented by TEDA. The main objectives of the communication plan are the following:

a) Communicate environmental benefits of Solar Energy
b) Inform about financial viability and available financial assistance and schemes
c) Update on progress in achieving SEAP 2023 targets
d) Celebrate role models and good practices
e) Accelerate deployment of solar energy systems all over the state

[4] *Community solar systems, in which the consumers invest into a share of solar system installed at a common rooftop or ground mounted, combined with virtual net-metering mechanism are being promoted by Governments and Utilities in some of the leading countries in terms of distributed solar energy generation. This is a model that maybe adapted to the Tamil Nadu context as well, in particular so for domestic consumers with limited rooftop space available for solar installation, or in cases where the usage right of the rooftop is uncertain, or in the case where financial viability may only be possible with such an approach for example for Domestic Slab 1 and Slab 2 consumers (Auroville Consulting 2020e)*

The communication plan will have a detailed audience segmentation, phased implementation plan and key performance indicators to measure its success.

Communication Channels
In order to reach identified audience segments a multi-prong communication approach will be taken using communication channels such as:

a) Web: The TEDA website will include a progress monitoring communication platform.
b) Social Media (Facebook, Whatsapp groups, Twitter, Instagram, Youtube). TEDA will get a strong presence at multiple social media platforms to especially reach a younger audience and run awareness and information sharing programs. Special social media communication tools such as videos, information graphics and publications will be developed.
c) Email campaigns: TEDA will develop a comprehensive contact data base that will enable it to send out monthly SEAP 2023 e-newsletters.
d) SMS notifications: SMS notifications can be used to reach a large audience and to inform about on-going schemes and renewable energy programs that offer financial assistance.
e) Traditional Mass media (newspaper, radio, TV): Information on subsidies and financial assistance to be published in print media on a regular basis.
f) Sustainable Energy Ambassadors (celebrities): TEDA will enroll public celebrities to act as Sustainable Energy Ambassadors and to help creating awareness about energy conservation and efficiency and solar and other renewable energy systems in the state.
g) Events and seminars: TEDA will hold regular events and seminars especially targets at colleges and universities to sensitise the next generation of leaders in the field renewable energy.

3.6. Training and Capacity Building

The implementation of the SEAP 2023 targets will need adequate human resources, including entrepreneurs, installers and technicians. It is proposed that TEDA organizes the following initiatives as part of SEAP 2023 in this regard.

Training of Future Entrepreneurs
SEAP 2023 includes a comprehensive training and capacity building program for the future solar energy installers, entrepreneurs, technicians and users. These programs will ensure that highly skilled and qualified small and medium scale enterprises for solar energy capacity deployment are available. These training programs may be implemented under existing schemes such as the Suryamitra program.

Training of TANGEDCO personnel
A series of workshops jointly organized by TEDA and TANGEDCO will be held at the district level for dissemination of relevant information, guidelines and knowledge to the TANGEDCO Officials on distributed solar energy systems in general and solar net feed-in mechanism in particular.

Training of Bankers
TEDA to conduct a series of training programs for bankers on solar PV project financing in order to enhance understanding of the same among bankers and to make credit lines more accessible and to scale up communication efforts about the availability of these credit lines.

Training of TEDA personnel
A dedicated team for progress monitoring, communication, project management of the various programs and initiatives will be required by TEDA to ensure that SEAP 2023 targets are met. Dedicated training programs will be held to prepare the TEDA team for this task.

Seminars for SEAP implementors
Dedicated seminars will be held by TEDA to communicate the solar energy targets as per SEAP 2023 to implementation agencies such as Government Departments, Corporations and Municipalities and Public Sector Undertakings in order to enhance their understanding of the benefits of solar energy generation and to scale up solar energy deployment. The training programs shall focus on distributed solar energy generation and energy efficiency.

Seminars for Media Delegates
A series of seminars on the subjects of solar energy and energy conservation and efficiency will be organised for media delegates in order ensure appropriate information dissemination via media channels.

3.7. Pilots

To accelerate deployment of solar energy systems a series of catalysing pilot projects will be undertaken that have the potential for scaling up and will have a positive impact of energy security, carbon footprint reduction and overall quality of life of the people of Tamil Nadu. These projects will be undertaken during the period 2020 – 2023 and may include:

a) Grid-level solar and storage pilots (TANGEDCO)
b) Behind the-meter solar and storage pilots (TEDA)
c) Solarization of villages (Solar Village) (TEDA)
d) Pilots on co-location of solar energy production and agriculture (TEDA)
e) Smart mini-grid pilots on campuses or in villages (TEDA)

3.8. Monitoring and Evaluation

The implementation of SEAP 2023 shall be monitored closely. The performance monitoring will include live dashboard with all relevant parameters and a comprehensive actual vs. plan reporting mechanism. Reports and other feedback loops to all stake holders shall be part of the monitoring system.

Section 16.1 of the Tamil Nadu Solar Energy Policy 2019 proposes that TEDA constitutes 'an inter-departmental monitoring and coordination committee for new and renewable energy sources, including solar energy (the "Renewable Energy Committee")' to ensure that policy objectives and targets are achieved. It is therefore proposed that such a committee maybe constituted by TEDA.

4. SUMMARY ACTION PLAN

The following action plan is proposed which includes initiatives discussed in earlier chapters of this document and references to the Tamil Nadu Solar Energy Policy 2019.

Table 6: Summary Action Plan

1. Policy and regulations

S.No.	Action pointers	Description of action	Action by
1.1	***Tamil Nadu Solar Energy Policy 2019. Clause 8.1.1*** 'Solar energy gross feed-in (utility category): The solar energy is fed into the grid for energy sales to the distribution licensee or a third party under the open access facility or for own consumption at a remote location through wheeling. In the case of distribution licensees, the solar energy fed into the grid will be purchased by the distribution licensee at the prevailing solar energy tariffs as determined by the TNERC or a tariff determined by a bidding process. Utility category solar energy gross feed-in will be permitted at all voltage levels, subject to applicable wheeling and grid charges and conditions for various voltage levels as may be determined by TNERC.'	TEDA & TANGEDCO to jointly prepare a petition	TEDA & TANGEDCO
1.2	***Tamil Nadu Solar Energy Policy 2019 Clause 9.2*** 'TNERC may introduce time-of-the-day (TOD) 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.'	TEDA & TANGEDCO to jointly prepare/propose TOD tariff to TNERC - TNERC to determine TOD tariff	TEDA and TANGEDCO - TNERC
1.3	***Tamil Nadu Solar Energy Policy 2019 Clause 11.1*** 'Building by-laws and ECBC (Energy Conservation Building Code) compliance: Any building type that requires ECBC compliance will follow ECBC compliance guidelines for the installation of solar PV and solar thermal energy systems. The Directorate of Town and Country Planning in collaboration with local bodies and Chennai Metropolitan Development Authority shall amend their building by-laws to mandate ECBC. The Electrical Inspectorate or other entity as determined by the Government will be responsible for compliance monitoring on an annual basis.'	Government to implement through Energy Department and Housing and Urban Development Department	Government
1.4	***Tamil Nadu Solar Energy Policy 2019 Clause 12.5*** 'A suitable incentive scheme will be designed to promote the co-utilization of land for solar energy projects, crop cultivation and water conservation.'	TEDA to develop incentive scheme and a pilot	TEDA
1.5	Introduction of additional net metering facilities such as group net-metering and virtual net-metering.	TEDA to petition for the same. - TNERC to introduce additional net metering facilities	TEDA - TNERC
1.6	Under Section 86(1) (e) of the Electricity Act 2003 and the National Tariff Policy 2006, Renewable purchase obligation (RPO), is a mechanism by which the obligated entities are obliged to purchase certain percentage of electricity from Renewable Energy sources, as a percentage of the total consumption of electricity.	Enforcement of RPO on obligated entities	TNERC
1.7	Inclusion of all electricity consumer categories in the solar net-feed-in metering facility	TEDA to petition for the same	TNERC

2. Solar Programs implementation

S.No.	Action pointers	Description of action	Action by
2.1	***Tamil Nadu Solar Energy Policy 2019 Clause 4.5*** 'Encourage and incentivise electricity consumers to set up solar energy systems.'	Design and implement dedicated solar energy programs for call consumer categories e.g. residential, agricultural, institutional etc. included community solar energy programs.	TEDA
2.2	***Tamil Nadu Solar Energy Policy 2019 Clause 4.6*** 'Establish a 'Single Window System' for technical support, funding support and project clearance through cooperation between the concerned Government departments.'	TEDA to set-up and on-line application platform	TEDA
2.3	***Tamil Nadu Solar Energy Policy 2019 Clause 11.3*** 'All public buildings, defined as per Tamil Nadu Public Buildings (Licensing) Act, will be encouraged to install solar energy systems, both photovoltaic and thermal.'	TEDA to design and implement a dedicated program	TEDA
2.4	***Tamil Nadu Solar Energy Policy 2019 Clause 11.4*** 'Corporations, municipalities and local urban bodies will be encouraged to use solar PV energy based streetlights and water supply installations.'	TEDA to design and implement a dedicated program	TEDA
2.5	***Tamil Nadu Solar Energy Policy 2019 Clause 12.4*** 'The Government of Tamil Nadu will promote the manufacture of solar energy components including solar cells, inverters, mounting structures and batteries etc. in the State. Lands will be provided for the development of solar system component manufacturing. A single window process for all departmental approvals, including a set time limit for each approval will be designed and managed by TEDA.'	Design and implement the program	TEDA and Industries Department
2.6	***Tamil Nadu Solar Energy Policy 2019 Clause 15.1*** 'Tamil Nadu will facilitate and support research in the solar energy sector. TEDA, in collaboration with other Government Departments, will constitute a Solar Energy Research Fund (SERF).'	Government to set-up the SERF - TEDA & TANGEDCO to propose key R&D objectives	Government
2.7	To accelerate deployment of solar energy systems a series of catalysing pilot projects will be undertaken that have the potential for scaling up and will have a positive impact of energy security, carbon footprint reduction and overall quality of life of the people of Tamil Nadu. These projects may include: a) Grid-level solar and storage pilots b) Behind the-meter solar and storage pilots c) Solarization of villages (Solar Village) d) Pilots on co-location of solar energy production and agriculture e) Smart mini-grid pilots on campuses or in villages	TEDA and TANGEDCO will prepare a plan for implementation fo pilot projects.	TEDA and TANGEDCO

3. Operations

S.No.	Action pointers	Description of action	Action by
3.1	***Tamil Nadu Solar Energy Policy 2019 Clause 13.3*** 'All new service connection meters in Tamil Nadu shall be configured for bidirectional energy recording and display so that all new service connections and existing service connections for which the meters are replaced in the normal course of maintenance are ready for effecting solar energy net feed-in metering at any time in the future. '	TANGEDCO to procure only bidirectional service connection meters	TANGEDCO
3.2	***Tamil Nadu Solar Energy Policy 2019 Clause 13.5*** 'The distribution licensee will enhance and update its billing system such that relevant details pertaining to solar gross feed-in and net feed-in are included in the electricity consumers' bills. Additional information about electricity consumption trends of the consumer, comparison with consumption of similar consumer categories and tips on energy conservation and efficiency shall be included in the electricity consumption bill. Distribution licensees will make available online all of the above billing data for each consumer, along with a sample bill explaining the various billing components above.'	Electricity billing software to be upgraded	TANGEDCO

3.3	***Tamil Nadu Solar Energy Policy 2019 Clause 13.6*** 'The distribution licensee shall implement online applications for solar energy metering. Distribution licensees shall also display online the status of all solar energy metering applications received, whether online or offline. Distribution licensees will maintain a section-wise database of solar gross and net feed-in metering application requests, approval status, installation and commissioning data, which will be submitted to the Government on a periodical basis.'	Implementation of a fast-track solar net-metering application process with on-line registration and status tracking.	TANGEDCO
3.4	***Tamil Nadu Solar Energy Policy 2019 Clause 13.1*** 'To manage the integration of increasing quantities of renewable energy in the Tamil Nadu grid, flexible supply side generation capacity such as pumped hydro storage, gas turbines, flexible thermal coal power generation and energy storage systems will have to be added by TANGEDCO and the private sector. The Government will develop suitable strategies to rapidly enhance flexible power generation and energy storage capacity in consultation with TNERC and TANGEDCO.'	TANGEDCO to determine energy storage capacity requirement for flexible generation/storage (5, years, 10 year etc.) - Government to develop strategies	TANGEDCO - Government
3.5	Ensure timely payment of generators and honoring of power purchase agreements		TANGEDCO
3.6	Implementation of necessary evacuation capacity such that all solar and other renewable energy generated in the state can be absorbed by the grid	TANGEDO to develop a long term renewable energy sourcing and evacuation strategy	TANGEDCO

4. Communication

S.No.	Action pointers	Description of action	Action by
4.1	***Tamil Nadu Solar Energy Policy 2019 Clause 13.7*** 'Distribution licensees shall update the status of the cumulative solar capacity connected at each distribution transformers on their website.'	To be included in TANGEDCO website	TANGEDCO
4.2	***Tamil Nadu Solar Energy Policy 2019 Clause 14.3*** 'All higher education institutions are encouraged to host an annual energy and environment day to create awareness about climate change and the benefits of renewable energy as a climate change mitigation strategy.'	TEDA to facilitate the same	TEDA and Education department
4.3	Develop and implement a comprehensive communication and awareness program on solar energy.	TEDA to the same	TEDA

5. Training & Capacity

S.No.	Action pointers	Description of action	Action by
5.1	***Tamil Nadu Solar Energy Policy 2019 Clause 14.1*** 'All public and private schools are encouraged to introduce a curriculum on energy and environment into their syllabus.'	TEDA to develop curriculum in collaboration with Education Department	TEDA and Education department
5.2	***Tamil Nadu Solar Energy Policy 2019 Clause 14.2*** 'State Government Departments and State Public Sector Undertakings (PSUs) are encouraged to participate in annual solar energy and energy conservation training programs organized by TEDA and other agencies.'	TEDA to organize training programs TEDA and Education department	TEDA
5.3	A series of training and capacity building programs for Future Solar Entrepreneurs, TANGEDCO personnel, Bankers, TEDA personnel, SEAP implementors and for Media shall be organized.	TEDA to prepare a plan to implement these training programs.	TEDA and Education department

6. Monitoring

S.No.	Action pointers	Description of action	Action by
6.1	***Tamil Nadu Solar Energy Policy 2019 Clause 16.1*** 'An inter-departmental monitoring and coordination committee for new and renewable energy sources, including solar energy (the "Renewable Energy Committee") shall be constituted under Principal Secretary, Energy for monitoring the implementation of this policy and to ensure that policy objectives and targets are achieved.'	Renewable Energy Committee to be set up	Government

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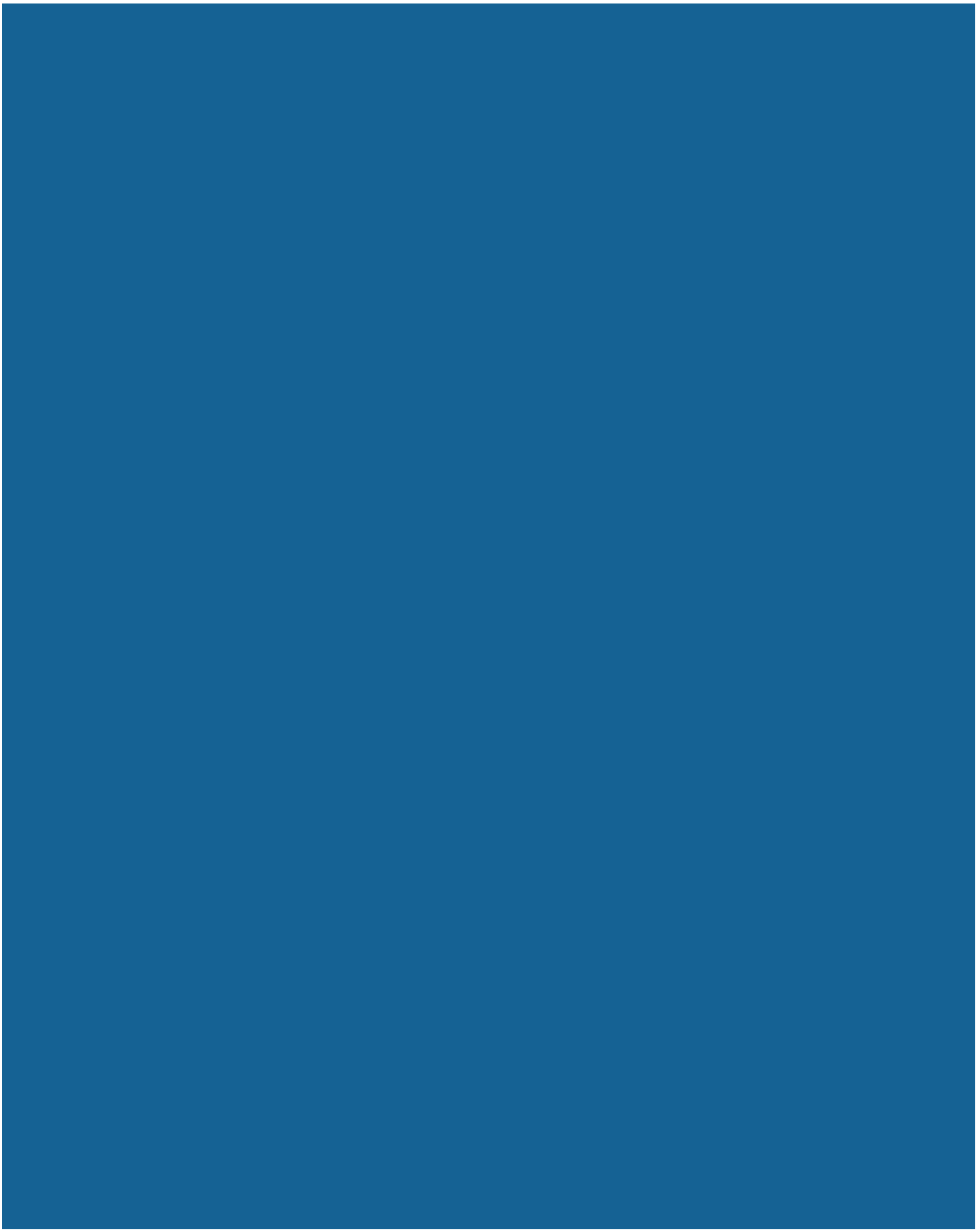

September 2020