TAMIL NADU SOLAR ENERGY POLICY - 2019

GOVERNMENT OF TAMIL NADU

Energy Department

1.0 Introduction

1.1. The Special Report on Global Warming (SR 15, October 2018) by the Intergovernmental Panel for Climate Change (IPCC) estimates the impact of global warming of 1.5 °C above pre-industrial levels. One of the key messages that comes out strongly from this report is that the world is already seeing the consequences of 1°C of global warming through more extreme weather, rising sea levels and diminishing Arctic sea ice, among other changes. The report states that under emissions in line with current pledges under the Paris Agreement (known as Nationally-Determined Contributions or NDCs), global warming is expected to surpass 1.5°C, even if they are supplemented with very challenging increases in the scale and ambition of mitigation after 2030.

1.2. The report also states that limiting warming to 1.5°C implies reaching net zero CO_2 emissions globally around 2050 and concurrent deep reductions in emissions of non-CO_2 climate forcers, particularly methane. Risks to natural and human systems are lower at 1.5°C than at 2°C.

1.3. Drastically de-carbonising existing energy system by investing in renewable energy systems, including solar, at an unprecedented scale and pace is required to address global warming. IPCC highlights that social justice and equity are core aspects of climate-resilient development pathways that aim to limit global warming to 1.5°C and that the poor and underprivileged communities need to be included in the solutions addressing climate mitigation. With the ratification of the Paris Agreement COP21, India has committed to reduce the emissions intensity of its GDP by 33%–35% by 2030 from 2005 levels by increasing the share of non-fossil-based energy resources to 40% of installed electric power capacity by 2030 and by creating additional (cumulative) carbon sinks of 2.5–3 GtCO2e through additional forest and tree cover by 2030.

1.4. The Government of India and the Government of Tamil Nadu have put in place various policies and mechanisms to promote solar energy, including financial incentives for certain categories of users. The Government of India has set a target of 100,000 MW of solar energy capacity for 2022 of which 40% (40,000 MW) is to come from the consumer category in the form of rooftop and similar small scale solar energy systems.

1.5. The Government of Tamil Nadu had notified the Tamil Nadu Solar Energy Policy, 2012 in October 2012. This exemplary Solar Energy Policy included

solar net metering for consumer Solar Photo Voltaic systems. This early adoption of net metering contributed to making the State a national leader in solar energy. Many other Indian States followed suit in adopting solar energy policies similar to the Tamil Nadu policy.

1.6. Vision Tamil Nadu 2023, a Strategic Plan for Infrastructure Development in Tamil Nadu, includes a solar energy target of 5,000 MW. More recently the Ministry of New and Renewable Energy (MNRE) proposed a solar energy target for the year 2022 of 9,000 MW for Tamil Nadu. To meet the Vision Tamil Nadu 2023 and MNRE 2022 targets substantial solar energy capacity addition is required. Achieving the solar energy target for 2023 requires new policy instruments and solar energy programs, especially so for the consumer category. Enhanced grid penetration of solar energy requires smart grid management and energy storage solutions.

1.7. With the experience gained from implementation of the Tamil Nadu Solar Energy Policy, 2012 and with a view of accelerating the transition to a sustainable energy future, this Tamil Nadu Solar Energy Policy, 2019 provides an inclusive policy framework that promotes both utility category and consumer category solar energy generation through various enabling mechanisms.

2.0 Preamble

2.1. Government of Tamil Nadu has an unwavering commitment to the Directive Principle of the State Policy enshrined in Article 48.A of the Constitution, which stipulates that "the State shall endeavour to protect and improve the environment". It was out of this commitment that the Government issued the Tamil Nadu Solar Policy 2012, which was the first comprehensive solar energy policy in the country.

2.2. Government's commitment to people's welfare is equally resolute. Access to affordable, reliable, quality electricity supply for all is a welfare enabler.

2.3. With these twin policy objectives of protecting the environment and the welfare of its people, Tamil Nadu is committed to a sustainable and equitable energy future.

2.4. Energy is one of the key driving forces of socio-economic development and change. Long-term energy security is therefore an essential element of sustainable development. The rapid depletion of non-renewable energy sources and the adverse effects caused to the globe by the process of extracting energy from fossil fuels call for urgent solutions while demand for energy will keep increasing. The universally accepted view is that only energy from renewable sources offer a solution for a sustainable energy

future. Renewable energy targets will have to be set to align with the nation's commitment of its greenhouse gas emissions.

2.5. The Government of India has launched the Jawaharlal Nehru National Solar Mission (JNNSM) under the National Action Plan for Climate Change (NAPCC) to promote ecologically sustainable growth while addressing India's energy security challenges. The objective of the National Solar Mission is to establish India as a global leader in solar energy by creating the policy conditions for its diffusion across the country as quickly as possible. Tamil Nadu will make a significant contribution to the National Solar Mission.

2.6. Tamil Nadu is one of the most urbanized and industrial states of India. A continuous increase in energy demand from all sectors is expected in the years to come. To meet the increasing energy demand in a sustainable manner, it is essential that the Government of Tamil Nadu formulates and implements energy policies that are driven by a clear vision and implemented through the participation of all stakeholders.

2.7. This Tamil Nadu Solar Energy Policy 2019 intends to create a framework that enables an accelerated development of solar energy in the State.

3.0 Tamil Nadu Solar Energy Vision

3.1. Solar energy will be a major contributor to a sustainable energy future for Tamil Nadu.

3.2. Solar energy development will be part of an overall energy strategy that includes demand side management, energy conservation, energy efficiency initiatives, distributed renewable energy generation, electric mobility and smart grids.

3.3. Solar energy development will provide green jobs to a significant number of the State's workforce.

3.4. Solar energy will become available, accessible and affordable to all citizens of Tamil Nadu.

3.5. Solar energy generation will significantly contribute to reducing the carbon and water footprint of the State's energy sector.

3.6. Tamil Nadu will be an international climate leader for emerging economies by 2023.

4.0 Solar Energy Policy Objectives

4.1. Define clear and transparent policy governance.

4.2. Establish an eco-system that translates the solar energy vision into enabling policy systems and processes.

4.3. Use regulatory mechanisms to ensure that Tamil Nadu will achieve, or exceed, the solar energy portfolio obligations as may be determined by the Tamil Nadu Electricity Regulatory Commission (TNERC) from time to time.

4.4. In accordance with regulations, facilitate open access to the public electricity grid and thereby create opportunities for grid-connected distributed generation of solar power.

4.5. Encourage and incentivise electricity consumers to set up solar energy systems.

4.6. Establish a 'Single Window System' for technical support, funding support and project clearance through cooperation between the concerned Government departments.

4.7. Encourage public-private partnerships and joint ventures to mobilize investments in solar energy projects, manufacturing facilities, research, and technology development.

4.8. Facilitate 'Ease of Doing Business' in the solar energy sector.

4.9. Create an investment-friendly environment that provides opportunities for private individuals, companies, local bodies, government departments and others to contribute to and participate in the generation of solar energy, particularly for the electricity consumer to become a "prosumer" (a producer-consumer).

4.10. Create a win-win situation for all stakeholders.

4.11. Create a road map to achieve the objectives of the "National Renewable Energy Policy" to be issued by the Central government.

5.0 Scope of Solar Energy Policy

5.1. This policy will be applicable to projects, programs and installations relating to solar photovoltaic energy (solar PV) and solar thermal energy and to both utility and consumer category systems.

5.2. This policy uses the terms "utility category systems" and "consumer category systems", which are defined as follows:

5.2.1. 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.

5.2.2. 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.

6.0 Solar Energy Targets

6.1. Tamil Nadu will have an installed solar energy generation capacity of 9,000 MW by 2023. Of this target, 40% will be earmarked for consumer category solar energy systems.

6.2. Targets for subsequent years will be set by the Government of Tamil Nadu through notifications under this policy.

7.0 Legislative Framework for Policy

7.1. The legislative framework for this solar energy policy includes the following provisions; namely:-

7.1.1. The Electricity Act, 2003 (Central Act 36 of 2003) (the "Act") mandates that the Electricity Regulatory Commissions and the Governments shall take necessary steps to promote Renewable Energy. The preamble to the Electricity Act, 2003 recognizes the significance and importance of promotion of efficient and environmentally benign policies.

7.1.2. Section 61(h) of the Act provides that while specifying the terms and conditions of determination of tariff, State Regulatory Commissions shall be guided, inter-alia, by the promotion of cogeneration and generation of electricity from renewable sources of energy.

7.1.3. The National Electricity Policy (NEP) and Tariff Policy notified by the Central Government under the provisions of section 3(1) of the Act have also addressed the issues of untapped potential of energy from non-conventional and renewable energy sources.

7.1.4. Section 86(1)(e) of the Act specifies that one of the functions of the State Electricity Regulatory Commissions is to promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and to promote sale of

such power to any person. The Regulatory Commission is also required to stipulate that a certain percentage of the total consumption of electricity in the area of a distribution licensee shall be obtained from renewable energy source (Renewable Energy Purchase Obligation, or RPO).

7.1.5. Section 86(1)(e) of the Act mandates State Electricity Regulatory Commissions (SERCs) to notify RPOs, ensure RPO compliance and invoke penal provisions against defaulting entities.

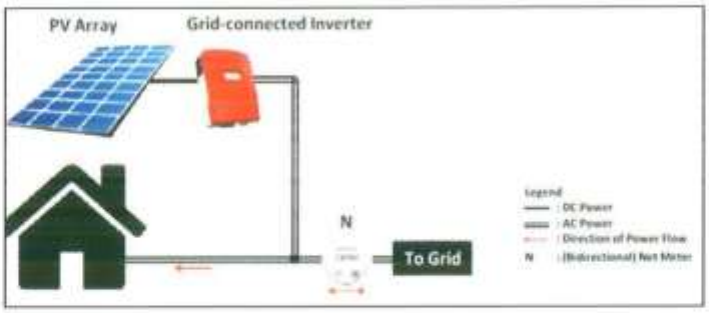
8.0 Solar Energy grid feed-in

8.1. Solar energy grid feed-in mechanisms will include, but may not be limited to the following:

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 captive consumption under open access. 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 other applicable charges and conditions for various voltage levels as may be determined by TNERC. However, no wheeling facility is permitted at LT voltage level. Wheeling of Energy will be permitted only, during the generation of electricity and will be adjusted slot/ block to slot/ block and excess energy fed into the grid shall be treated as infirm power under sale to Discom category only. The excess energy will be paid at the rate as determined by TNERC from time to time.

8.1.2. Solar energy net feed-in (consumer category):



The solar energy is used for self-consumption with the surplus, if any, being exported to the grid. A bidirectional service connection energy meter will be installed by the distribution licensee to record the imported and exported energy. The imported energy is debited at the applicable consumer tariff while the exported energy is credited on the basis of a consumer solar energy tariff to be determined by TNERC. The consumer pays the difference between the debit and credit amounts. If the cumulative credit amount exceeds the debit amount during any billing cycle, the net credit is carried over to the next billing cycle. At the end of a 12-month settlement period as may be determined by TNERC, the net credit, if any, the consumer has the option to receive payment of the net credit balance. Solar energy net feed-in will be available to all low tension (LT) electricity consumer categories subject to TNERC regulations as may be determined from time to time.

9.0 Solar Energy feed-in tariffs

9.1. Solar energy gross feed-in at utility sale tariff will be based on competitive bidding subject to approval of TNERC and net feed-in tariffs will be determined by TNERC.

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.

10.0 Solar Energy implementation models

10.1. Solar energy systems may be implemented with the following models:

10.1.1. Upfront ownership: The purchaser of the solar system pays the supplier for the capital cost and takes ownership of the solar system.

10.1.2. Deferred ownership: The solar system is installed and operated by the supplier. The purchaser makes system performance-based payments to the supplier or leases the system from the supplier. System ownership is transferred to the purchaser on a mutually agreed date or is triggered by a mutually agreed event.

11.0 Solar energy mandates and programs

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.

11.2. The Government will introduce a policy to promote electric vehicles, and solar energy powered charging facilities.

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.

11.4. Corporations, municipalities and local urban bodies will be encouraged to use solar PV energy based street lights and water supply installations.

11.5. Solar thermal for the residential, institutional and commercial segments will be promoted.

11.6. Solar thermal applications for industrial use, including concentrated solar power (CSP) will be promoted.

12.0 Incentives

12.1. Consumer category solar energy will be exempted from electricity tax for two years from the date of this policy.

12.2. Suitable incentive schemes will be designed to promote solar energy generation in the agricultural sector. This may include incentives to farmers.

12.3. Solar energy injected into the grid of the distribution licensee by solar energy producers who have no renewable energy purchase obligations (non-obligated entities), including the solar energy export by non-obligated electricity consumers, can be claimed by the distribution licensee towards fulfilment of their Renewable Energy Purchase Obligations (RPO).

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.

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.

13.0 Grid Connectivity and Energy Evacuation

13.1. For consumer category solar PV systems, the system capacity at the service connection point shall not exceed 100% of the sanctioned load of the service connection.

13.2. The maximum cumulative solar PV capacity at distribution transformer level may be reviewed and determined by TNERC from time to time to enable optimal solar energy penetration.

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.

13.4. For consumer category solar systems, the distribution licensee will install the required energy meters and commission the solar metering facility within three weeks from the date of application by the consumer.

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. Distribution licensees will make available online the billing data for each consumer, along with a sample bill explaining the various billing components above.

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.

13.7. Distribution licensees shall update the status of the cumulative solar capacity connected at each distribution transformer on their website.

13.8. For all grid connected solar energy systems the distribution licensee will make use of the existing distribution network to the maximum extent possible so that utilisation of such infrastructure is optimised.

13.9. For high tension consumers, open access regulations of TNERC will apply, subject to the conditions imposed by SLDC. However wheeling for less than 1 MW shall not be allowed.

13.10. 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.

14.0 Awareness Creation, Education and Capacity Building

14.1. All public and private schools are encouraged to introduce a curriculum on energy and environment into their syllabus.

14.2. State Government Departments and State Public Sector Undertakings (PSUs) will be encouraged to participate in annual solar energy and energy conservation training programs organized by TEDA and other agencies.

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.

15.0 Solar Energy Research

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).

15.2. Tamil Nadu will closely collaborate with multi-lateral agencies to advance solar energy research and deployment in the State.

15.3. Solar or other renewable energy projects installed for study, research or pilot purposes may be given special priorities and exemptions by the TNERC and the distribution licensee on the recommendation of the Government.

16.0 Monitoring and Evaluation

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.

17.0 Role of the State Agencies

17.1. TEDA shall take the lead in launching this Solar Energy Policy with the use of media, public relations, billboards, advertisements, websites, and more. It will also communicate amendments, if any, to this policy to major stake holders via its website and/or other means.

17.2. TEDA will lead a comprehensive information and awareness creation effort in order to promote solar energy in the State.

17.3. TEDA / TANGEDCO will network and coordinate with national and international institutions that are leaders in the solar energy sector in order to promote and enhance collaboration and joint R&D projects.

17.4. TANGEDCO will design and facilitate the development of innovative solar energy projects in various modes including public, private, public-private partnership and build-own-operate-transfer (BOOT) modes. TEDA will advise TANGEDCO on these projects.

TANGEDCO will also initiate Energy Storage Projects / Solar Parks / Floating Solar Parks either on its own or as Joint Venture(JV) initiatives in collaboration with Solar Energy Corporation of India (SECI).

17.5. Statutory clearances that may be required for the development and commissioning of solar energy projects will be facilitated by TEDA with the concerned Government departments and agencies through a single window and time-bound process.

17.6. TEDA will facilitate and expedite access to various concessions and incentives provided by the Ministry of New And Renewable Energy, Government of India including capital cost subsidies, where applicable.

17.7. TEDA will provide project development and technical advice and assistance for the implementation of solar energy projects.

17.8. TEDA will provide advisory and consulting services to corporations, municipalities and local urban bodies on financing instruments for solar energy projects.

17.9. TEDA will undertake periodical review of progress of solar energy projects under development and facilitate speedy clearances and approvals if necessary.

17.10. The Chief Electrical Inspector to Government shall notify and coordinate with the Directorate of Town and Country Planning to obtain necessary amendments in the building bylaws, as outlined in this policy to facilitate extensive adoption of solar plants.

17.11. TEDA shall notify and coordinate with State Government Departments and Public Sector Undertakings to facilitate extensive adaptation of solar energy plants as outlined in this policy.

18.0 Operative Period

This policy shall come into effect on **04.02.2019** and shall remain valid until superseded or modified by another policy. The Government will review the implementation of this policy annually to evaluate the actual results against policy objectives.