Department of Power

Draft Kerala Power Policy, 2025

Draft for Discussion.

NOT FOR EXTERNAL CIRCULATION

Draft compiled by:

With inputs from KSEBL, EMC, Electrical Inspectorate and other departments.

Table of Contents

Chapter 1. Introduction

1.1 Vision and Objectives

1.1.1 This Policy aims to plan for the growth of Kerala's power system in the coming years to aid in the development of the state, while duly considering the aspects of energy sustainability, security, reliability, accessibility and affordability.

1.1.2 The policy adopts a vision "Powering Kerala Sustainably". This vision is grounded in the pursuit of sustainability, resilience, and inclusivity in energy production, distribution, and consumption.

1.1.3 This Policy also seeks to address the challenges relating to land availability, financial constraints in the development of the power system.

1.1.4 The mission of Kerala's power policy is to be the development driver of the 'Nava Keralam', providing an efficient, reliable, and cost-effective energy ecosystem. This mission captures our dedication to ensuring that every citizen and sector in Kerala benefits from an energy system that supports economic growth, environmental sustainability, and societal well-being.

1.1.5 The Policy has identified the following key objectives:

(a) Support transition of Kerala's energy sector into a model of environmental stewardship, technological innovation, and social equity, ensuring that every citizen benefits from reliable and sustainable power.

(b) To ensure the availability of affordable and adequate power, unconstrained by temporary disruptions in the generation and transmission value chain.

(c) To achieve a cumulative target of 5000 MW of renewable energy (RE) power generation capacity, by 2030 through projects inside the state and/or through PPAs for purchase from outside the state.

(d) To provide ease of convenience for electricity consumers to adopt distributed renewable energy applications.

(e) To clarify on potential business models and projects/schemes which will be promoted by Govt. of Kerala.

1.2 Background and context

1.2.1 The evolution of Kerala's power sector is intertwined with its socio-economic development, reflecting the broader dynamics of the energy sector in India and across the globe. Over the last two decades, Kerala, like much of India, has undergone significant transformations in its approach to electricity generation, distribution, and consumption. These changes have been driven by both internal dynamics and shifts in energy policies.

1.2.2 Despite efforts at multiple levels, in the recent past, the state has faced persistent challenges related to energy security, driven by an increasing dependence on external power sources and rising demand.

1.2.3 According to KSEBL's estimates, even under the BAU (Business as Usual) scenario, the peak hour demand in FY 2030-31 is projected to reach 7000 MW, with an anticipated shortage of about 2600 MW during evening peak hours. The shortage in energy content is about 15,000 MU, which also is very significant.

1.2.4 Kerala is committed to become a Carbon Neutral State by 2050 and the State Government had announced that it will meet the entire electricity requirement from renewable sources by 2040.

1.2.5 The Department of Environment and Climate Change, Government of Kerala has proposed sectoral policy interventions to transition towards a low-carbon economy and achieve carbon neutrality by 2050. The draft report "Carbon Neutral Kerala by 2050" projects substantial increases in electricity demand. Under a Business-as-Usual (BAU) scenario, the electricity requirement will reach 38,000 MU by 2030, 52,000 MU by 2040, and 71,000 MU by 2050. In a Carbon Neutral scenario, the energy requirement is expected to be approximately 70% higher. By 2030, India's overall electricity demand could be roughly double today's level, and by 2050, it could be roughly four times today's level. By 2050,

electricity demand is expected to reach approximately 120 TWh (120,000 MU) due to factors such as increased fleet electricity, green hydrogen production, and cooling demand.

1.2.6 Achieving net-zero emission targets will be driven by renewable energy, with a focus on floating solar, green hydrogen, battery energy storage systems, expanded transmission capacity, and pumped hydro storage.

1.3 Title and Operative period

1.3.1 This policy shall be known as “Kerala Power Policy 2025”

1.3.2 This policy shall come into operation from date of issuance and shall remain in operation till end of Financial Year 2030, or till the Government notifies the new policy whichever is earlier.

1.3.3 Provided further that the Government of Kerala assures that **benefits under this Policy will not be withdrawn before five years of issuance of this Policy, unless a timeline is already mentioned herein**.

1.3.4 The State Government may make necessary amendments or review this Policy.

1.4 Definitions and Abbreviations

1.4.1 In this Policy, unless the context otherwise requires:

a. "Act" means Electricity Act, 2003, including amendments thereof.

b. “CAPEX Mode” means the mode under which the entire investment for setting up the Solar Power Plant shall be made by the electricity consumer.

c. “CEA” means Central Electricity Authority;

d. "DISCOM" means KSEBL and other (deemed or otherwise) distribution licensees in Kerala.

e. “Financial Year" means a period commencing on 1st April of a calendar year and ending on 31st March of the subsequent calendar year;

f. “Government” and “State” mean Government of Kerala and the State of Kerala respectively;

g. “KSERC”/"Commission" means Kerala State Electricity Regulatory Commission;

h. “KWA” means Kerala Water Authority

i. “KSEBL” means Kerala State Electricity Board Limited

j. "Licensee" includes a person deemed to be a licensee under Section 14 of the Electricity Act, 2003;

k. "MNRE" means Ministry of New and Renewable Energy of Government of India, responsible to develop and deploy new and renewable energy for supplementary energy requirement of the country.

l. “Net Metering” means the methodology under which electricity generated by the Rooftop/Ground mounted Solar PV System setup in the premises of a consumer under the CAPEX/RESCO mode is primarily for self-consumption, and the surplus generated electricity, if any, is delivered to the distribution licensee which will be off-set against the electricity supplied by the distribution licensee to the consumer during the billing cycle;

m. “Nodal Agency” means ANERT

n. “Person” means an individual or a firm/ company registered under the Companies Act 1956/2013;

o. "PPA" means Power Purchase Agreement;

p. “Project Capacity” shall mean the maximum Alternating Current (AC) capacity at the delivery point in MW.

q. “RESCO Mode” means the methodology in which entire investment is to be incurred by a company/individual other than the consumer for setting up of the solar power project in the consumer premises and the consumer pays for the electricity generated from such solar power project at mutually agreed tariff to such investor company/individual;

r. “Solar Plant/Solar Power Plant” means a power plant or system utilizing solar energy through solar photo-voltaic or concentrated solar thermal devices for generating electricity.

1.4.2 The terms not defined above will have their usual meanings.

Chapter 2. Policy Target

2.1 Overall targets for 2030

2.1.1 The Policy aims to achieve the following targets (cumulative):

S No.	Particulars	Target for 2030
1	Utility Scale Solar Projects/Parks	1000 MW
2	Decentralised Solar Projects	2500 MW
3	Non-Solar Renewable Energy Capacity (Projects / PPAs)	1500 MW
4	Transmission system's capability to cater to peak load	10,000 MW

2.1.2 The detailed Policy provisions and relevant incentive and institutional framework is detailed out in further sections of this document.

Chapter 3. Renewable Energy

3.1 Distributed Renewable Energy Applications

General provisions

3.1.1 All business models shall be allowed for distributed/rooftop Solar PV projects, including **CAPEX, OPEX. Lease, Utility Owned Models, Roof rental model and Build-Own-Operate-Transfer (BOOT) models**.

3.1.2 Consumers are free to adopt "**Behind the Meter**" model for distributed solar PV projects, subject to relevant approval by the Electrical Inspectorate, and compliance of relevant specifications of the Electrical Inspectorate and CEA. Such projects shall not cause any injection of power outside consumer premises.

3.1.3 For distributed solar projects up to 1 MW within the premises of a customer, all benefits available to rooftop solar systems will also be available for ground mounted systems.

3.1.4 **Net metering** provision shall continue to be available for all consumers, subject to project capacity **up to 1 MW** till the RPO obligations are achieved. Restrictions on account of contract demand, transformer capacity etc. shall be as per prevailing KSERC Regulations.

3.1.5 Within six months of issue of this policy, Government will coordinate with KSERC to review the regulations related to distributed solar, to explore possibilities of relaxing various limitations, including potentially allowing distributed solar PV projects up to **100% of distribution transformer capacity**.

3.1.6 Interconnection approval and solar net metering installation and commissioning shall be followed as per the guidelines of PM Surya Ghar Mufti Bijili Yojana for residential consumers. For other consumer categories, KSERC may come with revised "Standards of Performance" Regulations of DISCOMs within six months of issuance of this policy.

3.1.7 The Nodal Agency shall empanel at least one "**O&M Channel Partner**" for distributed/rooftop solar PV plants per district. Such O&M Channel Partners shall provide O&M services to rooftop solar PV plants, irrespective of installer/make of solar plant, after charging appropriate service fees, spare replacement charges and maintenance charges. Nodal Agency will maintain a list of empaneled O&M Channel Partners in their website, for which adequate registration and performance guarantee can be taken. In case of wide complaints on quality or availability of service, such O&M Channel Partners shall be removed from the empaneled list, and their performance guarantee will be withdrawn.

3.1.8 **Inspection and approval by Electrical Inspectorate will be exempted for RTS system size less than 500 kWp**. Instead, sub-division level Assistant Executive Engineers shall be authorised to undertake system inspection and safety checks, as per applicable practices, after submission of the work completion report and undertake system synchronization.

Residential category of consumers

3.1.9 Government shall take up with KSERC to develop the **regulatory framework for virtual net-metering and peer-to-peer trading,** for

residential consumers, within six months of issuance of this policy. The framework shall strive to allow residential consumers who do not have dedicated roof space to still invest in solar power plants and get appropriate renewable energy setoff in their electricity bills. For example, occupants of a residential association shall be allowed to jointly set up a solar power plant outside their premise, and get renewable energy setoff in their bills, in proportion to their investment in the solar plant.

3.1.10 Subsidy provisions will be as per MNRE's directions.

Consumers other than Residential category

3.1.11 Government shall take up with KSERC to develop the regulatory **framework for group net-metering**, for consumers other than residential category, within six months of issuance of this policy. The framework shall strive to allow consumers to set-off renewable energy generated in one location at multiple locations within the same DISCOM area.

Aggregated and DISCOM/ANERT owned rooftop solar projects

3.1.12 Aggregation of rooftops for setting up solar power projects and setting up of solar projects owned by DISCOM or ANERT on consumer premises shall be encouraged.

3.1.13 DISCOM or ANERT may invite aggregated rooftop solarization tenders, considering aggregation by geography, building ownership, building type etc., after discussions with relevant building owners.

3.1.14 In case of setting up of solar projects owned by DISCOM or ANERT on consumer premises, consumers shall be provided certain amount of free power, discounted power, revenue share or roof rental.

Non-Solar Distributed RE applications

3.1.15 Connectivity approval shall be granted for non-solar distributed RE applications such as micro-wind turbines, in the same manner as that of distributed solar.

Distributed RE projects above 1 MW and less than 10 MW

3.1.16 Considering the recent Distributed RE obligation for DISCOMs introduced by the Ministry of Power under Energy Conservation Act,

DRE projects up to 10 MW set up to meet the DRE obligation will be promoted.

3.1.17 Within six months from issuance of this policy, Government will coordinate with KSERC to come up with a policy for gross metering based tariff for Distributed RE projects with capacity of 1 to 10 MW. Tariff mechanism shall duly consider the type of energy source, scale of project, and non-commercial benefits provided by such projects such as allowing dual use of land in the case of agri-PV systems, reduction of evaporation in the case of floating solar and canal top solar projects etc.

3.2 Utility Scale Renewable Energy Projects

General provisions

3.2.1 The following type of utility scale projects and implementation measures will be promoted by the state:

- Solar Power
    - Solar PV Power Plants and Solar Parks
    - Floating Solar Power Plants
    - Agri-PV Systems
    - Canal Top, Urban PV, Road PV, Rail PV and Vertical PV power plants
    - Energy Storage for solar
- Wind Power (including repowering)
- Small Hydro Power Plants
- Biomass and Bagasse based Power Plants
- Solar-Wind Hybrid Power Plants with or without storage

Implementing Agencies

3.2.2 The projects may be implemented by KSEB, ANERT, Government Departments owning the land/water body or Private Sector, subject to the following deviations:

(a) In case of floating solar and canal top power plants, for reservoirs owned by KSEBL/ KWA, they themselves shall be

implementing agency, while for other reservoirs, ANERT shall be the implementing agency.

(b) Agri-PV schemes under Central Government schemes shall be implemented by the nodal agencies as identified by Central Government for the same.

Land Availability

3.2.3 For projects implemented by KSEB and ANERT, Govt. land may be made available on revenue sharing on mutually agreed basis, facilitated by Department of Land Revenue.

3.2.4 For RE projects being set up on privately owned lands, lease-based model shall be promoted, wherein **lease rental shall be on mutually agreed basis** .

Power Evacuation

3.2.5 The Developer shall be responsible for building evacuation system to the nearest existing or upcoming STU or DISCOM substation based on connectivity approval.

3.2.6 KSEBL may develop evacuation infrastructure for RE Projects under this Policy, on a Deposit Work basis, at the discretion of KSEBL.

Business Model

3.2.7 The projects may be developed under CAPEX, OPEX, Lease, Utility Owned Models, and Build-Own-Operate-Transfer (BOOT) models.

Feed-in and Ceiling Tariffs

3.2.8 For new and emerging technologies such as Agri-PV projects, floating solar projects etc., KSERC may consider determination of Feed-in Tariffs or Ceiling Tariffs, to promote quicker adoption and implementation of such projects.

Power Purchase Agreement

3.2.9 KSEBL and other DISCOMs in the state shall facilitate signing of PPAs with RE projects developed in the state, subject to policy and commercial due diligence. When undertaking commercial due diligence, KSEBL and other DISCOMs shall also consider additional commercial benefit accruing to the state own account of project being set up inside

the state (tax, employment generation etc.), and synergy of project generation profile with the demand profile of the state.

Additional provisions for wind power

3.2.10 ANERT shall undertake a detailed revision of wind power atlas for the state of Kerala, duly seeking the services of entities such as National Institute of Wind Energy. Budgetary provisions from Government of Kerala may be sought for setting up of multiple wind masts in the areas with good wind power potential.

3.2.11 ANERT, under the Power Department, will act as the Nodal Agency, issuing technical approvals through a single window portal (K-SWIFT). Developers must obtain technical approval from ANERT, and all relevant departments and agencies will register in the portal.

3.2.12 Technical approval for wind machines should be granted only with NIWE certification. Suggestions from NIWE can be sought regarding site inspection protocols and the distance between Wind Energy Generators (WEGs).

3.2.13 Developers must construct and maintain tie lines/evacuation lines from the Wind Power Project to the nearest pooling substation. They must also develop the pooling substation and transmission line to the KSEBL substation/interconnection point in consultation with KSEBL/STU.

3.2.14 Technical approval is transferable to investors who meet specific conditions and pay a non-refundable transfer fee of Rs. 100,000 per MW capacity to ANERT. Units below 1 MW are counted as 1 MW for this purpose.

3.2.15 Detailed guidelines will follow the specific policies/guidelines prepared by the Government of Kerala for wind power development.

Additional provisions for marine RE systems

3.2.16 ANERT shall explore setting up of pilot projects for marine RE systems such as tidal power projects and wave power projects.

3.3 Floating Solar Power Projects

Models for project development and developer selection

3.3.1 Applications for floating solar projects shall be processed in three modes:

i. Applications based on Notice Inviting Tender (NIT)/ Expression of Interest (EOI) issued by Government Agencies

In this mode, the site is identified by a Government agency, the state level committee would clear the site for inviting proposals and the site will be notified for inviting proposals for setting up a project. This mode is likely mainly for projects proposed in dams/ reservoirs set up by various government agencies.

For KSEBL dams, the bids shall be floated by KSEBL. For other sites, it shall be notified by ANERT or an SPV under ANERT.

Most of these cases would be based on a competitive bidding to get the best benefit to the public and would be accepted based on a thorough cost-benefit analysis. The agency owning the reservoir/ dam/ site shall be eligible for a lease-rent from the developer, fixed by the HLC.

ii. Applications directly initiated by Developers

In this mode, the application to set up a project shall be given by the developer through an online single window portal. Lease/ revenue sharing arrangements between land owner and project developer shall be finalised by the developer before submitting the application.

All the departments and institutions involved in granting clearances shall give their clearances or denials through the portal only.

iii. Applications proposed by Developer in Land Bank sites

District Level Committee shall create land banks and publish the details. Based on such lands, interested private developers can propose projects through the single window portal.

3.3.2 Any developer with experience in electrical energy generation projects can apply for setting up floating solar power plants. They should have set up a power plant of at least one-third the capacity of the project capacity proposed.

Institutional provisions

3.3.3 Three committees are/shall be formed for pivoting the implementation of Floating Solar in the State. The committees shall be High level committee, District level committee and Empowered committee.

i. High-level committee headed by the Chief Secretary was constituted in the State vide G.O. (Rt) No. 212/2022/POWER dated 9.12.2022 for coordinating the activities for the development of floating solar power plants.

ii. District Level Committee (DLC) chaired by the respective District Collectors with the District-level Officers or nominees of the Departments (Agriculture, Local Self Government, Revenue, Fisheries, Forests, Water Resources/Irrigation, Water Transport/ Maritime Board).

iii. Empowered committee chaired by the Secretary to Government, Power Department shall also be constituted with the following members: Secretary, Power Department (Chairman), Chairman & Managing Director, KSEBL (Member), Chief Electrical Inspector to Government (Member), Director (Transmission & System Operations), KSEBL (Member), Director (Distribution), KSEBL (Member) and CEO, ANERT (Convenor).

3.3.4 ANERT shall be coordinating agency for the floating solar projects.

3.3.5 For plants in reservoirs of the Kerala Water Resources Department/KWA, the Department/KWA will have the first right to consume the power generated from these plants.

3.3.6 KSEBL shall have the right of first refusal for power from the plants, as envisaged in the solar policy, except for those under the Kerala Water Resources Department/KWA, in which the Department/KWA will have the right of first refusal, followed by KSEBL.

3.3.7 Further details will be as per the specific guidelines for Floating Solar adopted by the Government of Kerala.

3.4 Strategy for greening of various applications/consumer categories

Solarization of Government and Public Sector Units

3.4.1 Any State Government Department, or State Public Sector Unit (PSU) can seek the assistance of ANERT to undertake solar power projects, either to meet their own consumption, or for sale to KSEBL or third parties. The solar power projects may be distributed/rooftop or utility scale projects.

3.4.2 Based on preliminary proposal of Government Department or PSU indicating available roof, ground, water bodies or other areas to be covered, **ANERT shall undertake an initial feasibility study**, free of cost.

3.4.3 Based on the results of initial feasibility study, the Government Department or PSU can further request the services of ANERT for detailed feasibility study and project structuring and pay ANERT **as per the prevailing government norms at that time.**

3.4.4 The Government Department or PSU can request ANERT to assist in **bid process support and monitoring of the project construction** (till commissioning) under CAPEX, OPEX or BOOT models. Such services shall be availed through ANERT, upon **paying as per the prevailing government norms at that time.**

3.4.5 The Government Department or PSU can seek services of ANERT to provide the **RE projects under a multi-year BOOT model, with annuity payments**. ANERT may choose to undertake such projects, subject to its ability to support such projects, and subject to approval from Finance Department to make budgetary provisions for relevant payments directly to ANERT, to be paid out in first quarter of each financial year.

3.4.6 The Government Departments and PSUs under Government of Kerala shall solarise to their electricity requirement up to the possible saturation limits, by 2030.

Solarization of E-Mobility

3.4.7 Projects for solarization of EV Public Charging Stations (PCS) in the form of canopy top solar power plants, and offsite solar PV power plants shall be promoted. Such projects may be taken up by KSEBL, ANERT, Energy Management Center, a JV of any of the previous entities with a CPSU, or by the operator of PCS or by private sector (OPEX/RESCO).

Agricultural Solarisation

3.4.8 Apart from the ongoing central Government schemes on agricultural solarisation, use of dual use projects, facilitating both agriculture and solar power generation from the same land, through use of technologies such as elevated PV applications shall be encouraged.

Solar based lighting and heating systems

3.4.9 Local Self Government (LSG) departments including Municipal Corporations shall be encouraged to shift to solar powered street lighting for new street lighting installations / replacements.

3.4.10 Use of solar based water heating systems shall be promoted, especially in Government owned institutions.

Corporate adoption of Renewable Energy

3.4.11 Within six months of issuance of this Policy, KSERC shall come up with **Green Open Access Regulations**, in line with the rules notified for the same by Government of India.

Solar Power Projects with Storage Systems

3.4.12 The State will promote the development of decentralized solar power projects with a capacity of 1 MW and above with storage systems in form of battery storage, pumped hydro storage or any other grid interactive storage system. These projects should include integrated storage systems, covering at least 10% of the capacity or provide peak power for two hours. Additionally, the government shall come up with incentives for battery storage in small-scale solar projects.

3.4.13 DISCOMs shall be allowed to procure power from such projects, even if they are costly compared to projects without storage, after undertaking appropriate regulatory approvals.

3.5 Incentives & Facilities available for RE Projects

Commercial/Financial Incentives

3.5.1 For RE Projects set up under this Policy and commissioned within the Policy Period, the following incentives and exemptions are available:

(a) **100%** reimbursement on stamp duty on purchase of private land for the project shall be available for developers. The Revenue Department shall issue necessary notifications in this regard.

(b) Exemption from ceiling on land holdings as per the Land Reforms Act its amendments shall be applicable for RE projects. The Revenue Department shall issue necessary notifications in this regard.

3.5.2 Further incentives such as discounts in transmission and wheeling charges and subsidies to promote the development of solar power in the state shall be considered

3.5.3 Various incentives allowed by Ministry of New and Renewable Energy (MNRE) for RE projects shall be allowed to the RE project developers. Incentives eligible under the Industrial Promotion Policy of the state shall also be made available wherever applicable.

Other Incentives and facilities

3.5.4 Energy Banking will be available for RE projects set up within the state, for sale of energy within the state, as per prevailing regulations of KSERC. **Energy Banking framework for projects, at the time of commissioning, will thereafter be assured for rest of their project life**. Any subsequent changes to banking framework by KSERC, if any, shall be made applicable only to projects getting commissioned thereafter.

3.5.5 All the Clean Energy Projects (except PSP, Mini & Small Hydro projects) shall be exempted from obtaining any NOC/Consent for establishment under pollution control laws from Kerala State Pollution Control Board. In case of PSP, Mini & Small Hydro projects, the SNA shall facilitate in faster issuance of Environmental Clearances (EC) & Forest Clearances (FC).

3.5.6 ANERT will coordinate with various Government departments and state PSUs to identify available land for potential setting up of RE projects

under a revenue sharing based lease rental model, and explore the possibility of developing a land bank using such details.

3.5.7 Clean Energy Projects may be treated as industrial projects for which relaxation of ceiling under Land Reform Act is already available.

3.5.8 Deemed Non-Agricultural status will be accorded for the land utilized for development of any Clean Energy Projects. However, an application has to be submitted to Revenue Department for one time land conversion. Any applicable fee for such land conversion shall be exempted for all types of Clean Energy Projects eligible under the policy.

3.6 Resource Mobilization for RE Projects

3.6.1 ANERT and the State Government will collaborate with International Development Agencies and Funding Institutions including Green Climate Funds, to source low-cost finances.

3.6.2 ANERT and KSEBL will utilize the Government of India's funding schemes and programs to the maximum, to achieve the targets of this policy.

3.7 Mandatory use of Distributed RE

3.7.1 Building bylaws shall be modified to promote mandatory use of distributed RE and this shall be put in place within 6 months of issue of this policy, in the case of new buildings, and within 12 months of issue of this policy, in the case of existing buildings:

(a) All Commercial consumers with more than 100 square meter area shall compulsorily set up rooftop solar systems of at least 3 kW.

(b) All Commercial consumers with more than 400 square meter area shall compulsorily set up rooftop solar systems of at least 5 kW.

(c) All Domestic consumers with more than 500 units of monthly electricity consumption and having roof area of more than 100 square meter shall compulsorily set up rooftop solar systems of at least 1 kW.

3.8 Building Bylaws

3.8.1 Power Department will coordinate with LSG Department to modify building bylaws for new buildings to promote mandatory use of distributed RE as per 3.7.; and introduce incentives for the same.

3.8.2 Building bylaws for urban areas may be modified to incorporate / promote energy efficiency and provision for charging of electric vehicles.

3.8.3 The LSG Department may also propose to provide a reduction in property tax for buildings complying with these provisions, after discussion with the Revenue and Finance Departments.

3.9 ANERT as Nodal Agency for Renewable Energy

3.9.1 ANERT will be the Nodal Agency for implementation of Renewable Energy related provisions of this policy. As Nodal Agency, ANERT will facilitate and assist the project developers and undertake the following activities to achieve the objectives of the policy.

(a) Registration of RE Projects (above 1 MW), after receiving Registration Charges as specified by Govt. of Kerala. The Registration Charges shall be **INR 20,000 per MW or part thereof**, unless revised upwards by Energy Department, Government of Kerala.

(b) Issue registration certificate which will facilitate the developer/firms to coordinate with line departments like Discom, Transmission, Revenue Department, Stamp, Electrical Safety, Pollution Control Board, Irrigation Department, Generation Companies, Fire Protection Department etc.

(c) Carry out tasks related to bidding process for RE Power Projects in the state. DISCOMs can also undertake bidding process for projects for their requirements.

(d) Organize training programs for skill development in the field of renewable energy.

Chapter 4. Green Hydrogen and Green Ammonia

Vision

4.1.1 Kerala aspires to be a leading green hydrogen/ammonia producer and exporter and a 100 percent green hydrogen/ammonia consuming state by 2040.

4.1.2 The Government does not plan to impose any mandatory provisions on the use of green hydrogen initially. But gradually, the Government aims to make the use of green hydrogen obligatory, especially in industries where there are limited options or no other option to decrease carbon emission, and where already hydrogen/ ammonia are already used in their industrial processes.

Institutional provisions

4.1.3 The High Level Committee (HLC) which is set up for carrying out all the activities and monitoring and evaluation of floating solar projects scheme with the Chief Secretary as the Chairman, ACS (Power Department) as Convenor and Secretaries of the participant departments (Agriculture, Environment, Finance, Fisheries, Forests, Irrigation/Water Resources, Local Self Government, Revenue) and CEO (ANERT) as members would also serve as High Level Committee for Green Hydrogen.

4.1.4 ANERT has already been nominated as the nodal agency for development of green hydrogen in the state (G.O. (Rt) No. 97/2023/Power dated 31.5.2023)

4.1.5 An amount of ₹15,000 per megawatt of proposed electrolyser capacity or ₹1,00,000 per KTPA of production capacity whichever is higher, or as decided by the High Level Committee from time to time, shall be paid to the nodal agency for the registration and development of green hydrogen projects.

4.1.6 The nodal agency shall strive to aggregate the demand for green hydrogen in the state.

4.1.7 The Kerala State Industrial Development Corporation (KSIDC) -may explore CAPEX subsidy for green hydrogen systems up to 100 MW. KSIDC may focus on developing green energy clusters, with water and electricity arrangement provided by KSIDC.

Benefits and incentives for Green Hydrogen and Green Ammonia

4.1.8 Green Hydrogen/Green Ammonia plants will be granted Open Access for sourcing of Renewable Energy within 15 days of receipt of application complete in all respects.

4.1.9 Renewable Energy can be sourced from a co-located Renewable Energy plant, or sourced from a remotely located Renewable Energy plants, whether set up by the same developer, or a third party through Open Access or procured renewable energy from the Power Exchange.

4.1.10 The incentives mentioned below shall apply to renewable electricity generation provided for producing green hydrogen/ammonia. The exemptions provided under Kerala Solar Policy and Kerala Small Hydro Policy shall apply to green hydrogen/ammonia projects as well. The initiatives mentioned below shall apply in addition to the ones provided for all RE sources as per RE/Power/Solar Policy.

(1) 50 percent exemption from wheeling charges for 10 years

(2) 50 percent exemption from intra-state transmission charges for 10 years

(3) 100 percent exemption from cross-subsidy surcharge for 10 years

(4) 100 percent exemption from electricity duty for 10 years

4.1.11 Banking shall be permitted for a period of 30 days for Renewable Energy used for making Green Hydrogen/Green Ammonia.

4.1.12 The eligibility, applicability, and charges, quantum and settlement for RE banking shall be as per the applicable regulations of KSERC.

4.1.13 Connectivity, at the generation end and the Green Hydrogen/Green Ammonia manufacturing end, to the Transmission and Distribution network shall be granted on priority.

4.1.14 Detailed guidelines will be as per the specific guidelines/policies prepared by the Government of Kerala for Green Hydrogen.

Chapter 5. Electric Mobility and related aspects

5.1 Vehicle to Grid

5.1.1 ANERT shall initiate pilot projects on "Vehicle to Grid" concepts, and use the results of such pilot projects to recommend a tariff mechanism for Vehicle to Grid to KSERC.

5.2 Consumer's Right to Charge

5.2.1 All new residential and commercial multi-storeyed apartments/commercial complexes with floors over five, which obtain their completion certificate after six months of issue of this Policy shall ensure that:

(a) there are at least three four-wheeler EV charging terminals and five two-wheeler EV charging terminals with adequate parking space;

(b) there are at least five EV charging terminals with adequate parking space for every fifty four-wheeler parking slots;

(c) there are at least five EV charging terminals with adequate parking space for every fifty two-wheeler parking slots;

5.2.2 The owner / operator of the residential/commercial multistoried apartment / commercial complex shall be free to seek third parties for setting up the EV charging terminals. If such third party seeks a separate electricity connection under EV tariff, DISCOM shall grant the same subject to technical feasibility.

5.3 Promotion of E-Mobility

5.3.1 The State of Kerala is committed to facilitating seamless energy transition accompanying the increased penetration of Electric Vehicles (EVs). A cornerstone of this initiative is the development of regulatory mechanisms designed to optimize EV charging practices. By encouraging the shift of EV charging from peak to off-peak hours, we aim to maintain grid stability and efficiency. This will also ensure that integration of EVs into our energy ecosystem is both sustainable and beneficial.

5.3.2 To accelerate the sustainable development, the State shall introduce Time of Day (ToD) tariffs specifically tailored for EV owners. A key feature of this initiative will be the provision of concessional tariffs for

EV charging during solar hours, leveraging the abundant solar resources. This policy not only incentivizes EV owners but also aligns with the broader sustainability goals of the State by promoting the use of clean energy.

5.3.3 Pilot projects may be taken up. to assess the feasibility of Vehicle to Grid (V2G) technology, which enables bidirectional energy transfer between electric vehicles (EVs) and the power grid, and on induction charging for EVs.

5.3.4 Efforts shall be made for the implementation of Unified Energy Interface for EV charging stations.

Chapter 6. Electricity generation and procurement

6.1 Electricity Generation

6.1.1 The utilization of hydel projects during peak hours, complementing infirm distributed RE generation, and disaster response capabilities of storage dams highlight Kerala's comprehensive approach to energy management. With the Kerala Grid becoming increasingly renewable energy-rich, there is a pressing need to expand hydro capacity and leverage resources more effectively during peak demand periods. Operating pattern of Hydro projects will be shifted to meet requirements of non-solar hours and to address infirmness of non-conventional RE.

6.1.2 Considering the future retirement of older projects, enhancing the capacity of major schemes is critical, with specific focus on projects like the Idukki Golden Jubilee Extension, Sabarigiri Extension Scheme and others. Developing storage and tail race hydro power plants shall be a priority.

6.1.3 KSEBL shall take steps to desilting reservoirs to maximize storage capacity, exploring hydroelectric potential outside Kerala, and ensuring timely project completion.

6.1.4 Efforts shall be made by KSEBL to ensure the timely completion of hydel projects and enhancing the capacity of existing hydro projects, while prioritizing catchment area rehabilitation

6.1.5 State shall encourage the development of biomass-based power generation and cogeneration projects. The state recognizes the potential of agricultural residues, industrial waste, municipal waste and other biomass resources for power generation and energy efficiency. Consumers with high thermal and power requirements will be encouraged to adopt cogeneration systems. ANERT is the state nodal agency for biomass projects.

6.2 Pumped Storage Hydro Stations

6.2.1 Kerala, with its diverse topography and abundant water resources, holds significant potential for the development of pumped storage hydropower projects. The state's hilly terrain and existing network of dams and reservoirs provide ideal conditions for creating pumped storage systems, which can effectively balance the fluctuating supply from renewable sources such as wind and solar power. By storing excess energy during periods of low demand and releasing it during peak demand, pumped storage can enhance grid stability and reliability. Furthermore, these projects align with Kerala's commitment to sustainable development and renewable energy integration, offering a viable solution to meet the growing energy needs while minimizing environmental impact.

6.2.2 The state aims to establish approximately 3,250 MW of already identified pumped storage projects, with commissioning scheduled during the initial years of the next decade.

6.2.3 A dedicated policy to harness the state's pumped hydro storage potential will be notified.

6.3 Energy Storage

6.3.1 To meet immediate energy storage needs, BESS will be an interim solution. It is estimated that by 2030 Kerala may require about 2000 MW / 4000 MWh storage.

6.3.2 All new renewable energy projects, including solar and wind, shall incorporate BESS to enhance grid stability and ensure round-the-clock power availability. An initial requirement of **at least 10% of the total installed capacity** of the renewable energy project shall be reserved for BESS. This capacity may be revised upwards in alignment with

advancements in battery technology and reduction in battery costs. The State may periodically revise the minimum BESS capacity in consultation with stakeholders and industry best practices, following guidelines set by the MNRE and KSERC.

6.3.3 Kerala's energy storage obligations will be aligned with the Government of India guidelines and regulations.

6.4 Small Hydro Power Plants

6.4.1 Efforts shall be made to reduce the complexity related to land possession and approvals relating to small hydro power plants.

6.5 Electricity procurement

6.5.1 The state may aim to strategically diversify its sources of power generation to ensure long-term resilience in the power sector, taking advantage of its unique topography for hydroelectric and possibly other forms of renewable energy.

Chapter 7. Electricity transmission and distribution

7.1 Electricity Transmission

7.1.1 KSEBL shall plan to strengthen the grid infrastructure to handle peak loads and reduce outages. Advanced Outage Management Systems (OMS) shall be maintained to quickly identify and resolve outages, minimizing downtime and improving service reliability. These systems shall be complemented by predictive maintenance practices, which use data analytics to anticipate and prevent equipment failures.

7.1.2 With the commissioning of 400 kV Substations at Edamon (Kollam), Payyampally (Wayanad) and Karinthalam (Kasaragod) and associated 400 kV lines, Kerala will have a robust 400 kV backbone across the State. Together with this, the ongoing flagship project Transgrid 2.0 will enhance the power import capability of the State to about 5500 MW and ensure seamless power transfer to load centres, meeting N-1 contingency.

7.1.3 The intra-state transmission network shall be capable of handling 10,000 MW demand by 2030. The import capability will have to be at least 6500 MW by this period

7.2 Electricity Distribution

7.2.1 KSEBL shall ensure that the Centralised Customer Care (CCC) system be strengthened, based on rational complaint volume assessment, which would enable lower waiting times, quicker registration of complaints and better customer satisfaction. A system of imparting continuous training to all employees in professional interactions, customer service, modern technology and such other aspects shall be put in place.

7.2.2 KSEBL shall focus on;

(1) Ensuring robust customer service platforms;

(2) proactive communication by sending timely notifications via multiple channels;

(3) learning from and implementing best practices of internationally renowned companies which has achieved remarkable grid stability through its robust infrastructure and advanced monitoring systems;

(4) promoting transparency in billing and pricing;

(5) promoting time-of-use tariffs and real-time pricing models to encourage consumers to shift their usage to off-peak periods, promoting efficient energy use and reducing costs;

(6) integrating renewable energy into the distribution system as a priority;

(7) continue implementing net metering policies to allow consumers to generate their own electricity using renewable sources and feed excess power back into the grid;

(8) facilitating community solar programs that will enable consumers to invest in and benefit from shared solar installations, promoting the adoption of renewable energy; and

(9) ensuring Data Privacy and Security.

7.2.3 KSEBL shall explore financial incentives and rebates for consumers who adopt energy-efficient appliances and participate in energy-saving

programs. Offering free or subsidized home energy audits may help consumers identify and implement measures to reduce their energy consumption.

7.2.4 The transformation capacity in distribution sector shall be about 13000 MVA. The HT:LT ratio must be improved to 1:3. SCADA & RT-DAS may be extended to all major towns.

7.2.5 The network will be designed to seamlessly integrate renewable energy sources and support the increasing demands of electric mobility. Through diligent data analysis and strategic planning, network's adaptability to evolve energy consumption patterns will be ensured. There will be a strategic shift towards higher-capacity distribution/ power transformers, upgrading voltage level of substations/lines to accommodate future needs.

7.2.6 Moving forward, a special emphasis shall be placed on reinforcing/remodeling power infrastructure in disaster-prone areas, ensuring their resilience and rapid recovery capability in the face of adversities.

7.2.7 **Reliability and Service Excellence:** To meet and exceed the reliability expectations of the consumers, a phased replacement of bare conductors with advanced insulated alternatives across various voltage levels shall be undertaken. The implementation of the state-of-the-art technologies like SCADA and Communicable Fault Pass Detectors (CFPD) along with isolation mechanisms, will play a pivotal role in enhancing power network's reliability, ensuring uninterrupted power supply and service excellence. As part of automation of Substations and distribution network, all 33 kV Substations shall be made remote operated, all 11 kV feeders to be provided with RMUs and each 11 kV feeders shall be linked to at least 2 Substations to ensure reliability of supply.

7.2.8 **Utility Corridor Management:** All roads, highways and other transportation facilities shall be provided with specific corridors for placing the electricity distribution infrastructure, complying to requirements in the statutes and regulations pertaining to electricity. Electricity utilities have usage priority of the utility corridors along all roads because of the nature and potential of the commodity carried. All

other utilities shall place their facilities in compliance to the conditions laid down in the Regulations pertaining to electric supply. This is essential for ensuring overall safety of all the infrastructure along the corridor. This is also imperative considering the statutory scheme of things, which places the principal legislation as well as the delegated legislations in electricity at a pedestal above rules and regulations pertaining to all other similar utility services.

7.3 Digitization

7.3.1 The integration of Information Technology (IT) and Operational Technology (OT) is pivotal for advancing grid management, enabling the flexible distribution of power, and integrating renewable energy sources efficiently while managing demand fluctuations.

7.3.2 Efforts shall be made to leverage IT and OT solutions along with artificial intelligence, while ensuring that cyber security is not compromised.

7.3.3 **Asset Management and Mapping:** A comprehensive mapping of all network assets, including the update of existing mappings and the inclusion of low-tension networks and consumer premises, shall be a priority. This will facilitate better management, planning, and responsiveness to service demands and emergencies. Geo mapping of network assets and consumers, along with critical attribute data using drone technology may be explored.

7.4 Electrification of tribal hamlets

7.4.1 All the tribal habitats in Kerala shall be electrified. KSEBL shall expand the universal electrification program to cover even remote hamlets. KSEBL and ANERT shall promote decentralized renewable energy systems to enhance access in off-grid and underserved communities.

7.4.2 Along with Government's budgetary resources, KSEBL and ANERT may also explore availability of Govt. of India grants/loans/viability gap funding and Corporate Social Responsibility (CSR) funds for the electrification of tribal hamlets.

Chapter 8. Energy efficiency and conservation

8.1.1 A comprehensive roadmap will be developed by EMC to create an environment conducive to energy conservation across diverse user sectors, including households, businesses, industries, and more.

8.1.2 EMC will coordinate to enforce regulatory measures to stimulate the adoption of energy-efficient practices among consumers, emphasizing the pivotal role individuals and businesses play in conserving energy resources. Measurable energy conservation targets will guide the activities, and regular reviews will adjust them based on progress. Energy audits for government institutions and major sectors will ensure accountability, focusing on reducing carbon footprint and aligning with decentralized power generation goals.

8.1.3 Energy-efficient household appliances and use of BEE star-labelled appliances will be promoted and encouraged.

8.1.4 Adherence to building energy efficiency guidelines, sustainable construction practices, and comprehensive guidelines for all projects will be emphasized. Industrial energy efficiency will be enhanced through technology upgrades, capacity building, and efficient energy management systems.

8.1.5 Demand-side management activities will be promoted, tailored to current needs, and strategic measures will be implemented for peak demand shaving and overall energy demand reduction.

8.1.6 The trading of Carbon Credit Certificates and enforces provisions to enhance accountability will be explored and encouraged. There shall be focus on integrating energy efficiency considerations in all new installations, designs, upgrades, additions, alterations, and modernization projects. Efforts will extend the energy efficiency initiatives into relatively underrepresented sectors like agriculture and cold chain management systems, focusing on improving its energy efficiency and reduction in costs.

8.1.7 Integration of innovations and retrofit solutions, exploring the viability of using low voltage DC systems, and enforcing guidelines for its systematic integration will be encouraged.

8.1.8 EMC shall explore the introduction of a soft loan scheme aims to facilitate consumer adoption of energy-efficient technologies, engaging

a broader audience in conservation initiatives. Measures to enhance the Kerala State Energy Conservation Fund and establishing financial incentives for exemplary energy efficiency practices will be given importance.

8.1.9 EMC shall prioritize targeted Information Education and Communication (IEC) campaigns for stakeholders, aiming to enhance public awareness and to encourage citizens to consider energy conservation as a civic duty. Outreach programs and efficient communication channels will ensure widespread dissemination of information. EMC shall strive for integrating energy conservation education into curricula through partnerships with educational institutions to foster a proactive approach to sustainable energy practices from an early age.

Chapter 9. Electrical Safety

9.1.1 To improve safety measures, KSEBL shall undertake the following:

(1) Regular Inspections and Maintenance: Conducting routine inspections of power infrastructure helps identify potential hazards or defects that could compromise safety. Regular maintenance activities for keeping the network in optimal condition need to be ensured.

(2) Training and Education: Comprehensive safety training and education programs are essential for utility personnel, contractors, and the public for promoting awareness and adherence to safety protocols.

(3) Use of Protective Equipment: Ensuring that workers have access to appropriate personal protective equipment (PPE) helps mitigate the risks associated with electrical work.

(4) Emergency Response Planning: Comprehensive emergency response plans and procedures shall be put in place to respond effectively to incidents such as electrical fires, equipment failures, and natural disasters.

9.1.2 The Electrical Inspectorate shall ensure that Regulation 14 of CEA (measures relating to Safety and Electric Supply) Regulations, 2023 is complied with, including those relating to National Electrical Code and

National Building Code. The material and apparatus used shall conform to the relevant standards. Relevant codes such as IS 18732:2023 Guide for Implementation of Electrical Installation Standards in Buildings and NEC (National Electrical Code of India 2023) shall also be followed.

Chapter 10. Futuristic technologies

10.1 Personal Rapid Transit, Induction charging for EVs etc.

10.1.1 Pilot projects for futuristic technologies may be explored and implemented by KSEBL, ANERT and interested research institutions under Government of Kerala.

Chapter 11. Institutional Mechanisms

11.1 State Level Empowered Committee (SLEC)

11.1.1 To resolve key bottlenecks in implementation of this policy and resolve any other Inter departmental issues that may arise from time to time, a High level committee will be constituted under the chairmanship of the Chief Secretary of the State.

11.1.2 In case of any issue in implementation of the policy, the committee can recommend respective departments for assistance or action and can also recommend to the Hon'ble Minister for Electricity and Hon'ble Chief Minister for amendment in the policy, if required.

11.1.3 The committee will consist of following members: -

Chief Secretary	*Chairman*
Additional Chief Secretary or Principal Secretary – Power	*Member Secretary*
Chairman KSEBL	*Member*
CEO ANERT	*Member*
Director EMC	*Member*
Chief Electrical Inspector	*Member*

11.1.4 The State Level Empowered Committee will hold **half-yearly meetings** as far as possible to monitor the policy, but if required, the meeting can also be held earlier.

11.1.5 ANERT will provide Secretarial services for SLEC, by forming a dedicated cell for the same.

11.1.6 Industry stakeholders will be allowed to send representations to SLEC Secretariat, in case of bottlenecks that go beyond individual project level issues, which require intervention at the level of SLEC.

11.1.7 SLEC's Member Secretary will be responsible for identifying and prioritizing agenda items that need to be put forward for discussion in the SLEC.

Chapter 12. Miscellaneous

12.1 Power to amend & interpret the policy

12.1.1 Government of Kerala will have power to amend/ review/relax/interpret any of the provisions under this policy as and when required.

Draft for Discussion.

NOT FOR EXTERNAL CIRCULATION