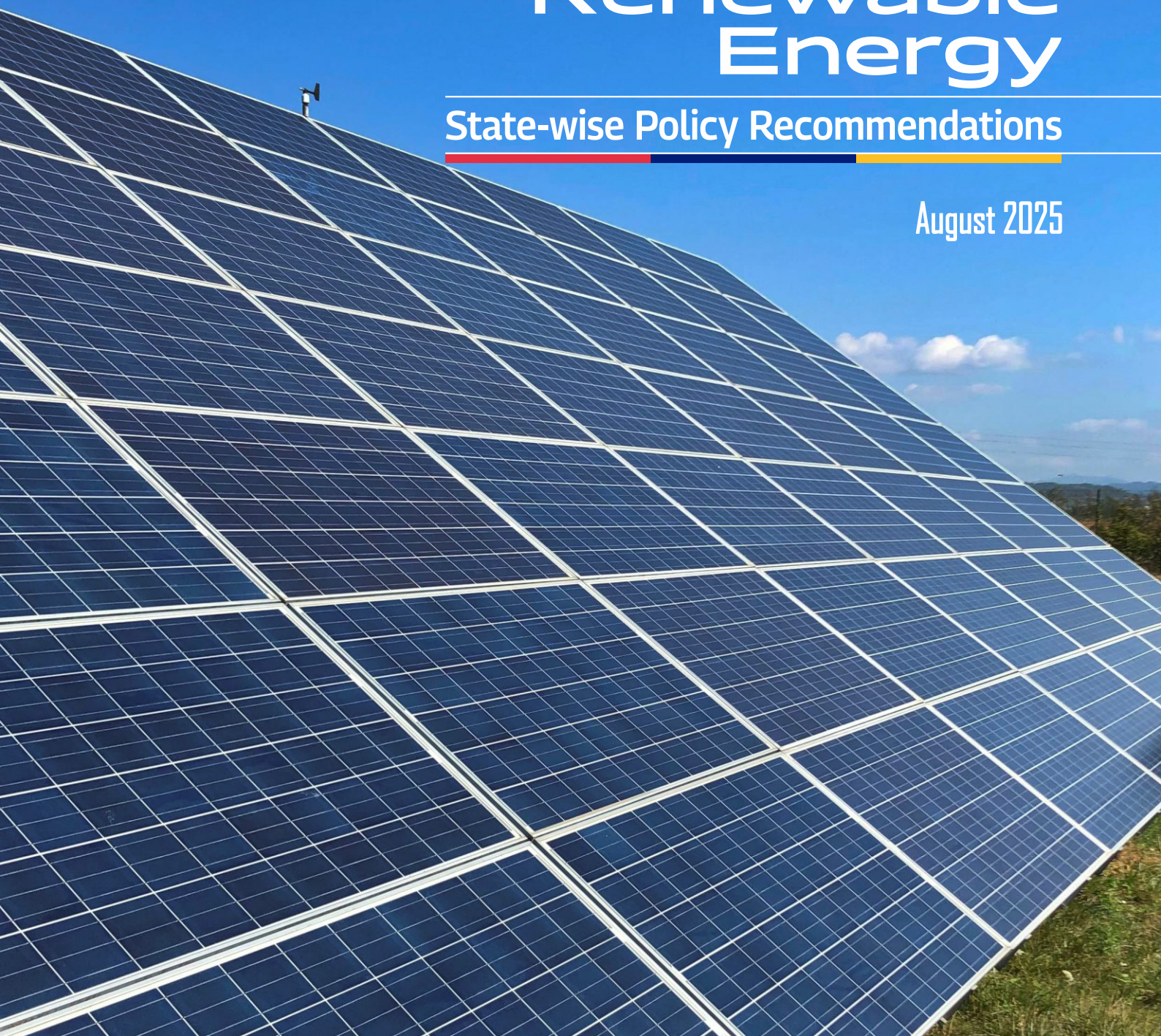
Neufin Energy

mahindra Rise

Accelerating Transition to 100% Renewable Energy

State-wise Policy Recommendations

August 2025



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FOREWORD

Abanti Sankaranarayanan

Member of the Group Executive Board and Chief Group Public Affairs Officer, Mahindra Group

Achieving 100% renewable energy (RE) is an important element for driving climate action & sustainable growth for corporates. Policy serves as a powerful enabler for this journey, and effective, pragmatic frameworks can help accelerate this transition, especially as India advances toward its ambitious 500 GW RE target by 2030. At Mahindra, our diverse businesses span various sectors, across manufacturing and service sectors, and also reflect our understanding, both as suppliers of renewables power via our multiple green energy businesses and as a consumer, given the significant consumption across sectors - the implications of the renewable energy shift is profound across the board, both for environment and economic implications. Accelerating this transition will deliver significant ecosystem-wide benefits, and collaboration with policymakers is crucial to shaping this journey. Together, we can work to ensure the RE policies lead to benefits for all and drive sustainable growth.

Ankit Todi

Chief Sustainability Officer, Mahindra Group

Renewable energy solutions are both environmentally critical and commercially value-accretive, offering a sustainable path forward for decarbonization. At Mahindra, we are committed to achieving carbon neutrality (scope 1 & 2 emissions) by 2040 or sooner, with energy efficiency, renewables and electrification as the 3 key drivers for this journey. While RE already accounts for ~30% of our energy use across the group, and we have multiple projects ongoing to take up above the 50% mark, we need to focus on additional policy measures to support our journey to reaching 100% by 2030 - this will require collaboration with policymakers to address diverse needs, across manufacturing locations, warehouses, resorts, offices & other commercial spaces. This will not only help Mahindra but also be a catalyst for the entire corporate ecosystem, including our supply chain partners. From a technology front, advancing the transition to 100% RE will also necessitate integrating solar, wind, and storage to ensure reliable, round-the-clock energy supply - and policy will play a key enabling role here.

Rahool Gadkari

Co-founder, Neufin

India's energy transition will be won through clarity, standardisation, and rigorous execution. In partnering with Mahindra, we have focused on translating policy into bankable action -designing open-access and group-captive pathways, allocating risk sensibly across stakeholders, and using data to make better procurement and operations decisions. Two lessons stand out. First, implementation detail accelerates ambition: when rules on banking, forecasting and settlement are understood and operationalised, decarbonisation moves from targets to megawatt-hours. Second, data closes the loop between sourcing and usage. By analysing load profiles, time-of-day tariffs and curtailment behaviour, our Lumen platform helps craft smarter hedges, improve reliability, and lower the all-in cost of power. Mahindra's leadership offers a practical template for complex, multi-site enterprises and their supply chains. The playbooks in this report are designed to help businesses move faster by cutting emissions, insulating against tariff volatility, and building resilient, future-ready power systems. This is a collaborative agenda and Neufin looks forward to working with industry, financiers and policymakers to scale RE in India.

INTRODUCTION

Transition to renewable energy is inevitable, an accelerated trajectory would reap benefits across environment, commercial & energy security. In alignment with this, many corporates in India including Mahindra have publicly committed to a reduction in operational emissions, and faster renewable energy (RE) procurement is critical to meeting that goal. Yet, state-level regulations continue to limit the pace at which business units can replace grid power with renewable energy, especially as they aim to get closer to the 100% renewable energy mark. Eligibility thresholds do not permit small and less energy-intensive locations to access RE due to restrictions and implementation inconsistencies with India's Green Open Access Regulations. Further impediments to the energy transition are high banking fees that make renewable projects financially unviable, and curtailment rules that reduce lender confidence.

This study has been commissioned to identify the key policy changes that would unlock the largest block of electricity from RE sources for corporates in the near term. We have examined in detail the regulations affecting the procurement of renewable energy in the states of Maharashtra, Karnataka, Tamil Nadu and Telangana. Each barrier identified was assessed for its potential impact, the presence of an active regulatory window, alignment with national policy, and the likelihood of industry support.

Five high leverage asks emerged:

- **a complete rollout of Green Energy Open Access regulations,**
- **permission for Group Net Metering or Virtual Net Metering for all types of consumers so that rooftop surplus can be shared across campuses,**
- **adoption of curtailment compensation mechanisms,**
- **permitting the co-existence of net-metering and open access connections, and**
- **ensuring fair valuation and RoW compensation.**

The following pages summaries the evidence behind these priorities and outline a focused advocacy roadmap.

National Regulatory Context: How India Governs Corporate Renewable Energy Procurement

India's power sector is steered by a two-tier regulatory architecture. **At the centre,** the Ministry of Power (MoP) and the Ministry of New & Renewable Energy (MNRE) set policy direction, while the Central Electricity Regulatory Commission (CERC) issue market regulations. **At the state level,** state ministries responsible for renewable energy give policy directions taking motivation from centre and implementation is delegated to State Electricity Regulatory Commissions (SERCs). Distribution companies (DISCOMs) and State nodal agencies make sure the policies & regulations are implemented without any gaps.

Three categories of instruments shape the economics and feasibility of RE sourcing for commercial and industrial consumers:

1. **Primary legislation and rules**
   define eligibility thresholds, and consumer rights.
2. **Technical and market codes**
   decide how generators connect, schedule and settle with the grid.
3. **State tariff orders and implementation circulars**
   translate the above into Standard Operating procedures (SOPs) and execution guidelines for all stakeholders.

Together, these instruments govern six issues that ultimately determine a corporation's ability to meet an RE100-aligned target: (1) open-access (OA) eligibility and process, (2) grid connectivity, (3) deviation and curtailment risk, (4) banking and settlement terms, (5) green-premium tariff signals and (6) must-run compensation.

State wise Renewable Energy Adoption Trends

State	RE share of installed capacity	Non-RE share of installed capacity	Installed RE (GW)	Wind + Solar potential (GW)
Maharashtra	38.0 %	62.0 %	17.5	238.2
Karnataka	67.4 %	32.6 %	21.4	194.0
Tamil Nadu	55.5 %	44.5 %	22.1	112.8
Telangana	44.6 %	55.4 %	7.6	75.2

**As per the Renewable Energy Status 2023-24 Report by MNRE*

RESEARCH METHODOLOGY

Scope of work

We confined the deep-dive to Maharashtra, Karnataka, Tamil Nadu and Telangana, as these states (i) together account for a dominant share of its residual grid-power demand, and (ii) offer a representative spread of progressive, transitional and lagging regulatory environments, (iii) host Mahindra Group's largest manufacturing and services load. Focusing on this mix ensures that the findings and the recommended policy levers are both generalizable to high-demand C&I regions & material to Mahindra's footprint.

Research Approach

We adopted a multi-layered research design that triangulates legal analysis, quantitative system data, and stakeholder intelligence to diagnose barriers to RE100 adoption across Mahindra's Indian footprint. Adopting a step-wise approach, we conducted:

Central regulatory review

Secondary research on 24 regulatory documents issued between January 2021 and May 2025, including Acts, Rules, Grid Codes and Tariff Regulations. This helped us arrive at a central baseline of regulations.

Materiality screening

With the intent of identifying the most critical regulations that require advocacy intervention, we filtered regulations using two criteria: (i) demonstrable impact on C&I renewable uptake; and (ii) relevance in at least two of the four focus states. Six high-leverage "pillars" emerged, forming the analytical backbone of this report.

State regulatory review

Since power is a concurrent subject, and both central and state governments govern it, we conducted a state wise deep-dive for four selected states. Statutory texts, tariff orders, DISCOM operating procedures, and implementation circulars for Karnataka, Tamil Nadu, Maharashtra, and Telangana were benchmarked against the central baseline. Alignment gaps were recorded both de jure (textual divergence) and de facto (implementation delays, procedural opacity).

Ground validation

Semi-structured interviews were conducted with relevant stakeholders from the Mahindra Group companies to verify on-ground frictions and to capture tacit procedural insights.

Prioritisation matrix

Barriers were shortlisted only when they scored high on material impact, sat within an open policy window, aligned with central policy intent, and enjoyed coalition potential among large C&I buyers.

Advocacy drafting

The shortlisted items were rewritten into concise, regulator-ready asks, complete with clause citations and the business rationale expressed in both kilowatt-hours and rupees.

DATA COLLECTION

Primary Research

The starting point for this study was direct evidence from the ground. We have conducted semi-structured discussions with key stakeholders across the Mahindra Group companies and their partners to identify practical, ground-level challenges with renewable energy procurement. These conversations focused on barriers related to open access procurement, onsite solar, regulatory clarity, and approval processes. These discussions revealed both company-specific frictions and recurring systemic challenges common across the group.

This initial step allowed us to understand the broad challenges faced by procurement teams in accelerating the companies' RE transition journey. In parallel, the Mahindra energy-accounts team provided site-level data, along with insights into the source of electricity for 154 locations. That internal dataset enabled us to measure precisely how much traditional grid generation remains at each site and how specific rules constrain further procurement.

Secondary Research

We have completed a structured review of the national and sub-national policies, regulations, and orders that are relevant to renewable energy adoption for C&I customers, including:

- **Central Electricity Authority (CEA) and Ministry of Power notifications**
- **Central Electricity Regulatory Commission (CERC) regulations and amendments**
- **State Electricity Regulatory Commission (SERC) tariff orders and open access rules**
- **State Renewable Energy policies and implementation circulars**
- **MNRE guidelines, subsidy frameworks, and official communications**

Combining insights from primary stakeholder interviews, site-level data, and our in-depth secondary research and statutory analysis of the space, we were able to identify key policies that, if implemented, could help group companies achieve greater RE procurement faster. This mixed-method approach ensures that each recommended policy lever is grounded in operational reality, demonstrably material to Mahindra's decarbonisation targets.

In the following sections, we discuss the broad policy gaps we identified across all four states under the scope of the assessment: Karnataka, Maharashtra, Tamil Nadu, and Telangana. We then present a list of high-priority policy asks that are most likely to help the group companies move to a greater share of RE, faster.

ANALYSIS

Through our findings from primary research and internal expertise, we identified 6 regulatory pillars. We believe that on-ground RE adoption rates can benefit greatly by advancing the state-level regulations to ensure implementation on these subjects. The table below highlights the baseline regulation established by the central government, mapped to the regulatory progress made by the states

Pillar	Central baseline regulation	Karnataka Status	Tamil Nadu Status	Maharashtra Status	Telangana Status
Open Access eligibility & process	MoP Green OA Rules 2022: provision OA eligibility for contract demand ≥ 100 kW, 15-day Single Window Clearance	Regulation exists, but implementation is a gap	Draft GEOA not yet notified; OA <1 MW barred.	Green OA Second Amendment notified, single-window clearance compliance patchy.	Regulation is in force, but DISCOMS have not issued detailed procedures preventing implementation.

Aligned (regulatory apparatus exists, is being implemented)

Partially Aligned (either regulation or implementation is missing)

Unaligned (Regulatory apparatus has lags, blocking implementation)

Pillar	Central baseline regulation	Karnataka Status	Tamil Nadu Status	Maharashtra Status	Telangana Status
Grid connectivity & General Network Access (GNA)	CERC GNA Regulations 2022: single GNA window, STU within 90 days.	No CERC style single window clearance; STU approvals >180 days.	No GNA adoption; STU permissions 120-180 days.	STU permission takes 120+ days; No standard set for RoW compensation	No CERC style single window clearance. Manual route causes a 2-to-3-month delay. No standard set for RoW compensation.
Forecasting, scheduling & DSM	CERC DSM & RM 2024: Free ±10% band for solar & free 15% band for wind, QCA, deviation linked to ACP.	Under old ABT/UI; no RE DSM; volatile penalties.	Adopted RE-DSM 2024; guidelines awaited.	2018 F&S code ±15% band; update due.	General DSM 2021 issued, but the state RE DSM not issued.
Banking & settlement	MoP Green OA: monthly banking allowed, Banking charges ≤ 8% in kind	8% fee; monthly reset; peak drawl barred.	Different banking charges for different assets; Standardization required. Peak offset is barred.	8% fee; monthly reset; peak drawl barred;	8% fee; monthly reset; peak drawl barred.
Green tariff / green premium signals	MoP 2020 advisory: DISCOM 'Green tariff' optional slab with premium ≤ ₹0.25/kWh.	₹0.50/kWh tariff. Only applicable to HT consumers. Needs provision for LT consumers as well.	Consumer can request green energy consumption certificates by paying 110% of the applicable tariffs	Uniform Green Power Tariff ₹0.25/kWh notified.	Uniform green tariff of ₹0.66/kWh notified but higher than central guidance.
Must run & curtailment compensation	CEA Grid Code draft 2023: must run RE, compensable if SLDC curtails basis economic merit.	Frequent curtailment; no compensation SOP.	A compensation order exists, but weak enforcement.	No compensation provision: curtailment for RE persists without compensation.	No compensation provision: curtailment for RE persists without compensation.

Aligned (regulatory apparatus exists, is being implemented)

Partially Aligned (either regulation or implementation is missing)

Unaligned (Regulatory apparatus has lags, blocking implementation)

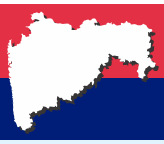
SUMMARY OF CRITICAL POLICY ASKS

State	Advocacy points	Concrete policy asks	Why the state should care
Maharashtra	Notify VNM / GNM for corporate campuses	Finalise the 2nd Rooftop Amendment with VNM/GNM for C&I and Corporate campuses up to 5 times contract demand and recognise intra-group credit as captive consumption.	If the amendment stalls, more than 500 MW[1] of viable rooftop space remains unused; this widens the solar RPO gap by about 750 MU a year and obliges the DISCOM to purchase costly Renewable Energy Certificates. Approving the mechanism attracts roughly ₹2000 crore of private EPC investment, supports around 11000 installation jobs and lowers technical losses, thereby easing network -opex[2].
	Introduce curtailment discipline and compensation	Issue a curtailment compensation circular that (i) pays the avoided cost tariff for unjustified curtailment and (ii) mandates hourly public reporting by MSLDC.	Persisting with ad hoc curtailment raises project -finance spreads by up to 60 basis points, inflating tariffs that the DISCOM must eventually pay[3]. Transparent compensation lowers bid prices by 8-10 paise kWh[4], improves investor confidence and reduces the need for expensive real time market-purchases during the evening peak.
	Right of Way (RoW) compensation	Publish a valuation circular that aligns payments with PWD land classes, enforce a sixty-day disbursal SLA on MERC's portal and create a RoW grievance cell in every district Collectorate.	Slow or disputed RoW payments delay substation and line projects by six to nine months, jeopardising grid reliability and the timely evacuation of renewable power. Clear valuation rules and prompt payments accelerate construction, avoid escalation costs and signal that Maharashtra is a low-risk destination for infrastructure capital.
Karnataka	Permit OA + Net-Metering co-existence	Allow parallel operation up to onsite generation, subject to transparent DSM and wheeling rules.	Retaining the "either-or" rule stretches rooftop payback periods from four to eight years, curbing uptake. Dual mode sustains wheeling and cross-subsidy inflows, flattens the day-time load curve and strengthens Karnataka's reputation for progressive power policy, a key factor for foreign investors[5].
	Align DSM & Curtailment rules with CERC 2024	Adopt the CERC RE-DSM code (±10% band) and publish a must-run compensation SOP that pays avoided-cost tariff for unjustified curtailment.	Ad hoc compensation has already cost the DISCOM over ₹70 million in one legal case. Standardised rules limit litigation, attract more bidders to State tenders and ultimately lower tariffs[6].

State	Advocacy points	Concrete policy asks	Why the state should care
Telangana	Issue an implementation circular for OA Reg 1/2024	• Publish a detailed procedure that enforces the 15-day SLA and sets an online portal • Reduce banking to ≤ 2% or offer APPC cash settlement; allow fiscal-year carry-forward. • Apply CSS cap and AS waiver consistently across TGSPDCL & TGNPDCL.	Each month of delay keeps 900 MW of applications idle[7], denying the State roughly 1.5 billion units of low-cost renewable power and ₹4.5 billion in private investment. Clearing the pipeline closes more than half of the projected 2027 RPO shortfall and still preserves wheeling and surcharge revenues.
Tamil Nadu	Notify the draft Green-OA Regulations	Finalise the July 2024 draft with 100 kW eligibility, a 15-day SLA, explicit AS waiver and CSS cap; replace the 18:00-22:00 peak lock-out with a nominal fee.	Chennai's manufacturers presently pay tariffs at least ₹1 kWh higher than those in Karnataka[8]; continued delay risks new EV and electronics plants locating elsewhere. GEOA allows cheaper procurement while the grid-support fee keeps distribution margins intact.
	Enable VNM / GNM for corporate campuses	Publish the pending rooftop-amendment pilot and extend VNM to C&I / SEZ campuses up to 5 times contract demand.	Without campus sharing, some 250 MW of roof space in the Sriperumbudur-Oragadam corridor lies idle, forcing reliance on land hungry- ground mounted- projects. VNM reduces land pressure, lowers technical losses by about 1.6% and defers roughly ₹7 million of network capex per additional- megawatt of rooftop installed.[9]

STATE-LEVEL CHALLENGES AND RECOMMENDED LEVERS

I MAHARASHTRA



Key Policy Recommendations

Introduce curtailment discipline and compensation

Issue a curtailment-compensation circular that (i) pays the avoided-cost tariff for unjustified curtailment and (ii) mandates hourly public reporting by MSLDC.

Right-of-Way (RoW) compensation

Publish a valuation circular that aligns payments with PWD land classes, enforce a sixty-day disbursal SLA on MERC's portal and create a RoW grievance cell in every district Collectorate.

Notify VNM / GNM for corporate campuses

Finalise the 2nd Rooftop Amendment with VNM/GNM for C&I and SEZ campuses up to 5 times of contract demand and recognise intra-group credit as captive consumption.

Maharashtra is India's most industrialised state and among the highest electricity consumers, yet it faces a growing mismatch between its renewable energy targets and adoption.

The Maharashtra Electricity Regulatory Commission (MERC) has set a solar Renewable Purchase Obligation (RPO) of 13.5% for FY2024-25[10,11]. However, compliance remains well below target.

The last reported RPO shortfall was over 5835 million units for DISCOMs in the state[12]. As RPO targets continue to see a increase, meeting these obligations will require action on ground.

While the state has over 4.9 GW[13] of installed solar capacity as of mid-2024, this is significantly below potential, particularly in the commercial and industrial (C&I) segment. One major obstacle is regulatory uncertainty around curtailment risk. Maharashtra has not adopted the CERC 2022 RE-DSM Code, nor does the state load dispatch centre (MSLDC) publish granular curtailment data. Developers and open access consumers report curtailment events without justification or compensation, increasing perceived risk and financing costs for projects. Without a framework to ensure grid discipline and transparency, Maharashtra cannot de-risk RE procurement for private buyers.

Further, Right-of-Way (RoW) issues have delayed the commissioning of many renewable energy projects, especially group captive and open access solar plants. Unlike states such as Gujarat or Rajasthan, Maharashtra lacks a standardised RoW compensation policy, resulting in time-consuming negotiations and inconsistent approval timelines. For developers, this adds to project lead times and increases working capital requirements. For the state, it means avoidable delays in meeting clean energy targets.

Besides meeting RPO, there is the basic issue of underutilising RTS potential.

Although Maharashtra has an installed solar capacity of over 4.9 GW, rooftop solar remains underpenetrated with just 1.5 GW[14] of installed capacity, despite strong demand centres and high industrial tariffs ranging from ₹9 to ₹11 per kWh.

This is especially concerning given that rooftop solar can reduce costs by 40-60% and ease demand on the grid during peak hours. In dense industrial and commercial zones like Pune, Nashik, Nagpur, and Mumbai's periphery, the lack of standardised policies for Virtual and Group Net Metering (VNM/GNM) remains a key deterrent for rooftop adoption by C&I consumers.

Despite these challenges, Maharashtra has strong fundamentals for decentralised energy growth: dense industrial demand centres, strong intra-state transmission networks, and a high share of C&I load.

The state has also demonstrated interest in supporting clean energy, including green hydrogen pilots and a 2030 net-zero target for Mumbai. But unless distributed and privately financed RE is unblocked, Maharashtra will remain over-dependent on central auctions and REC markets to meet its RPO.

Additionally, the cost of inaction is rising. As other states simplify OA regulations, adopt forecasting frameworks, and fast-track grid approvals, Maharashtra risks losing its competitiveness in attracting RE-linked industrial investment. At a time when supply chains are greening and RE100-aligned companies are seeking climate-friendly locations, enabling smoother private procurement of renewables can help Maharashtra maintain its leadership. Strategic regulatory fixes, especially around curtailment transparency, RoW reform, and VNM/GNM operationalisation can unlock gigawatts of clean energy without additional fiscal burden.

Curtailment discipline and adequate compensation

- **Current rule:**

  Maharashtra recognises the "must run" status of renewable plants but has not issued an operational procedure for compensating curtailed generation or for publishing the underlying data.

- **Cost of inaction:**

  Wind and solar farms in the State lost nearly 120 million units in 2023 to non-security curtailment at an average tariff of ₹3.40 kWh[15], undermining lender confidence. Each percentage point of perceived curtailment risk translates into a project finance interest rate increase of up to 15 basis points[16], which flows through to higher power purchase tariffs.

- **Proposed amendment:**

  Publish a deviation settlement-circular that mirrors the CERC 2024 framework, stipulating:

  1. A ±10% forecasting band for both wind and solar.
  2. Automatic credit of the APPC for energy curtailed outside that band, settled in the next billing cycle.
  3. A requirement for MSLDC to post hourly curtailment data with coded reasons on its public dashboard.
  4. A three-member dispute resolution panel with a statutory thirty-day decision timeline.

- **Benefit to the State:**

  - **Competitive bid prices fall as financiers price in lower curtailment risk.**
  - **Reliable must-run output during daylight hours reduces the need for expensive spot-market purchases.**
  - **Publicly available curtailment data builds investor confidence and signals regulatory maturity, improving Maharashtra's standing in national Ease-of-Doing-Business assessments.**

Right-of-Way compensation: transparent valuation and timely payment

- **Current rule:**

  Maharashtra relies on MERC's 2017 Practice Direction, which lets the licensee recover the actual payout plus a 15% overhead but does not set a valuation formula when market prices exceed circle rates. The Direction also omits any statutory timeline for disbursal and provides no on-line tracker for claim status.

- **Cost of inaction:**

  Transmission and distribution projects routinely face RoW disputes that extend schedules by six to nine months[17]; CEA's Q12025 progress report cites average slippage of 200 days on four Maharashtra lines attributed mainly to RoW issues. A six-month delay on a ₹ 500 crore line can add about ₹ 25 crore in interest during construction[18,19], which is ultimately loaded into consumer tariffs. Prolonged contention also slows renewable capacity commissioning, keeping the DISCOM dependent on higher cost short term purchases and widening the RPO deficit.

- **Proposed amendment:**

  MERC should notify a Right-of-way Valuation and Disbursal Code that:

  1. Sets a multiplier based valuation grid aligned with Public Works Department land classes and circle rates.
  2. Imposes a 60-day payment SLA, with automatic interest at SBI MCLR + 200 bps on delays.

3. Requires a public, real-time RoW dashboard on MERC's portal, showing case numbers, sanctioned amounts and days pending.

4. Establishes a district-level RoW grievance cell that must dispose cases within 30 days, with appeal to MERC.

Benefit to the State:

- **Shorter project timelines reduce capitalised interest and keep grid upgrade budgets on track.**
- **Clear, formulaic compensation lowers litigation risk, attracting infrastructure investors at sharper yields.**
- **Faster line energisation accelerates renewable power evacuation, easing RPO compliance and curbing expensive spot market purchases.**
- **Transparent, timebound processes improve Maharashtra's Ease of Doing Business score and signal low execution risk for forthcoming green energy corridors.**

Virtual and group net metering (VNM/GNM) for corporate campuses

Current rule:

A July 2023 draft amendment introduces VNM/GNM up to 5 MW but has not yet been notified.

Cost of inaction:

Aggregated roofs across multi building campuses could host an estimated 500 MW of photovoltaic capacity[20], worth about ₹2000 crore in private capital expenditure and more than 7000 local installation jobs[21]. Delays translate directly into lost investment and persistent RPO gaps.

Proposed action:

Finalise the draft, recognise behind-the-fence credit flows as captive consumption, and maintain existing surcharges on any residual imports.

Benefit to the State:

- **Behind the meter energy lowers distribution loss by roughly 1.6%, easing operating expenditure.**
- **Day-time self-supply flattens the load curve, reducing reliance on high-cost spot purchases.**

II KARNATAKA

Key Policy Recommendations

Permit the parallel operation of Open Access and net-metered rooftops

Delete the "either-or" clause in Rule 9 of the 2019 Grid-Interactive Regulations so that a consumer may retain an existing net-metered plant after signing an Open Access (OA) agreement.

Align renewable curtailment and deviation settlement rules with the 2022 CERC code

Adopt the ±10% forecasting band for solar and wind, publish a must run compensation procedure and credit any unjustified curtailment at the avoided cost tariff.

Karnataka has long been seen as a frontrunner in renewable energy deployment, with over 9 GW of installed solar capacity[22].

However, this leadership masks key structural gaps, particularly in distributed and consumer-driven renewable adoption. Rooftop solar accounts for only 686 MW[23], less than 7% of the state's total solar capacity, despite high tariffs and strong industrial demand pockets around Bengaluru, Mysuru, and Belagavi. Low rooftop adoption despite Karnataka having one of the highest industrial power tariffs in the country, averaging ₹7.75/kWh for HT consumers[24]. This imbalance suggests that while utility-scale procurement is robust, Karnataka has not yet unlocked the full potential of decentralised generation, especially for commercial and industrial (C&I) consumers.

One of the major barriers is curtailment risk, which continues to erode investor and consumer confidence. Karnataka has not adopted the CERC 2022 RE-DSM Code, which sets forecasting tolerance bands and mandates compensation for unjustified curtailment[25]. In its absence, developers report frequent, informal curtailment. This is particularly prevalent for third-party open access without transparent justification or redressal. The Karnataka Electricity Regulatory Commission (KERC) does not publish disaggregated curtailment data, making it difficult to track the scale or pattern of these interventions.

Additionally, C&I consumers face a binary choice between rooftop solar and open access procurement. Under current regulations, switching to open access requires surrendering net metering eligibility, even if the rooftop system is self-owned. This structural incompatibility discourages hybrid adoption models that combine on-site and off-site solar, limiting flexibility for consumers and constraining growth in distributed capacity.

Although Karnataka has a relatively good RPO performance on paper, it is largely driven by DISCOM-led procurement. On RPO compliance, Karnataka fares relatively well on aggregate metrics.

In FY2021 - 22, the state met nearly 96% of its non-solar RPO and 91% of its solar RPO, driven largely by DISCOM purchases under long-term PPAs[26]. But the contribution from open access and captive users remains underreported and underleveraged. As national RPO targets tighten, reaching 43.33% by FY2030[27], Karnataka must expand beyond DISCOM-led procurement and enable private, decentralised adoption at scale.

Private sector contribution through captive or distributed routes remains under-leveraged. The cost of inaction is twofold. First, Karnataka risks underutilising the very demand centres that can absorb and monetise clean energy most efficiently. Second, as other states move to streamline open access and incentivise rooftop deployment, Karnataka could lose ground in attracting RE-linked industrial investment, particularly in the face of growing ESG and CBAM pressures. With high tariffs, grid strength, and a large base of obligated entities, Karnataka is uniquely positioned to demonstrate how states can scale clean energy through market-driven mechanisms. But realising this potential requires fixing the operational frictions that currently discourage private participation.

Co-existence of Open Access and net-metered rooftops

- **Current rule:**

  A consumer must relinquish net-metering status when it begins to import power under OA.

- **Cost of inaction:**

  Plant owners report that loan tenors double from four to eight years once the revenue switch to gross metering is triggered, slowing the pace of rooftop deployment on new factories and warehouses.

- **Proposed amendment:**

  Allow dual registration provided that annual onsite generation does not exceed contracted OA import; any surplus beyond the OA bill is settled at the APPC.

- **Benefit to the State:**

  - **The distribution utility continues to earn wheeling charges and cross subsidy surcharges on imported OA units; therefore, revenue is preserved.**
  - **Onsite generation narrows the day-time demand peak and reduces purchases from the real-time market.**

Curtailment discipline and compensation

- **Current rule:**

  Karnataka has not formally adopted the 2022 Central Electricity Regulatory Commission (CERC) renewable energy deviation settlement mechanism. Compensation is therefore determined ad hoc.

- **Cost of inaction:**

  In January 2024 the KERC awarded ₹ 7.6 crore in damages to a single 30 MW solar plant for generation loss to unjustified curtailment[28]. Continued uncertainty raises the cost of capital for new projects and inflates discovered tariffs.

- **Proposed action:**

  Adopt the ±10% CERC forecasting band, publish a standing operating procedure that credits avoided cost tariff for any curtailment not linked to force majeure or grid security and require the State Load Despatch Centre to post hourly curtailed megawatthours with reason codes.

- **Benefit to the State:**

  - **Transparent rules limit litigation and improve bid participation, driving tariffs lower.**
  - **A strong must-run signal keeps low-cost renewable power flowing during the day, thereby reducing the distribution utility's peak-hour procurement bill.**

III TAMIL NADU

Key Policy Recommendations

Notify the draft Green-Energy Open Access (GEOA) Regulations

Finalise the July 2024 draft, retain the 63-kVA eligibility threshold, incorporate a fifteen-day service-level agreement and replace the 18:00-22:00 peak lock-out with a modest grid-support fee.

Enable VNM / GNM for corporate campuses

Publish the pending rooftop-amendment order and extend VNM / GNM eligibility to C&I and SEZ campuses up to 5 MW.

Over the past three years, industrial and commercial electricity tariffs in Tamil Nadu have risen consistently, about 2.2% in FY 2023, 4.83% in FY 2024, and 3.16% in FY 2025[29]. For HT industrial consumers, this translates into tariff levels rising from approximately ₹6.75/kWh in FY 2022 to ₹7.50/kWh in FY 2025-26. Commercial consumers are also impacted, paying ₹9.40/kWh[30]. These hikes are driven by TANGEDCO's mounting financial losses estimated at over ₹94,000 crore over the past decade and approved via an indexed multi-year tariff framework by TNERC[31]. Given this backdrop, electricity-intensive industries see their operational costs rising steadily. In contrast, OA solar contracts offer power at ₹3.50-₹4.00/kWh, creating a significant cost arbitrage that remains inaccessible due to regulatory and procedural barriers. Recognising this trend, businesses face an increasingly compelling case for renewable energy.

To make energy transition even more pressing, Tamil Nadu's Renewable Purchase Obligation (RPO) trajectory is steepening in line with national targets. It is reaching 43.33% by FY2030[32].

While TANGEDCO continues to procure RE via long-term PPAs, the state's ability to meet future RPO targets increasingly depends on private sector procurement through Open Access and group captive models. Yet this channel remains underutilised. The current OA process lacks a single-window system, approval timelines are unclear, and developers face curtailment risk with no transparency or compensation framework. Tamil Nadu has also not adopted the CERC 2022 RE-DSM Code, further weakening investor confidence in long-term OA assets[33].

On the other hand, RTS adoption is low, at around 1000 MW as of April 2025, against the 60,000 MW potential despite high rooftop potential in cities like Chennai, Coimbatore, and Hosur[34,25]. Key hurdles include the absence of Virtual and Group Net Metering (VNM/GNM) for C&I and institutional consumers, and a policy structure that forces consumers to surrender net metering if they switch to OA. This creates disincentives for hybrid on-site and off-site procurement models. Although RTS doesn't directly count toward RPO for non-obligated entities, it can help reduce grid stress, shave peak demand, and hedge businesses against future tariff escalations.

Tamil Nadu is also competing with peer states that are rapidly reforming their RE frameworks. Maharashtra and Karnataka, for example, have initiated reforms around RoW approvals, curtailment reporting, and OA digitisation. Without similar execution momentum, Tamil Nadu risks losing its advantage in attracting green-linked investment and retaining ESG-conscious manufacturing. This is especially critical as export industries face increasing pressure to decarbonise under global mechanisms like CBAM.

The way forward is clear: Tamil Nadu must operationalise its distributed RE potential. This includes streamlining OA approvals, enabling VNM/GNM for rooftop solar, and adopting forecasting and curtailment compensation frameworks. These reforms would empower businesses to reduce costs, contribute to RPO fulfilment, and make Tamil Nadu a more attractive base for clean industrial growth-without additional burden on the state's exchequer.

Green Energy Open Access regulations

- **Current status:**

  Draft issued July 2024 but awaiting final notification. Eligibility has been widened to include all consumers above 63 kVA, yet operational details such as banking charges remain undecided.

- **Cost of inaction:**

  Without GEOA, Chennai-based electronics and automotive exporters face landed renewable-energy costs at least ₹1 per kilowatt-hour higher than those available in neighbouring Karnataka. This differential risk displaces future investment and employment.

- **Proposed action:**

  Notify the regulations within sixty days, enforce the fifteen-day approval window via a digital portal and replace the night-time lock-out with a grid-support fee that maintains distribution margins.

- **Benefit to the State:**

  - **Rapid GEOA adoption will help meet the escalating national RPO targets without new fiscal outlay.**
  - **The grid-support fee secures revenue, while cheaper green energy strengthens Tamil Nadu's claim as India's electric-vehicle manufacturing hub.**

Virtual / group net metering for campuses

- **Current rule:**

  Net metering is confined to individual service connections; surplus from one roof cannot offset consumption at another site owned by the same firm.

- **Cost of inaction:**

  Industry surveys point to substantial stranded roof space across large campuses[36,37]; losing this capacity forces recourse to ground-mounted solar, which faces land-acquisition hurdles and transmission losses.

- **Proposed amendment:**

  Extend the forthcoming rooftop-solar amendment to permit VNM / GNM for campuses up to 5 MW under the same distribution licensee. Net export is to be settled at the APPC so that distribution margins are preserved.

- **Benefit to the State:**

  - **Behind-the-meter generation reduces technical losses by an estimated 1.6 per cent, thereby lowering the cost of serving residential consumers.**
  - **Each megawatt of rooftop solar defers approximately ₹7 million of distribution-network capital expenditure.**

IV TELANGANA

Key Policy Recommendation

Operationalise Open Access Regulation 1 / 2024

Publish a detailed procedure that (i) enforces the statutory fifteen-day service-level agreement via an online portal, (ii) caps banking loss at two per cent in-kind or offers settlement at the APPC and (iii) applies uniform cross-subsidy and additional-surcharge ceilings across both state-owned distribution companies.

Telangana has taken progressive steps toward enabling renewable energy adoption through Open Access by notifying its Open Access Regulation 1 / 2024. The regulation includes promising provisions such as a 15-day service-level agreement, banking losses capped at 2%, and uniform surcharge ceilings across DISCOMs[38]. However, the regulation remains non-functional due to the absence of implementation guidelines and a digital application portal. As a result, industrial consumers are unable to access significantly cheaper renewable power, despite clear economic and environmental incentives.

Currently, high-tension (HT) industrial consumers in Telangana pay between ₹7 and ₹11 per kWh, making them some of the highest-paying users in the country. In contrast, solar open access contracts are available at ₹3.50-₹4.00 per kWh, representing up to 60% in cost savings[39]. Without an operational framework, industries remain locked into high-cost, high-emission power, undermining their competitiveness, especially in export-oriented sectors now facing decarbonisation mandates such as the EU's Carbon Border Adjustment Mechanism (CBAM). The state also risks being bypassed by clean-tech investors in favour of peers like Maharashtra, Gujarat, and Karnataka, which have already implemented functioning green open access systems.

On the compliance front, Telangana faces growing pressure. The state's Renewable Purchase Obligation (RPO) trajectory, as per TSERC's 2022 regulation, targets an increase from 8.5% in FY 2022-23 to 13.0% by FY 2026-27, in line with national ambitions of reaching 43.33% by FY 2030[40,41]. However, actual compliance has been poor: in FY 2021-22, only 5 out of 119 obligated entities fully complied, with 94 showing zero compliance[42]. This widening gap risks financial penalties, regulatory scrutiny, and reputational damage, all while undermining Telangana's clean energy transition.

Telangana stands at a critical juncture. The regulations are in place, but execution is lagging. Operationalising Regulation 1 / 2024 offer the state a zero-budget pathway to accelerate RE adoption, reduce industrial power costs, improve RPO compliance, and attract long-term private investment. The cost of inaction is not just financial, it is reputational, economic, and environmental.

Implementation circular for OA Reg 1 / 2024

Current situation:

Regulation 1 / 2024 sets the legal framework but lacks an operating procedure, a digital interface and banking parameters.

Cost of inaction:

Each month of delay widens the State's renewable-energy shortfall and obliges the distribution companies to buy Renewable-Energy Certificates at ₹0.35 per kilowatt-hour, an unnecessary drain on working capital.

Proposed action:

1. Publish an online single-window within thirty days that accepts applications, tracks the fifteen-day service-level agreement and issues feasibility approvals.
2. Limit banking losses to two per cent in-kind or offer annual settlement at the APPC.
3. Harmonise cross-subsidy and additional-surcharge ceilings across the Northern and Southern distribution companies to avoid regulatory arbitrage.

Benefit to the State:

- **Clearing the 900 MW pipeline can deliver approximately 1.5 billion units of renewable energy annually, closing more than half of the projected RPO gap by 2027[43,44].**
- **Wheeling, cross-subsidy and additional-surcharge revenues continue to accrue, while cheaper day-time energy reduces the cost of meeting the agricultural supply obligation.**

ANNEXURE: STATE WISE CHALLENGES AND POLICY RECOMMENDATIONS

Maharashtra

Issue	Type of Challenge	Explanation	Recommendation
Right-of-Way (RoW) compensation	Regulatory	• **Unclear valuation method:** MERC's 2017 Practice Direction allows the licensee to recover the actual payout plus a 15% overhead, but it does not define a valuation formula when market prices exceed circle rates. This gap creates negotiations and frequent disputes.	Publish a follow-up valuation circular that sets a simple multiplier grid for all land classes and aligns it with PWD rates.
	Implementation	• **Delayed disbursal:** Developers regularly wait six to nine months for compensation, as there is no on-line payment-status tracker.	Introduce a 60-day payment SLA and display real-time disbursal status on MERC's OA portal.
	Structural	• **No grievance channel:** Maharashtra has no dedicated forum where landowners or developers can resolve RoW disputes, which prolongs construction timelines.	Create a RoW grievance cell within every district Collectorate to fast-track dispute resolution.
Curtailment of Wind & Solar	Structural	• **No compensation clause:** The SLDC may curtail renewable generators for "system economics" without paying for the lost energy, undermining project cash flows.	Introduce clauses mandating compensation for curtailed energy, ideally linked to average market tariffs or predefined rates, to ensure financial viability for generators.
	Implementation	• **Opaque reporting:** Curtailment events are listed in SLDC reports, but the curtailed megawatt-hours are not disclosed, so investors are unable to quantify revenue loss.	Mandate the SLDC to publish hourly curtailed MWh, including the reason code, so that generators can verify and claim compensation.
Grid infrastructure	Structural	• **Substation scarcity:** Most 132 kV bays in Vidarbha and Marathwada are already committed, so new renewable projects face queues longer than twenty-four months.	Direct the STU to publish an "N-1 capacity map" for each substation and update it quarterly.
		• **Manual allocation:** Bay booking is still paper-based, and MSETCL has not published an online capacity map, leaving developers in the dark.	Launch a private bay-leasing or "Build-Own-Operate" model to add spare bays in RE-rich zones.
Virtual / Group Net-Metering (VNM/GNM)	Implementation	• **Implementation awaits:** The second amendment to the rooftop regulations (April 2025) proposes VNM but is still awaiting circular from MSEDCL for its implementation.	Notify the commercial circular without delay and explicitly include C&I and SEZ campuses in the list of eligible entities.

Issue	Type of Challenge	Explanation	Recommendation
		• **C&I exclusion:** The current draft focuses on residential and MSME parks, leaving corporate campuses outside the scheme.	Allow VNM systems up to 5 times contract demand per campus so that large roofs can be fully utilised.
Banking restrictions	Regulatory	• **High in-kind fee:** The Green-OA amendment imposes an 8% energy deduction for banking, which is roughly four times the technical loss.	Reduce the in-kind fee to 2% or permit cash settlement at APPC to reflect true system costs.
		• **No carry-forward:** Surplus energy is reset every month, reducing the attractiveness of banking for wind-heavy portfolios.	Allow carry-forward to the end of the financial year so that seasonal projects can fully recover surplus energy.
Billing & Settlement for OA	Implementation	• **Manual, ad hoc:** Digitalization of the process is missing causing confusion and delays of thirty to forty-five days in invoice generation.	Deploy a state-wide e-invoicing portal that automatically imports SLDC schedules and meter data.
		• **Dispute backlog:** There is no digital workflow to track or resolve billing mismatches, so disputes can remain open for months.	Introduce a digital dispute-resolution module with defined response times for both the DISCOM and the consumer.
Limit on Onsite Capacity	Regulatory	• **1 MW cap:** The rooftop regulation limits each plant to the lower of contract demand or 5 MW, but the implementation of the order is still pending.	Raise the cap to 5 MW or twice the contract demand for C&I consumers.
			Introduce progressive net-billing so that surplus energy above self-consumption is compensated at APPC.

Tamil Nadu

Issue	Type of Challenge	Explanation	Recommendation
Green Open Access	Regulatory	Green Open Access regulations in Tamil Nadu are still in a draft stage, preventing customers between 100kW and 1MW demand from being eligible for green open access.	Push TNERC to notify the Green-OA amendment and date of effect, with an explicit AS waiver; CSS ≤ 50 %.
Right-of-Way compensation	Regulatory	• **Patchy valuation:** The Government Order issued in 2023 ties compensation to PWD guideline values, but it does not cover forest or hill categories, leading to case-by-case negotiations.	Extend the valuation matrix to all land classes and publish it on the TEDA portal.
	Implementation	• **Limited grievance forums:** Developers cannot escalate RoW disputes beyond the district office, causing schedule slippage.	Establish district-level RoW grievance desks so that disputes can be settled within sixty days.

Issue	Type of Challenge	Explanation	Recommendation
Curtailment of Wind & Solar	Implementation	• **Compensation rule under-used:** Although Order MP 5/2022 grants 100% APPC for unjustified curtailment, SLDC rarely processes claims, leaving generators unpaid.	Automate monthly curtailment settlements through the SLDC MIS so that compensation is credited without a separate claim.
		• **Incomplete reporting:** SLDC reports list the number of curtailment instructions but do not disclose the MWh curtailed.	Require the SLDC to publish curtailed MWh data alongside reason codes to improve transparency.
Grid infrastructure	Structural	• **110 kV congestion:** Coimbatore and Tirupur clusters face feeder saturation, delaying commissioning of new RE projects.	Publish a five-year RE evacuation plan and prioritise green corridors in high-congestion areas.
		• **Slow upgrades:** Land-acquisition disputes continue to stall new pooling substations.	Allow private capital into spur-line construction under a BOOT model.
VNM / GNM	Regulatory	• **No aggregation for C&I:** Current net-metering rules credit surplus only to the same service connection, so corporate campuses with multiple meters cannot share rooftop output.	Issue the final rooftop amendment authorising VNM up to 5 times contract demand per corporate or SEZ campus.
		• **Draft pilot pending:** The consultation paper of July 2024 proposes a pilot but has not yet been finalised.	Treat intra-group credit as captive consumption so that CSS and AS exemptions apply uniformly.
Banking restrictions	Regulatory	• **Peak lock-out:** The draft Green-OA regulations set a zero banking fee but prohibit withdrawal from 18:00 to 22:00, sharply reducing the value to solar-rich portfolios.	Replace the peak lock-out with a nominal drawal fee (e.g., ₹0.25/kWh) during peak hours.
		• **No annual carry-forward:** Monthly resets continue to penalise seasonal resources.	Allow un-drawn banked energy to carry forward to the end of the financial year
Billing & Settlement	Implementatio	• **Manual reconciliation:** Open-access invoices are prepared offline, and mismatches between SLDC and DISCOM data can take forty-five days to resolve.	Launch a unified OA portal that synchronises SLDC schedules and meter data with the DISCOM billing system. Introduce a thirty-day dispute-resolution timeline for invoice mismatches.
Limit on Onsite Capacity	Regulatory	• **One MW rooftop ceiling:** Large manufacturing roofs cannot install beyond 1 MW even if space and grid conditions permit	Lift the cap to 5 MW or twice the contract demand and permit net-billing for surplus generation.

Telangana

Issue	Type of Challenge	Explanation	Recommendation
Green Open Access	Implementation	While Green Open Access regulation exists, DISCOMs have not issued implementation procedures, blocking implementation of regulation	DISCOM need to publish circular for GOA along with detail procedure to initiate implementation of approved rules by the state
Right-of-Way compensation	Regulatory	• **No uniform valuation:** Compensation is negotiated individually because Telangana has not published a standard multiplier over District Land Values, leading to inconsistent payouts.	Publish a RoW valuation matrix linked to DLV and mandate electronic payment within sixty days.
	Implementation	• **Prolonged payment cycles:** Landowners often wait more than a year for disbursal, increasing project IDC.	Create an online RoW status tracker so developers and landowners can monitor approval stages.
Curtailment of wind and solar	Regulatory	• **Zero compensation:** There is no mechanism to pay generators for avoidable curtailment.	Insert a 100% APPC compensation clause for unjustified curtailment and publish daily curtailed MWh.
Grid infrastructure	Structural	• **Substation deficit:** The Mahbubnagar RE cluster has too few 132 kV bays, so new PPAs wait for bay construction that requires additional state capex.	Direct the STU to publish an n-1 capacity map and prioritise bay expansion in RE rich districts. Open a private bay-leasing scheme to accelerate connection timelines.
Virtual / Group Net-Metering (VNM/GNM)	Regulatory	• **Commercial users excluded:** Solar Rooftop Regulations 2021 cover only individual net-metering; VNM for corporate campuses is not permitted.	Amend the rooftop regulations to allow VNM/GNM up to 5 times contract demand for C&I and SEZ clusters. Recognise group credits as captive consumption so that CSS/AS waivers apply.
Banking restrictions	Regulatory	• **High fee and peak bar:** OA Regulation 1/2024 deducts 8% energy and bans withdrawal from 18:00 to 22:00.	Reduce the banking fee to 2% or settle in cash at APPC, reflecting actual system costs.
Limit on onsite capacity	Regulatory	• **One-megawatt cap:** The rooftop ceiling of 1 MW forces large roofs to stay under-utilised, and there is no net-billing option for surplus.	Increase the cap to 5 MW or twice the contract demand and allow net-billing above self-consumption.
No co-existence of net-metering and OA	Regulatory	• **Practical barrier:** Although the regulations are silent as of now; provisions are required to make sure simultaneous approvals for net-metering & OA	Issue a policy circular clarifying that net-metering and OA can co-exist up to the site's onsite generation and define DSM and wheeling implications.

Karnataka

Issue	Type of Challenge	Explanation	Recommendation
Right of Way (RoW) compensation	Regulatory	• **Unclear compensation valuation method:** While Karnataka's August 2024 notification lays out a RoW compensation framework, it lacks detailed guidance on how compensation is to be calculated, particularly when market rates differ from government guideline values. This creates confusion and scope for dispute.	The existing notification (August 2024) needs a follow-up clarification circular or implementation guidelines to be issued by the Karnataka Energy Department to standardise valuation and reduce disputes.
	Implementation	• **Inconsistent or delayed implementation:** Compensation delays remain common. Landowners may not be aware of their entitlements. Developers often face resistance on the ground, even when approvals are in place	Introduce a 60-day payment SLA and display real-time disbursal status on MERC's OA portal.
	Structural	• **Grievance Redressal:** No state-wide system for addressing RoW grievances from landowners or developers. Local resistance stalls progress and creates project uncertainty.	Create a RoW grievance cell within every district Collectorate to fast-track dispute resolution.
Curtailment of Wind and Solar	Structural	• **Absence of Compensation Mechanism for Curtailment:** No provision for compensating renewable energy generators for energy lost due to avoidable or un-necessary curtailment, leading to financial uncertainties and discouraging investment in renewable projects.	Introduce clauses in the KERC (terms & conditions for open access) regulations, 2025, mandating compensation for curtailed energy, ideally linked to average market tariffs or predefined rates, to ensure financial viability for generators.
	Implementation	• **Inadequate Monitoring and Reporting of Curtailment Events:** no mandatory requirement for the State Load Despatch Centre (SLDC) to report curtailment events, making it difficult to assess the frequency and impact of curtailment on renewable energy projects	Mandate the SLDC to publish regular reports detailing curtailment events, including reasons, duration, and affected capacities, to enhance transparency and inform policy decisions
Grid Infrastructure	Structural	• **Unavailability of Substations:** There is a lack of available substations in Karnataka for connecting new RE projects. This scarcity leads to delays in project commissioning and increased costs for developers.	KERC should mandate the STU to identify and develop substations in renewable-rich areas. Coordination with the CTU is essential to ensure seamless integration with the ISTS.
Banking Restrictions	Regulatory	• **Open access regulation 2025, 12.e** allows monthly banking only for the first 5 years of the project. The capacity will be wasted for the rest of the project's life.	Amend the 12.e. regulation and allow banking throughout the life of the project. Nudge regulations to have uniformity with the central regulation.

Issue	Type of Challenge	Explanation	Recommendation
Billing & Settlement for OA	Regulatory	As of now, billing & settlement processes are manual and ad hoc. There is no standard SOP which is followed within the state. This creates opaqueness in the system and increases the cost of operation.	Respective DISCOMs should have a standard SOP for billing and settlement for open access consumers. A digital process should be implemented to increase transparency.
Limit on Onsite Capacity	Regulatory	Karnataka SRTPV regulation, clause 6, allows the size of the rooftop plant to be up to 2000 kW only	This restriction on the limit of the capacity shall be removed, and the maximum possible capacity shall be allowed based on grid conditions.
No Co-existence of Net Metering + OA	Regulatory	KERC, by its order dated 18.07.2022, has decided NOT to allow net metering plus open access. This restricts consumers from maximising the renewable energy consumption by using both modes.	With the amendment to open access regulation 2025, Net metering with open access should be allowed.

ABOUT THE AUTHORS

Founded in 1945, the Mahindra Group is one of the largest and most admired multinational federation of companies with **320k+ employees in over 100 countries.** Mahindra operates across **20+ industries, with Auto, Farm, and Services as key sectors.** The Auto sector includes **market-leading SUVs**, LCVs, Last Mile Mobility electric 3-wheelers, trucks, buses, and iconic brands like JAWA and BSA. In Farm, Mahindra **leads in tractors** and has diversified into farm equipment and Agri-products. Additionally, Mahindra's Services sector spans diverse industries, including Mahindra Finance supporting farmers and entrepreneurs, Tech Mahindra driving global technology solutions, hospitality (Holidays), real estate (life spaces), logistics, steel (Accelo), auto recycling (Cero), renewable energy (Susten), and aerospace and defense. The Mahindra Group has a strong focus on sustainability via it's **'planet positive' strategy** and has committed to adopting 100% renewable energy across its operations and also becoming carbon neutral (for Scope 1 & 2 emissions) by 2040 or sooner.

Neufin Energy is a subsidiary of Neufin that helps **Commercial & Industrial (C&I) businesses source renewable energy and provides energy intelligence to streamline their electricity consumption and costs.** Sitting at the intersection of technology, policy, and power generators, Neufin Energy simplifies the shift to low-cost, low-carbon energy. Neufin Energy offers the most flexible path for C&Is to procure renewable energy pan-India through structured contracts, developed in partnership with leading power generators and compliant with state-specific regulations. Neufin's energy intelligence platform, Lumen, streamlines consumption, bringing total visibility and control over how electricity is analysed, paid for, and audited. The result is **lower power costs, cleaner energy, and easier compliance** with clean energy targets and supply-chain requirements like CBAM-linked disclosures. Neufin Energy collaborates with corporations and government bodies to identify and address bottlenecks to accelerate renewable energy adoption across the country.

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[43] Calculation based on resource adequacy planning and RPO requirement models for Telangana up to FY 2027-28. Clearing a 900 MW renewable energy pipeline can generate roughly 1.5 billion units (1,500 MU) annually, assuming a conservative capacity utilization factor (CUF) of around 19%, typical for solar in Telangana, which translates into significant progress toward meeting projected RPO shortfalls.

[44] Telangana Resource Adequacy Plan (up to 2031-32). Table 5: Projected RPO shortfall of ~3,444 MU in FY 2026-27 assumes fungible procurement across RPO categories.