

### **5.2.1. New solar PV and wind projects:**

The policy envisages at least 10 GW of new contracted RE (limited only to Solar PV, Wind and Wind-Solar Hybrid) capacity with co-located storage by FY 2029-30 and 25 GW of RE (limited only to Solar PV, Wind and Wind-Solar Hybrid) with co-located storage projects by FY 2035-36. Here, RE shall be limited to single source like wind, solar PV etc. or hybrid in the form of wind-solar capacity as well. To achieve this, RE (limited only to Solar PV, Wind and Wind-Solar Hybrid) capacity to be procured by distribution licensees shall include hybrid projects with energy storage. The storage capacity should be equivalent to at least 50% of the RE capacity and the storage duration shall be at least 2 hours for projects commissioned by end of FY 2029-30 and at least 4 hours for projects commissioned from start of FY 2030-31.

### **5.2.2. Adding energy storage or another energy resource to existing RE (only solar PV and wind) projects:**

As the costs of energy storage are expected to further reduce over the years, it will become increasingly viable to add storage to existing RE projects. Similarly, existing single source RE projects could also be converted into hybrid by adding another RE source to it. Both these routes namely, adding energy storage to existing RE projects and making a single source RE project into a hybrid project (co-located with another RE source) shall be allowed under the policy. No changes in the existing PPA (in terms of tariff, rights, duties and obligations) would take place on this account. However, increasing capacity of the existing project shall be allowed as long as the injection in to the grid does not exceed the quantum granted under grid connectivity in any time block.

Such additional capacity (of RE or ESS) may be utilised as per the discretion of the concerned project developer subject to the condition that there shall be no change in any obligations or rights with respect to existing PPA with any DISCOMs in the State. For such additional capacity, the concerned developer shall comply with all applicable Rules and Regulations such as metering, DSM, Forecasting and Scheduling etc.

Existing and upcoming RE (limited to only Solar PV, Wind and Wind-Solar Hybrid) projects evacuating power through a common pooling substation shall also be allowed to set up storage projects. Storage could be integrated with individual RE (limited to only solar PV and wind and Wind-Solar Hybrid) projects or could be integrated at the level of the pooling substation as a whole for multiple RE projects. However, this shall be allowed only as long as the metering arrangements which are put in place are such that verification of captive status, DSM requirements, individual project level energy accounting etc. can be done by the appropriate agencies in line with applicable Rules and Regulations. The metering arrangements for such systems shall be governed by the Metering Code based upon the operational modalities of such systems. Necessary amendments to the Metering Code shall be taken up by STU in consultation with stakeholders and approval from MERC as may be needed.

### **5.3. Stand-alone energy storage projects**

Apart from storage co-located with RE, the policy also promotes setting up of stand-alone energy storage projects (Pumped Storage Systems (PSP) as well as Battery Energy Storage Systems (BESS)). Apart from PSP or BESS specific stand-alone storage tenders, DISCOMs may also issue technology-agnostic standalone storage tenders, wherein only the procurer's requirement (MW, MWh, year of delivery etc.) will be specified. This will allow for more market innovation and possibly better price discovery.

The storage system may be operated in single cycle or multiple cycles (two or more) per day depending on the storage technology (cycle life, degradation etc.), configuration (stand-alone, co-located with RE, inter-connected on the DC or AC side, considering power and energy rating etc.) and availability of low cost power during different times of the day.

ESS has the capability to give storage service for multiple purposes to the buyers, sellers and grid operators. Hence, standalone Energy storage projects with capability to give storage as a service or provide other kinds of

ancillary service to the grid operator shall be permitted under the policy. The applicability of transmission charges and losses will be as defined in the 5.1.

#### **5.4. Distributed energy storage projects**

The role of distribution grids to provide reliable electricity supply is crucial. De-centralised BESS deployment to meet reliability needs for rural feeders, critical social and strategic loads (such as remote health care centres, small scale industries, and cold storage systems etc.) and manage areas with high rooftop solar penetration in urban areas can be very effective. MSEDCL has already begun procuring distributed battery storage systems to reliably integrate the distributed solar projects under MSKVY 2.0 as approved by MERC in Case No 173 of 2024.<sup>17</sup> Similarly, Tata power is planning to deploy 100 MW of BESS in Mumbai for reliable back up for critical infrastructure.<sup>18</sup>

To improve supply reliability and increase the integration of distributed RE projects, DISCOMs will conduct cost-benefit analysis to assess the value of distributed storage in rural and urban areas within 1 year of the notification of the policy. DISCOMs will put forward such analysis to the honourable MERC for approval and consider it under the Demand Flexibility Portfolio Obligation (DFPO) regulations and ESO targets. The policy envisages about 10% of the overall storage target (ESO) to be met through such decentralised ESS. This will be deployed in a distributed manner for this objective of improving distribution reliability and system flexibility. These investments can be financed through DISCOM ARR either in Capex or TOTEX mode. Procurement of the BESS infrastructure shall be conducted through a transparent bidding process in line with the bidding guidelines issued by MoP under section 63 of the EA, 2003 and with MERC approvals as may be needed.

From the date of the notification of the policy, DISCOMs shall give priority for grant of connectivity to RE projects under the Grid Interactive Rooftop Renewable Energy Generating Systems regulations provided that such RE (limited to only solar PV and wind) projects are integrated with a minimum level of energy storage as described below. Further, for projects above a threshold of 100 kW seeking connectivity from 1<sup>st</sup> April 2026 or any other date as may be notified by the Government of Maharashtra, it would be mandatory for developers/prosumers to install a minimum level of storage capacity and duration for such RE (limited to only solar PV and wind) under the Grid Interactive Rooftop Renewable Energy Generating Systems regulations. To begin with, from April, 2026, or any other date as may be notified by the Government of Maharashtra, the minimum level of storage would be for 50% of the RE capacity and for 2 hours duration. This minimum level of storage requirement would be reviewed and updated every two years and would be applicable to new projects. Existing rooftop solar projects (under all accounting frameworks – net-metering, BTM, gross metering, net billing etc.) will be allowed and encouraged to supplement their existing projects with energy storage.

#### **5.5. Urban and industrial Solar+Storage hubs**

To meet rising urban electricity demand and enhance reliability and resiliency, Maharashtra will promote the development of solar-plus-storage installations near major cities and industrial clusters. These may be multiple projects of 100-250 MW each around major urban and industrial areas. With solar and battery costs trends, such systems have the potential to provide decentralised, clean and reliable power. These decentralised energy hubs will reduce grid congestion, transmission losses, defer costly upgrades, and enhance resiliency during peak and outage events. Policy and regulatory frameworks to support such hubs will be developed.

#### **5.6. Bundling of Thermal power stations with RE and or Energy Storage**

On 5 April 2018, the Ministry of Power (MoP), Government of India issued the 'Flexibility in generation and scheduling of thermal power stations to reduce emissions' (MoP Bundling Scheme 2018) to provide power generators an opportunity to optimally utilize generation from RE sources and also help in reducing emissions.

The MoP Bundling Scheme 2018 was revised, in November, 2021, to cover replacement of thermal and hydro power with RE Power or RE combined with battery energy storage systems which was known as 'Renewable Energy Power Bundling and Flexibility in Generation and Scheduling of Thermal/Hydro Power Stations' (MoP Bundling Scheme, 2021). The MoP vide its notification dated 12 April 2022, issued the revised 'Scheme for flexibility in generation and scheduling of thermal/hydro power stations through bundling with renewable energy and storage power' (MoP Bundling Scheme, 2022) which is applicable to all new and existing thermal or hydro power stations. Further, vide letter dated 26 May 2022, MoP has issued trajectory for replacement of thermal energy by renewable energy. Recently on 21 June 2023, the MoP has issued Bundling Scheme, 2022 being 'Amendment in the Scheme for Flexibility in Generation and Scheduling of Thermal/Hydro Power Stations through bundling with renewable energy and storage power' (Amendment 2023) which allows RE plants to be set up in EPC mode, which are not co-located and through Joint Venture (JV).

MERC in its order, Case No. 246 of 2023, dated 4<sup>th</sup> Feb, 2025 has directed the Grid Co-ordination Committee to undertake a detailed study for exploring implementation of the MoP Bundling Scheme in the State. To encourage such bundling of RE (mainly solar PV) and or battery storage which would use common transmission evacuation system with existing thermal plants and to reduce fuels costs, the MSPGCL and other IPPs selling power to DISCOMs in Maharashtra are encouraged to explore such projects. The policy envisages a target of 2 GW of RE and or ESS by FY 2029-30 and 5 GW of RE and or ESS by FY 2035-36 through this route.

## 6. Enabling Land Availability and Transmission Infrastructure

Scaling up of renewable energy needs two key enablers namely, land with good quality RE resource and transmission connectivity and associated infrastructure. Government of Maharashtra (GoM) already has a solar-specific land-use policy under MSKVY 2.0 that encourages long-term land leasing with fair compensation to the landowners. GoM has fixed a minimum land lease rate of ₹1.25 lakh/hectare per annum with an annual escalation of 3% for 25 years. Nearly 10,000 farmers have voluntarily registered their land, under this initiative, totaling ~ 1 lakh acres which could support 25 GW of solar capacity.

### 6.1. Availability of Government land for RE (wind and solar) and BESS projects

The following policy shall be adopted regarding the availability of government land for renewable energy and BESS projects:

**Government land will be categorized into the following three types:**

Type 1: Land owned by various departments, companies, boards, public undertakings, administrative departments of the State Government, urban and local self-government bodies, universities, etc. (excluding land owned and controlled by the Revenue Department), including land owned by the Revenue Department but leased to such entities.

Type 2: Land owned and in the possession of the Revenue Department.

Type 3: Privately owned land or land owned/possessed by the Central Government, Central institutions/boards / public undertakings, ordnance factories, defense forces, etc.

#### **Type 1:**

**A)** For the purpose of establishing RE (wind and solar) projects on Type 1 land, the respective institutions holding jurisdiction over such land shall enter into agreements with distribution/generation/renewable energy companies. Such agreements may be in the form of lease agreements or based on revenue-sharing models, whichever is mutually agreed upon by both parties.

If the land has been granted by the government under specific non-transferable and restricted usage conditions, prior approval may be obtained at the competent level to permit its use for RE (wind and solar) purposes. Other conditions—such as lease duration, lease rent, etc.—shall continue to apply.

Additionally, where the leased land has the provision for sub-leasing, land may also be made available by forming a Special Purpose Vehicle (SPV) for specific objectives. In such cases, prior approval from the competent authority who originally allotted the land shall be obtained to change the designated use of the land for renewable energy projects.

In the case of land held by local self-government bodies:

- If the land required for the project is up to 15 acres, it may be made available at the Gram Panchayat level.
- For land between 15–25 acres, it may be made available at the Panchayat Samiti level.
- For land exceeding 25 acres, it may be made available at the Zilla Parishad level.

Necessary amendments shall be made in the relevant policies to facilitate this process.

However, if the land held by local self-government bodies has already been transferred or leased for a specific purpose, prior approval from the government shall be required for its use in this scheme. In the case of urban local bodies, the concerned urban body shall make decisions and enter into final agreements based on applicable terms and conditions for making such land available. For land held by administrative departments and other such bodies, the concerned administrative department or institution shall have the authority to decide on the applicable terms and lease out the land. Thereafter, if these departments/institutions intend to

set up RE (wind and solar) generation projects on their owned land, they shall do so in accordance with the provisions of this policy.

**B)** For the transmission of power generated from renewable energy sources, such land may also be provided by the concerned institutions/departments, etc., on a priority basis.

The land can be made available on appropriate terms and conditions through a lease agreement or at a nominal rent of ₹1 per annum for a 30-year lease, whichever option is mutually agreeable to both parties.

#### **Type 2:**

**A)** In the case of land under the jurisdiction of the Revenue Department, the distribution, generation, and renewable energy agencies shall submit their proposals to the respective District Collectors for land required for RE (wind and solar) projects. Based on the said proposals, the concerned District Collector, excluding land reserved for priority government administration purposes or other restricted lands, may make such land available for RE (wind and solar) projects as per the prevailing government policies. The land can be made available on appropriate terms and conditions through a lease agreement or at a nominal rent of ₹1 per annum for a 30-year lease, whichever option is mutually agreeable to both parties. The District Collectors and Divisional Commissioners shall transfer such land to the concerned parties within their delegated authority and obtain approval from the competent level as required.

**B)** Further, if the distribution, generation, and renewable energy agencies are developing their RE (wind and solar) projects themselves or through a developer (under PPP mode), and if the required land is fragmented, they may request the concerned District Collector for the integration of the government land portion within that fragmented plot. Based on such a request, the District Collector, within their authority, may prioritize and make the required land available for the execution of the RE (wind and solar) project, and seek approval from the competent level where required. A nominal lease rent of ₹1 per annum for a 30-year lease maybe levied in this case.

**C)** Additionally, for the purpose of transmission of renewable energy, the concerned District Collector, within their authorized powers, may prioritize and make the necessary land available at the prevailing standard ready reckoner rates.

### **6.2. Land lease rates for private land for RE (wind and solar) and BESS projects**

While seeking required private land on lease for RE (wind and solar) projects the base annual lease rate shall be as may be mutually agreed or the higher of: 6% of the land value determined for the year by the Registration and Stamps Department, or ₹1,25,000 per hectare. This base lease rate (Base Rate) shall increase by 3% annually using a flat escalation method.

### **6.3. Procedure for use of land for non-agricultural use for RE and BESS projects**

The recently enacted Maharashtra Land Revenue Code (Second Amendment) Act, 2025 has streamlined and simplified the procedure for Non-Agricultural use of land. Non-agricultural tax / premium shall be waived for renewable energy and energy storage projects established under this policy. The revenue department will issue necessary notification within 3 months, for the same in accordance with the applicable legal and procedural provisions.

### **6.4. Renewable Energy (Wind and Solar) Industrial Zones (Parks) (REIZ)**

To encourage the balanced development of wind and solar across the various districts (with good resource potential) of the state, to assist Intra-State transmission planning and to encourage direct RE (wind and solar) & storage procurement by OA and CPP consumers in Maharashtra from projects located within the state and connected to the InSTS, it is necessary to provide ready infrastructure and land. For this purpose, Renewable

Energy Industry Zones (REIZ), specific to wind and solar power shall be developed across the state. The policy envisages the development of at least 10 REIZs across the state by FY 2029-30 and 15 REIZs by FY 2035-36. The size of these REIZs shall be at least 100 MW. This minimum threshold will be reviewed and updated from time to time.

REI Zones may be developed by designated REIZ/Park Developer. Designated REIZ / Park Developer may be

- a). State PSUs or
- b). JVs between State and Central PSUs or
- c). in public private partnership (PPP) mode with State PSUs and private sector entities or
- d). in public private partnership (PPP) mode with State PSU and Central PSUs and private sector entities.

Designated agency for REIZ, District Collectors, Maharashtra Remote Sensing Application Centre (MRSAC), Nagpur, MSEDCL, MSETCL and any other agencies as needed shall collaborate and share the list / information of government / semi-government / private land available for RE (wind and solar) projects. Based on digital maps prepared for the PM Gati Shakti portal, land suitability for RE (wind and solar) projects shall be assessed using layered mapping, considering factors such as terrain, soil type, flood risk, railway lines, etc. Probable and indicative locations of the REIZs will be identified by Designated agency for REIZ and District Administration based on multiple criteria such as optimising transmission lines and costs, land suitability for RE (wind and solar) and likely generation profile and resource potential.

REIZ developers will aggregate land suitable for one or more RE (wind and solar) technologies, undertake basic land development, road infrastructure development and secure InSTS connectivity and right of way for evacuation lines if necessary. REIZ developer can aggregate government land or private land and lease it as per the lease rates detailed in section 6.2 or purchase/lease private land through direct mutual negotiations. REIZs can also aggregate land from farmers in the form of project equity by offering mutually agreed valuation of the land and return on equity to be paid to the farmers. REIZs can have single or multiple RE (wind and solar) projects while meeting metering, evacuation and forecasting and scheduling related requirements of concerned agencies. REIZ developers can also sell or auction REIZ to other interested project developers for development of RE projects in the REIZ.

To kick-start this activity, aggregate budgetary support of Rs. 500 crores shall be provided to designated State REIZ Developer or joint ventures involving State PSUs. Detailed guidelines for State PSU participation in the REIZ scheme shall be issued by Energy Dept, GoM within three months of the notification of the policy.

## **6.5. Enabling transmission infrastructure and reliable grid operation**

MSETCL has a large transmission network with 51,518 ckt kms of transmission lines including 742 EHV substations with 1,38,598 MVA of transformation capacity. This network handled around 21 GW of power and has transmitted 1,91,536 MUs of electricity in FY 2023-24.<sup>19</sup> Given the changing dynamics in generation (increasing renewables incl. hybrids, decentralised RE, changing share of in-state and out of state generation and their geographical location being quite different from conventional generators), demand (electrification of new end uses like transport, cooking and Green Hydrogen), increasing open access and captive projects based on renewables, likely changes in consumption profiles with introduction of ToD tariffs and energy storage (PSP and BESS at scale) transmission planning and operation needs to undergo a paradigm shift. This calls for improvements in transmission planning with greater coordination, network optimization, reliable grid integration of RE and adequate investments in transmission including through the private sector. The inter-state transmission (ISTS) charges waiver for renewable energy is coming to an end and the next phase of RE growth would be dominated by projects connected to the InSTS grid. To encourage the development of projects connected to the InSTS, the STU has released [Revised procedure for Grant of Grid Connectivity to projects based on Renewable Energy sources to Intra-State Transmission System](#) on 7<sup>th</sup> January, 2025. Further

in line with the State Grid Code requirements, the STU has prepared its ten-year Transmission System Plan (FY 2024 - 25 to FY 2033-34), according to which 81,950 MVA and 6,879 ckt-km line length at various voltage levels are planned to be added as new corridor schemes.<sup>20</sup> As per the State Grid Code, STU in consultation with the SLDC develops the Integrated Resource Plan for the State for a period of five years. Further, STU prepares and publishes Transmission System Plan comprising of a short term, medium term and long term Transmission System Plan which it updates yearly or every two years depending on term of the plan.

STU in consultation with the Maharashtra State Load Despatch Centre (MSLDC) shall revise the Transmission Integrated Resource Plan for the State and the Transmission System Plan taking into consideration the policy target of 65% share of RE by FY 2035-36 and 10% ESO by FY 2035-36. The revised IRP Plan and Transmission System Plan shall be finalised after due public consultation in line with the processes and timelines outlined in the State Grid Code. While preparing these plans, the following aspects shall be specifically considered by the STU.

- A. **Proactive planning for REI Zones:** MEDA shall declare preferential/potential RE development zones/parks. STU shall closely coordinate with the REIZ / Park developer appointed for development for RE Zones as described in section 6.4 above for creation of transmission evacuation infrastructure for those areas in a phased manner.
- B. **Optimisation through energy storage:** Cost effective Energy Storage has the potential to significantly change the future peak load as well as line loading and utilisation and hence should be clearly factored into planning. Several independent studies as well as official studies from CEA have established the importance of energy storage for the reliability of the grid in meeting peak demand, to integrate large share of RE and for balancing. STU/MSETCL shall specifically study Energy Storage deployment with transmission infrastructure to optimize and defer transmission infrastructure investments, maximize the utilization of the transmission assets, reduce state level congestion, RE curtailment and strengthen grid stability. Based on study by STU, within one year of the notification of the policy, MSETCL shall undertake assessment of transmission linked storage requirements and initiate necessary regulatory approvals for procurement thereafter. Based on study by STU, MSETCL may undertake innovative InSTS and Storage projects and request funds from MEDA's Harit Urja Nidhi for this purpose. The policy envisages an indicative target of 4 GWh by FY 2029-30 and 10 GWh by FY 2035-36 to be deployed for this objective of improving transmission utilisation, optimising investments, reliability and system flexibility.
- C. **Solar hour and Non-solar hour access for RE projects:** To further encourage solar+storage projects and hybrid RE (incl. ESS) projects and to enhance the utilisation of the transmission network, access with injection scheduling rights maybe differentiated between solar hours and non-solar hours for RE projects as the case maybe. Such a framework has recently been adopted for ISTS connected RE projects as part of CERC's Connectivity and General Network Access to the inter-State Transmission System) (Third Amendment) Regulations, 2025.<sup>21</sup> STU in consultation with MSLDC shall study this possibility within 12 months of the notification of the policy and initiate action to operationalise this for InSTS.
- D. **Optimisation of transmission network:** While preparing transmission plans, STU/MSETCL shall ensure that as far as possible multiplicity of lines is avoided and available corridors are utilized optimally. Use of appropriately located energy storage and flexible AC transmission system devices shall be considered to ensure optimal investments in expansion of InSTS system. Hybrid operation of two or more renewable energy sources with or without storage shall be encouraged to reduce the variability in supply, and lead to optimum usage of the transmission system. Distributed resources like solar (connected to the 33/11 kV feeders and rooftop solar) and storage can reduce need for transmission investments and hence would be encouraged.
- E. **Right-of-way (RoW) and reconductoring:** Significant investments are needed in transmission to handle long term growth in demand and supply. However, in the short term, from an implementation perspective, the

Right-of-way (RoW) issues are increasingly affecting construction of new transmission lines. Reconductoring / Upgradation of existing AC transmission lines to higher voltage AC lines with multi circuits / multi voltages and uprating by use of new generation High Temperature Low Sag (HTLS) conductors shall be explored to conserve existing RoWs and to enhance power flow and reduce losses per meter of RoW. MSETCL shall undertake a reconductoring study of the InSTS network and submit it to the Energy Department, GoM within 1 year of this policy being notified. Based on this study, specific reconductoring projects shall be undertaken if required. MSETCL shall give priority to such projects where reconductoring improves RE power evacuation or integration.

- F. **Advanced conductors:** New RE corridors will explore using advanced high-capacity conductors.
- G. **Grid strengthening:** MSETCL will take up necessary grid strengthening measures, if required, in areas where RE projects are connected to minimise curtailment of RE power. Similar grid strengthening shall be taken up by MSETCL for identified repowering projects.
- H. **Grid forming inverter-based resources:** With rising shares of solar and wind energy, coupled with BESS, the share of inverter-based resources (IBR) in the grid is increasing while that of synchronous generators is falling. This brings with it new operational challenges for grid operators around inertia, frequency and voltage control, protection systems etc. Grid-forming inverters can provide critical system strength, inertia, and voltage, frequency control—functions traditionally delivered by synchronous generators—ensuring grid stability in high-RE scenarios. Thus, there is a need for studying this aspect in Maharashtra’s context and specifying the technical standards and the need for grid-forming inverters are part of future regulations and tender documents.
- I. **5-year grid strengthening and modernization plan:** With due consideration to issues in point no. A to H above and in view of challenges such as existing RoW issues and its mitigation measures, delay in land acquisition for substations, ageing of transmission assets, live assets completed regulated useful life, upgradation and/ or reconductoring options, grid strengthening by way of addition of transformation capacity by augmentation / replacement of transformer in existing substations; STU shall prepare grid strengthening plan while Transmission Licensee shall proactively prepare five year plan for grid modernization and seek STU approval for implementation.

#### 6.5.1. Competition and pricing of RE related transmission infrastructure

While the TBCB threshold for InSTS projects has been lowered from Rs 500 cr to Rs 200 cr, to encourage the faster development of state transmission network, as far as possible new transmission projects related to RE evacuation may be taken up under TBCB mode in line with the [Guidelines for Selection of Transmission Projects to be executed under TBCB issued by STU](#). Further, as far as possible, the transmission project development timelines will be synchronised with the timelines for RE project development.

#### 6.5.2. Transmission connectivity for projects based on RE sources and for Energy Storage Systems

In order to promote RE and Storage investment in the state and to facilitate genuine participants, there was need for dedicated procedure for allotment of grid connectivity based on appropriate application entry routes and security mechanism for transmission infrastructure development, by suitably adopting the approach at Central level. The new and separate RE grid connectivity procedure, dated 7<sup>th</sup> January, 2025 has been formulated by MSETCL/STU and this brings in clarity on several aspects. To further streamline and accelerate RE connectivity process, the STU shall bring in amendments to this procedure as needed from time to time to enhance flexibility in various aspects such as partial project commissioning, increasing existing RE project capacity, land requirements, metering requirements for multiple projects in a REIZ etc.

### **6.5.3. Maharashtra State Load Despatch Centre (MSLDC) and State Transmission Utility (STU) autonomy**

To further improve power system operation and planning, as envisaged under Section 39 and Section 31(2) of the EA, 2003, GoM shall initiate steps for restructuring of MSETCL within one year of the notification of this policy. In order to ensure autonomy and accountability, STU, MSLDC and MSETCL functions shall be restructured and ring fencing / independence of STU and SLDC activities will be ensured through new structural arrangements. The newly formed structural arrangements shall ensure the autonomy of MSLDC and STU. While creating these new structural arrangements, the existing structural arrangements at central level like CEA (regarding transmission planning), CTU and Grid India will be considered and new arrangements shall be designed to cater to state specific needs.

### **6.5.4. Distribution System Operators (DSO)**

Considering the expected large RE generation and BESS connected at the distribution network and need for multi-layered control architecture and the increasing complexity of system operation, STU, SLDC and MSEDCL will conduct a study to assess the concept and feasibility of a Distributed System Operators in Maharashtra and shall submit the same to the Energy Dept, GoM for further consideration within 1 year of the notification of this policy.

### **6.5.5. Reliable grid operation and integration of renewables**

To ease the issue of reliable grid integration of RE, the F&S regulations shall be made more effective by giving appropriate incentive and penal frameworks to improve RE forecasting and reduce deviation errors and reflective of the fact that Maharashtra is heading towards 50% RE by FY 2029-30. Appropriate changes in F&S regulations such as aligning the deviation formula with conventional DSM processes, tightening of deviation bands and charges over time will help the state to accommodate more renewable energy resources without burdening the grid, and this will enable discipline in accurate forecasting by the RE generators. The regulations will be framed in such a way that stability of the grid is maintained all the time but may also consider flexibility like allowing pooling of schedules for the purpose of calculation of deviations from schedule.

Further, MSLDC will conduct a study on the need for various ancillary services for reliable grid operation in the future and suggest implementable measures for strengthening the grid. The study will stress on the role of different stakeholders in this regard. Such studies will be conducted within a year of notification of this policy and will be revisited in three years of policy notification. These studies will be submitted to the Energy Department, GoM and MERC which will take appropriate next steps.

Within one year of this policy, MSETCL/STU in consultation with MSLDC shall prepare a plan to set up a 500 - 1000 MW grid connected BESS/Energy storage plant specifically to improve grid stability and provide ancillary service.

## 7. Promoting Competition and Consumer Choice

Over the past decade, Maharashtra has witnessed a steady growth in consumer-led renewable energy adoption. Rooftop solar installations have expanded across residential, commercial, and industrial segments, driven by declining technology costs, supportive net metering regulations, and growing consumer awareness. As of January, 2026<sup>22</sup>, the state had seen 5 GW of installed rooftop solar capacity (incl. PM Surya Ghar). In parallel, renewable energy-based Open Access and Captive projects have enabled large consumers—particularly in the industrial and commercial sectors—to directly procure solar and wind power at competitive tariffs. Maharashtra has emerged as one of the leading states in total RE Open Access capacity addition during this period, reflecting both consumer appetite and investor confidence. As of FY 2023-24, the OA and Captive consumption in Maharashtra was 7763 MU of which nearly 90% was through the captive route and just under 50% was based on renewables.

As the sector matures, it is imperative to ensure that the frameworks governing direct procurement by consumers continue to evolve in a manner that safeguards the broader electricity ecosystem. Consumer choice must be preserved and expanded, while also ensuring a fair allocation of risk and reward across all stakeholders. DISCOMs, as the universal service providers and custodians of the distribution network, play a critical role in enabling such choice through reliable wire infrastructure, grid balancing, and customer service. This policy therefore seeks to promote consumer access to renewable energy—through rooftop solar, Open Access, and emerging models—while ensuring financial sustainability of DISCOMs and cost-reflective pricing for network and reliability services. A stable, transparent, and equitable framework will be critical to scale up consumer-driven decarbonization without undermining the health of the distribution sector.

### 7.1. Direct RE procurement by small consumers (1-100 kW)

The Maharashtra Electricity Regulatory Commission (MERC) has established a comprehensive regulatory framework to promote grid-interactive renewable energy systems, including rooftop solar installations. The [MERC's \(Net Metering for Roof-top Solar Photo Voltaic Systems\) Regulations, 2015](#) laid the foundation for net metering in the State, enabling consumers across various categories to install rooftop solar systems and receive energy credits for surplus generation exported to the grid. These were superseded by the [MERC's \(Grid Interactive Rooftop Renewable Energy Generating Systems\) Regulations, 2019](#) with amendments in 2023 and 2024. These regulations incorporate evolving technical standards, consumer eligibility, and system capacity limits in line with Central Rules and guidelines. MERC has also provided clarity on gross metering, virtual net metering for group housing societies, and behind-the-meter installations, ensuring broader participation. Distribution Licensees, including MSEDCL, have issued detailed implementation guidelines and standard operating procedures to operationalise these regulations. Together, this framework has played a key role in scaling rooftop solar adoption across Maharashtra while maintaining grid safety, metering integrity, and consumer protection.

To enable a balanced and equitable growth of direct RE procurement by small consumers (1-100 kW), the policy proposes a layered framework based on project size. The broad objectives and principles of the proposed approach are

1. Enabling access to alternate supply options for most consumers.
2. Ensuring cost reflective charges for all DISCOM services.
3. Protection of small consumers and provision of reliable, affordable supply.

### 7.1.1. Options for direct procurement up to 100 kW

The table below gives a broad indicative framework for direct procurement options for all consumer categories up to 100 kW. This framework may be considered by Honorable MERC for establishing the regulatory framework for such direct procurement by consumers.

RE Capacity / Contract Demand	Up to 3 kW	3 - 10 kW	10-100 kW	
For individual projects	Concessional Net Metering	Net Metering	Net-Billing	Optional Green OA
Capacity and Procurement agreements	Individual consumer RE capacity to be restricted to Contract Demand. Off-site generation (virtual metering) and aggregation of consumers allowed.			Group Captive, aggregation for same consumer. RE capacity limit not linked to Contract Demand.
Banking Framework	Annual Banking and across ToD slots. No Banking charge	Monthly Banking and across ToD slots. Banking/Reliability charge - Grid Support Charge (GSC) levied per kW of renewable energy contracted	Monthly, only within a ToD slot. Banking/Reliability charge - Grid Support Charge (GSC) levied per kW of renewable energy contracted	Banking allowed across ToD slots; Banking charge per kWh of energy banked, should be reflective of energy storage costs, or different between ToD tariffs in non-solar peak and solar slots
Energy Accounting and Metering	ToD slot-wise energy accounting; Smart or ToD Meter			Special Energy Meter
Surplus energy at the end of accounting period	To be purchased by DISCOM at the average G-DAM market price for that ToD slot for that month.			Not Applicable
Settlement of injected energy across ToD slots	Not applicable given annual banking.	Bucket filling, from lowest to highest ToD slots	Not applicable	Bucket filling, from lowest to highest ToD slots
Scheduling and DSM	Not applicable			As per applicable regulations

Aspects which will be common to all procurement options shall be as follows.

- Any virtual or offsite arrangement will have to bear the full wires (transmission and or distribution) charges and losses.
- There shall be no storage mandate specifically on the consumer.
- Any arrangement will have a minimum lock in period of 1 year.
- For consumer/ beneficiary under net metering/net billing, RE capacity should not exceed contract demand.
- Net balance drawal from the DISCOM charged at applicable telescopic tariff slab.
- Inverters and communication devices deployed under schemes such as PM Surya Ghar: Muft Bijli Yojana shall adhere to the prevailing MNRE guidelines. These require integration of Machine-to-Machine (M2M) SIM-based communication protocols, and mandatory connectivity to MNRE-managed National Servers for secure and reliable real-time data transmission.

### 7.1.2. Virtual, aggregate metering for public bodies

To increase future collection efficiency and reduce build-up of dues from government departments and public bodies, there shall be an emphasis on implementing virtual, aggregate metering arrangement for public bodies. Under the scheme, electricity consumption of bodies such as Municipal Corporations, ULBs, RLBs,

Water boards etc. would be aggregated and equivalent solar capacity may be set up by the Government of Maharashtra or any public body.

### 7.1.3. Battery Energy Storage Systems (BESS) for MSME

In order to improve competitive supply procurement by MSMEs and to meet their energy banking requirement and to enhance reliability, deployment of BESS systems at consumer end will be valuable. This will also support reliable grid operations. A bulk procurement program of BESS systems between 10-100 kW with two to four hours storage shall be undertaken by MSEDCL to reduce cost of such systems for MSME consumers. Partial financial support for such bulk procurement may be borne out of the Harit Urja Nidhi.

## 7.2. Direct RE procurement by medium and large consumers (>100 kW) through long term Green OA

The Electricity Act, 2003, the Green Open Access Rules, 2022 and the Open Access Regulations of MERC provide the legal eligibility and supporting framework for consumers to exercise their choice to directly source or generate their power. The MERC through their [second amendment to the Distribution OA regulations](#), dated 10<sup>th</sup> November, 2023 have enabled the provisions related to Green Open Access. Further the MSEDCL has come out with [commercial circular](#) on 9<sup>th</sup> September, 2024 for operationalising the same.

This policy intends to further such consumer choice and competition by enabling a simplified, harmonious long-term open access framework which balances the risks and rewards for open access consumers, discoms, and their non-open access consumers. State utilities and the regulator must strive to create facilitative frameworks towards increasing competition and market development in the state. In FY 2024-25, ~ 8,400 MU of energy was wheeled under open access in the state of which just under 50% was from renewable energy. Going ahead, the share of RE in OA sales is expected to sharply increase along with the overall quantum of OA sales. This is apart from the 3,034 MW of rooftop capacity installed by consumers by Jan, 2025. This share is going to increase in the future with the availability of low-cost renewable energy and energy storage. RE based captive, open access and rooftop solar promotion will result in enhanced cost competitiveness of Maharashtra enterprises and would also encourage private investments in the state towards renewable energy and energy storage deployment.

At the same time, migration of consumers poses significant risks to DISCOMs in terms of revenue attrition, challenges with power procurement planning, grid operations and planning network investments. While it is crucial that consumers are provided choice to opt for open access, captive and rooftop solar, it is also critical that DISCOMs continue to operate without bearing significant risks due to promotion of consumer choice. A balanced approach would involve a three-pronged strategy. The first aspect of this strategy emphasizes on establishing facilitative frameworks to ensure transparency and ease of doing business with non-DISCOM supply options. The second aspect is dedicated to creating frameworks that identify and mitigate risks to DISCOM operations. This includes ensuring that DISCOMs receive adequate compensation for the services they provide, thereby facilitating a smooth migration process. The third aspect involves investment in power procurement planning as well as network and metering infrastructure to enable DISCOMs to provide quality service and ensure advanced energy accounting to price services appropriately.

From the date of the notification of the policy, STU/MSETCL shall give priority for grant of connectivity to RE projects under the Distribution and Transmission Open Access Regulations provided that such RE (limited to only solar PV, Wind and Wind-Solar Hybrid) projects are integrated with a minimum level of energy storage as described below. Further, for all RE projects seeking transmission connectivity from 1<sup>st</sup> April 2026 or any other date as may be notified by the Government of Maharashtra, it would be mandatory for developers to install a minimum level of storage capacity and duration for such RE (limited to only solar PV, Wind and Wind-Solar Hybrid) projects above a threshold of 100 kW under the Distribution and Transmission Open Access Regulations. To begin with, from 1<sup>st</sup> April 2026 or any other date as may be notified by the Government of

Maharashtra, the minimum level of storage would be for 50% of the RE capacity and for 2 hours duration. This minimum level of storage requirement would be reviewed and updated every two years and would be applicable to new projects. Existing RE (limited to only solar PV and wind) projects will be allowed and encouraged to supplement their existing projects with energy storage.

### **7.2.1. Ease of accessing Green Open Access: simplified procedures with timebound clearances**

By lowering the eligibility threshold for Green Open Access to 100 kW from erstwhile 1 MW, access to competitive choice to a wide number of consumers, especially MSME is now available. This RE policy envisages focus on operationalising this choice for MSME consumers in a transparent manner and to ensure ease of doing business in Maharashtra. This choice for consumers will be governed by the applicable regulations. Building on the procedures and platforms created to facilitate this choice, the STU and MSLDC along with all DISCOMs in the state will hold consultations with relevant stakeholders (RE generators and existing OA/CPP and potential Green OA consumers) within 2 months of the notification of this policy. Based on this, within 2 months, further necessary modifications and changes will be made to the SLDC, STU and DISCOMs portals and the application process to streamline it and reduce timelines. This must ensure single window clearance of all required aspects of seeking Green OA for all eligible consumers in a time-bound manner as stipulated in the Rules and Regulations. Building on this, a detailed and updated user-manual shall be published by DISCOMs.

Additionally,

- a) The state LDC and STU green open access portals will also seamlessly interface with the National Green Open Access Registry to ensure streamlined and transparent processing of applications across all stages.
- b) Assistance would be provided to consumers using the portal with a dedicated call centre, standard operating procedures and practice directions in line with existing and applicable regulations. A user-friendly guide, addressing key bottlenecks in completing the application process, shall be made available.
- c) DISCOMs shall appoint a dedicated officer, not below the rank of Superintendent Engineer, in each Zone to provide support to MSMEs seeking green open access and help them in completing necessary procedures.
- d) The state green open access portal shall publish status of all applications including milestones such as portal registration, grant of connectivity, obtaining requisite clearance from DISCOMs etc.
- e) The portal shall publish aggregate statistics of applications accepted, rejected and pending along with average pendency at every stage of the application process. In addition, the portal shall publish periodic reports with ten most common reasons provided by the appropriate nodal agency for rejection of applications. This will be analysed to understand and address systemic and procedural issues (related to regulatory lacunae, infrastructure bottlenecks, etc.).

### **7.2.2. Targets, project sizing flexibility and incentives**

To further enhance flexibility in project sizing, encourage long-term green OA which can allow up to 100% of power requirements being met directly by the consumer, the policy envisages a target of 5 GW/10 BU of long-term Green Open Access procurement in the state by FY 2029-30 and 10 GW/20 BU by FY 2035-36.

Further, long-term Captive Green OA projects in Maharashtra and which supply power within Maharashtra which integrate energy storage (for a minimum of 4 hours of 50% of the RE capacity contracted) into the projects (either at the generation end or at the consumer end), thereby reducing the need for banking services from the DISCOMs shall be exempt from payment of Electricity Duty for 10 years from the commissioning date. Energy Department, GoM shall set up a committee consisting of representatives from MSETCL, STU, MSLDC and any other stakeholder as may be needed to assess the possibilities of

- Rationalizing the transmission charges for RE based MTOA and LTOA projects.
- Enabling higher RE project sizing in relation to Contract Demand/Sanctioned Load considering the issue of '*resultant power flow*'.