TELANGANA ELECTRICITY REGULATORY COMMISSION
(FRAMEWORK FOR RESOURCE ADEQUACY) REGULATION, 2026

REGULATION NO. 03 OF 2026

In exercise of the powers conferred under Section 181 of the Electricity Act, 2003 (36 of 2003), read with Sections 61, 66, and 86 thereof and all other powers enabling it in this behalf, and after previous publication, the Telangana Electricity Regulatory Commission hereby makes the following Regulations, namely –

CHAPTER 1- PRELIMINARY

1. Short Title, Extent, and Commencement

1.1. This Regulation shall be called the **Telangana Electricity Regulatory Commission (Framework for Resource Adequacy) Regulation, 2026.**

1.2. This Regulation shall extend to the whole state of Telangana.

1.3. This Regulation shall come into force from the date of publication of this Regulation in the Telangana Gazette.

2. Objective

2.1. The objective of this Regulation is to enable the implementation of Resource Adequacy framework by outlining a mechanism for planning of generation, transmission and Distribution resources for reliably meeting the projected demand in compliance with specified reliability standards for serving the load with an optimum generation mix.

2.2. The Resource Adequacy framework shall cover a mechanism for demand assessment and forecasting, generation resource planning, procurement planning, its monitoring and compliance.

3. Scope and Applicability

3.1. This Regulation shall apply to the Generating Companies, Distribution Licensees, State Load Despatch Centre, Transmission Companies, other grid connected entities and stakeholders within the State of Telangana.

4. Definitions

4.1. In this Regulation, unless the context otherwise requires:

a) "**Act**" means the Electricity Act, 2003 (No. 36 of 2003) and subsequent amendments thereof;

b) "**Authority**" or **"CEA"** means Central Electricity Authority referred to in sub-section (1) of Section 70 of the Act;

c) "**Capacity Credit**" or "**CC**" means a percentage of a resource's nameplate capacity that can be counted towards resource adequacy requirements;

d) "**CERC**" means the Central Electricity Regulatory Commission;

e) "Commission" or "State Commission" means the Telangana Electricity Regulatory Commission (TGERC) constituted under the Act.

f) **"Electric Power Survey" or "EPS"** means a periodic electric power survey conducted by the Central Electricity Authority to assess the electricity demand on medium and long-term basis for each DISCOM/State/Union Territory/Region and for the country;

g) "**Expected Energy Not Served**" or "**EENS**" means the expected amount of energy (MUs) that may not be served for each year within the planning period for Resource Adequacy planning;

h) **"Long-Term"** means duration ten years for development of demand forecasting and generation resource planning;

i) **"Long-Term Power Procurement"** means procurement of power under any arrangement or agreement with a term or duration exceeding seven years;

j) "**Long-Term Distribution Resource Adequacy Plan**" or "**LT-DRAP**" means plan for assessment of long-term resource adequacy by the Distribution Licensee;

k) "**Loss of Load Probability**" or "**LOLP**" means probability that a system's load may exceed the generation and firm power contracts available to meet that load in a year;

l) **"Medium-Term"** means duration exceeding one year and up to five years for development of demand forecasting and generation resource planning;

m) **"Medium-Term Power Procurement"** means procurement of power under any arrangement or agreement with a term or duration exceeding one year and up to seven years;

n) "**Medium-Term Distribution Resource Adequacy Plan**" or "**MT-DRAP**" means plan for assessment of medium-term resource adequacy by the Distribution Licensee;

o) **"Month"** means a calendar month as per the Gregorian Calendar;

p) "**Net Load**" means the load derived upon exclusion of actual renewable energy generation (MW) from gross load prevalent on the grid during any time-block;

q) "**Normalized Energy Not Served**" or "**NENS**" is normalization of the EENS by dividing it by the total system energy (MUs);

r) "**Planning Reserve Margin**" or "**PRM**" means a percentage of the capacity over and above the State's coincident share in national peak demand as may be laid down by Authority or approved by the Commission from time to time for the purpose of generation resource planning;

s) **"Power Exchange"** means any Exchange operating as Power Exchange for electricity in terms of the Regulations issued by the Central Electricity Regulatory Commission;

t) **"Power Purchase Agreement (PPA)"** means the agreement entered into between the Procurer(s) and the Seller pursuant to which the Seller shall supply power to the Procurer(s) as per the terms and conditions specified therein;

u) **"Power Sale Agreement (PSA)"** shall mean the back-to-back agreement entered into between the Buying Entity(s) and the Intermediary Procurer/trader for onward sale of power purchased under any PPA;

v) **"Power Supply Agreement"** shall mean the agreement entered into between the

Procurer(s) and the Seller pursuant to which the Seller shall supply power to the Procurer(s) as per the Ministry of Power Guidelines;

w) "**Resource Adequacy**" or "**RA**" means a mechanism to ensure adequate generation resources to serve expected demand (including peak, off peak and in all operating conditions) reliably in compliance with specified reliability standards for serving the load with an optimum generation mix and with a focus on integration of environmentally benign technologies after taking into account the need, inter alia, for flexible resources, storage systems for energy shift, and demand response measures for managing the intermittency and variability of renewable energy sources;

x) **"Short-Term"** means duration up to one year for development of demand forecasting and generation resource planning;

y) **"Short-Term Power Procurement"** means procurement of power under any arrangement or agreement with a term or duration of up to one year;

z) "**Short-Term Distribution Resource Adequacy Plan**" or "**ST-DRAP**" means plan for assessment of short-term resource adequacy by the Distribution Licensee;

aa) "**SLDC**" means the State Load Despatch Centre of Telangana;

ab) **"State"** means the State of Telangana;

ac) **"Year"** means financial year commencing on 1st April of the year and ending on 31st March of the succeeding year.

4.2. All other words and expressions used in this Regulation, although not specifically defined herein above, but defined in the Act or other Regulations of the Commission or CEA Guidelines, shall have the meaning assigned to them in the Act or other Regulations of the Commission or CEA Guidelines. The other words and expressions used herein but not specifically defined in this Regulation or in the Act but defined under any law passed by the Parliament applicable to the electricity industry in the State shall have the meaning assigned to them in such law.

4.3. The specific procedures/provisions of this Regulation, shall override any such similar procedures/provisions specified in the other Regulations issued by the Commission.

CHAPTER 2- GENERAL

5. Resource Adequacy Framework

5.1. Resource Adequacy framework shall comprise planning of generation resources for reliably meeting the projected demand in compliance with specified reliability standards for serving the load with an optimum generation mix.

5.2. Resource Adequacy framework shall cover following steps:

a) Demand assessment and forecasting;
b) Generation resource planning;
c) Planning of transmission network augmentation/ strengthening;
d) Planning of distribution network augmentation/ strengthening;
e) Procurement planning;
f) Monitoring and compliance.

5.3. The Resource Adequacy exercise shall be developed and prepared for a planning period of 10 (ten) years on annual rolling basis.

5.4. the Distribution Licensees shall develop and prepare Long-Term Distribution Resource Adequacy Plan (LT-DRAP) along with Distribution plan, Medium-Term Distribution Resource Adequacy Plan (MT-DRAP), and Short-Term Distribution Resource Adequacy Plan (ST-DRAP) in accordance with this Regulation.

5.5. The STU shall develop and prepare transmission planning criteria in accordance with the latest transmission planning criteria issued by CEA and the state grid code along with Resource Adequacy plan of TGDISCOMs and accordingly file before the Commission along with the MYT / Annual Tariff petitions.

CHAPTER 3- DEMAND ASSESSMENT AND FORECASTING

6. Long-Term and Medium-Term Demand Forecast

6.1. The Distribution Licensees shall develop and prepare demand assessment and forecasting considering the guidelines for Long-term and Medium-term power demand forecast issued by Central Electricity Authority (CEA) from time to time.

6.2. Demand assessment and forecasting shall cover hourly or sub-hourly assessment and forecasting of demand within the distribution area of Distribution Licensee for Long-term and Medium-term using comprehensive input data, policies and scientific modelling tools.

6.3. The Distribution Licensee shall be responsible for providing the category-wise consumption data and assessed consumption data of particular class of unmetered consumers for demand forecasting. The Distribution Licensee shall submit the category-wise consumption information of previous financial year and any other information as may be required by SLDC by 21st April of each year.

6.4. The SLDC shall be responsible for providing Deviation Settlement Mechanism (DSM) accounts to the Distribution Licensees of previous financial year latest by 21st April of each year.

6.5. The Distribution Licensee shall be responsible for the assessment and forecasting of demand (MW) and energy (MUs).

6.6. The Distribution Licensee shall prepare the energy forecast for each consumer category as specified by the Commission in its Retail Supply Tariff Order from time to time.

6.7. The Distribution Licensee shall determine the energy forecast for a consumer category by adopting any of the following and/or combination of following methodologies:

a) Trend Analysis, i.e., Year on Year /compounded annual growth rate (CAGR) for past period and time series analysis;

b) End Use or Partial End Use method;

c) Auto-regressive integrated moving average (ARIMA) method;

d) Artificial Intelligence (AI) including machine learning, Artificial Neural Network (ANN) techniques; and

e) Econometric Modelling (specifying the parameters used, algorithm, and source of data).

6.8. The Distribution Licensee may use Electric Power Survey (EPS) projections as base and/or any methodology other than the above-mentioned methodologies after providing detailed justification for the methodology adopted for demand forecasting. The Distribution Licensee shall use best fit of various methodologies for the purpose of demand forecast after taking into consideration various scenarios such as most probable, business as usual, and aggressive, as specified under Clause 6.17 of this Regulation.

6.9. For the purpose of methodology to be used for energy forecasting of a consumer

category, the Distribution Licensee shall conduct statistical analysis and select the method for which standard deviation is lowest and R-square is highest or any other relevant statistical technique with proper justification.

6.10. The Distribution Licensee shall utilize state-of-the-art tools, scientific and mathematical methodologies, and comprehensive database such as, but not limited to, weather data, historical data, demographic and econometric data, consumption profiles, impact of policies and drivers, etc. as may be applicable to respective Distribution Licensee's area.

6.11. The Distribution Licensee may modify the energy forecast obtained for each consumer category by considering relevant activities. The impact shall be considered by developing trajectories for each but not limited to the activities as follows based on the economic parameters, policies, historical data, and projections for the future:-

a) Demand-Side Management and demand response measures;

b) Open Access;

c) Distributed Energy Resources;

d) Electric Vehicles and E-Vehicle Charging Stations;

e) Tariff Signals including Time of the Day (ToD) Tariff;

f) Changes in specific energy consumption;

g) Increase in commercial activities with electrification;

h) For agricultural loads, the season-wise change, temperature, area-wise rainfall pattern, impact of water level in agricultural pockets, irrigation facilities, area-wise type of crop, number of crops, increase in number of agricultural pump sets and its solarization;

i) Changes in consumption pattern of seasonal consumers including seasonal variations for Rabi/Kharif season and other crops;

j) Impact of important festivals, working days or non-working days, Peak and Off-Peak hours load pattern; and

k) Policy influences such as 24x7 supply to all consumers, LED penetration, efficient use of agriculture pumps, fans/ACs/ appliances, increased use of appliances for cooking/heating/cooling applications, electrification policies,

distributive energy resources, storage, policies which can impact econometric parameters, impact of national hydrogen mission, etc. For each policy, a separate trajectory should be developed for each consumer category.

6.12. The Distribution Licensee may take into consideration any other factor not mentioned in Clause 6.11 of this Regulation after providing detailed justification for its consideration.

6.13. The long and medium-term load profiles of the consumer categories for which load research has been conducted may be refined on the basis of load research analysis. A detailed explanation for refinement conducted must be provided.

6.14. The summation of energy forecast (MUs) for various consumer categories after adjusting energy forecast of captive consumers, prosumers and open access consumers as per Clauses 6.7 to 6.13 of this Regulation, as the case may be, shall be the energy forecast for the Distribution Licensee at consumer level.

6.15. The licensee shall calculate the energy forecast (MUs) by adding a loss trajectory approved by the Commission in the latest tariff order. In the absence of the loss trajectory as approved by the Commission for the planning horizon, an appropriate loss trajectory stipulated by State or National policies shall be considered with a detailed explanation.

6.16. The peak demand (in MW) shall be determined by considering the average load factor, load diversity factor, seasonal variation factors for the last three years, and the energy forecasts (in MUs) obtained in accordance with Clause 6.15 of this Regulation. If any other appropriate load factor is considered for future years, a detailed justification shall be provided by the Distribution Licensee for its consideration.

6.17. The Distribution Licensee shall conduct sensitivity and probability analysis to determine the most probable demand forecast. It shall also develop long-term and medium-term demand forecasts for possible scenarios, while ensuring that at least three different scenarios (most probable, business as usual, and aggressive scenarios) are developed.

7. Short-Term Demand Forecast

7.1. The Distribution Licensee shall develop a methodology for hourly or sub-hourly demand forecasting and shall maintain a historical database.

7.2. For the purpose of ascertaining hourly load profile and for assessment of contribution of various consumer categories to peak demand, load research

analysis shall be conducted, and influence of demand response, load shift measures, time of use shall be factored in by the Distribution Licensee with inputs from State Load Despatch Centre (SLDC). A detailed explanation for methodology adopted shall be provided.

7.3. The Distribution Licensee shall utilize state-of-the-art tools, scientific and mathematical methodologies, and comprehensive data such as but not limited to weather data, historical data, demographic and econometric data, consumption profiles, policies and drivers, etc. as may be applicable to the area of Distribution Licensee.

8. Aggregation of Demand Forecast

8.1. The Distribution Licensee shall prepare hourly or sub-hourly 1-year Short-term (ST), 5-year Medium-term (MT) and 10-year Long-term (LT) demand forecasts on a rolling basis.

8.2. SLDC shall aggregate demand forecasts considering the load diversity, congruency, seasonal variation aspects and submit State-level aggregate demand forecasts for Long-term, Medium-term and Short -Term to (MW and MUs) CEA, NLDC and RLDC by 31st May of each year for the ensuing year(s).

8.3. The STU (State Transmission Utility) with inputs from SLDC and based on the demand estimates of the Distribution Licensees of the State, shall estimate, in different time periods, namely Long-term, Medium-term and Short-term, the demand for the entire State duly considering the load diversity of the State.

CHAPTER 4- GENERATION RESOURCE PLANNING

9. Preparation of Generation Resource Planning

9.1. The Distribution Licensee shall plan and assess the required generation resources considering the existing resources, upcoming resources (not yet commissioned), capacity credit and incremental capacity requirement to meet forecasted demand including planning reserve margin (PRM).

9.2. Generation Resource Planning shall involve the following steps namely,

a) Capacity crediting of generation resources;

b) Assessment of planning reserve margin; and

c) Ascertaining resource adequacy requirement and allocation to Distribution Licensees.

9.3. The Generation Resource Planning shall include the following data, but not

limited to:-

a) Planning Reserve Margin;
b) Actual demand met by the State/Distribution Licensee in hourly time block resolutions for last 5 years;
c) Estimated load growth during the planning period;
d) Critical characteristics, machine characteristics, hydrology for hydro machines and technical parameters of thermal and hydro generation plants, such as:
    i. Name of plant, location (State/Region);
    ii. Capacity (MW) (for existing and planned capacities);
    iii. Heat Rate for thermal generating stations;
    iv. Auxiliary Consumption (MW);
    v. Maximum and Minimum Generation Limits (MW);
    vi. Ramp Up and Ramp Down Rate (MW/min);
    vii. Start-up time;
    viii. Plant Availability Factor (% of time), etc.; and
    ix. Capacity utilization factor (CUF) for renewable resource-based power plants.
e) All the characteristics and parameters with their values for each generating plant considered shall be provided in the resource plan;
f) Under-construction capacity/retirement of generation capacity/ contracted capacity/ bilateral contracts;
g) Potential technologies, gestation periods and lifetime of different assets;
h) Capacities and generation profile of renewable generation;
i) Historical forced outage rates and planned maintenance rates of generation capacities;
j) Renewable Purchase Obligation (RPO) including Energy Storage Obligation targets, etc.;
k) Constraints such as penalties for unmet demand, forced outages, and system emission limits as defined in State Grid Code and Indian Electricity Grid Code and emission norms specified by the Ministry of Environment, Forest and Climate Change (MoEFCC) shall be identified and enlisted.

9.4. The Distribution Licensee shall map all its existing resources, upcoming

resources, and retiring resources to develop the existing resource map in MW for the Long-term and Medium-term power procurement plan.

9.5. All the thermal generating companies in the state shall implement the flexible operations to accommodate increasing renewable energy in the grid.

10. Capacity Crediting of Generation Resources

10.1. The Distribution Licensee shall compute Capacity Credit (CC) for their contracted generation resources by applying the net load-based approach as outlined under Clause 10.2 of this Regulation. The average of the Capacity Credit (CC) factor for each type of contracted generation resource for the preceding five years on a rolling basis shall be considered as Capacity Credit factor for the purpose of Generation Resource Planning.

10.2. The Net Load based approach/methodology for determination of Capacity Credit (CC) factors for generation resources shall be adopted as under:

a) For each year, the hourly recorded Gross Load (in MW) for 8,760 hours (8,784 hours for leap year**)** (or sub-hourly time-blocks) shall be arranged in descending order;

b) For each hour, the Net Load (in MW) shall be calculated by subtracting the actual wind or solar generation (in MW) corresponding to that load for 8,760 hours (8,784 hours for leap year) (or sub-hourly time-blocks) and then arranged in descending order;

c) The difference between these two load duration curves mentioned under Clause 10.2 (a) and (b) of this Regulation represents the contribution of capacity factor of wind generation or solar generation, as the case may be;

d) Installed capacity (in MW) of wind or solar generation capacity shall be summed up corresponding to the top 250 load hours (or sub-hourly time-blocks) as computed in Clause 10.2(c) of this Regulation. The selection for 250 top net load hours (or sub-hourly time-blocks) shall be considered from the arranged descending order of Net Load hours;

e) Total generation from wind or solar generation (in MUs) corresponding to these top 250 net load hours shall be summed up;

f) Resultant CC factor shall be (Total Generation for 250 top net load hours)/(Installed RE Capacity for 250 top load hours), as per formula

below:

$$\text{CC factor} = \frac{\text{Sum of RE Generation for 250 top net load hours (MUs)}}{\{\text{Sum of RE Capacity (MW) for 250 top load hours/1000}\}\ (\text{MUs})}$$

g) The process for CC factor determination shall be undertaken for each year for duration of past five-years and the resultant CC shall be the average of CC values of past 5 years:

Provided that at the time of determining CC factor considering past five-years duration values, the Distribution Licensee shall exclude abnormal values during the year for following events or circumstances, but not limited to:-

i. Act of God including but not limited to lightning, drought, fire and explosion, earthquake, volcanic eruption, landslide, flood, cyclone, typhoon, tornado, geological surprises, natural disaster or exceptionally adverse weather conditions, which are in excess of the statistical measures for the last hundred years; or

ii. Any disaster declared by the Central Government under Disaster Management Act as amended from time to time; or

iii. Any act of war, invasion, armed conflict or act of a foreign enemy, blockade, embargo, revolution, riot, insurrection, terrorist or military action.

10.3. For the purpose of RE generation resource contracted by the Distribution Licensee, CC factors as prescribed by Authority and as may be approved by the Commission shall be considered.

10.4. CC factors for hydro generation resources shall be computed based on water availability with different CC factors for run-of-the-river hydro power projects and dam-based/storage-based hydro power projects.

10.5. CC factor for thermal resources shall be computed based on coal availability and planned/forced outages.

10.6. DISCOM / SLDC / STU may follow any other methodology other than above listed methodologies with suitable justification

10.7. The distribution licensee shall share CC factors for their contracted resources along with justification for its computations with SLDC by 21st May of each year

for the ensuing years(s).

10.8. SLDC shall calculate State-specific CC factors based on aggregate State Demand, State Net Load and contracted RE generation available in the State and shall submit information on CC factors to CEA, RLDC and NLDC by 31st May of each year for the ensuing year(s).

10.9. For energy storage projects (BESS, PSS, etc.) capacity credit shall be calculated as per the CEA guidelines issued from time to time and / or as approved by the Commission.

11. Assessment of Planning Reserve Margin (PRM)

11.1. Planning Reserve Margin (PRM) is a percentage of the capacity over and above the State Coincident share in National Peak Demand required to be considered for the purpose of generation resource planning.

11.2. Such Planning Reserve Margin (PRM) shall be based on the reliability indices in terms of Loss of Load Probability (LOLP) and Normalized Energy Not Served (NENS) as may be prescribed by the Authority and / or as approved by the Commission.

11.3. The PRM determined under Clause 11.1 and 11.2 of this Regulation shall be considered by the Distribution Licensee in their planning for resource adequacy requirement and generation resource capacity planning.

11.4. The Distribution Licensee may consider higher planning reserve margins, subject to prior approval from the Commission.

11.5. The State level resource adequacy planning by STU/SLDC shall factor in PRM while developing State-level Integrated Resource Plan.

12. Resource Adequacy Requirement and its Allocation

12.1. The Distribution Licensee shall determine capacity requirement to meet demand and PRM considering available capacity adjusted for capacity crediting for existing and planned contracted generation resources.

12.2. The available capacity as determined in Clause 12.1 of this Regulation shall be then plotted over a time axis of 15-minute intervals or longer, but not more than one hour. This shall form the resource map of the Distribution Licensees.

12.3. The Distribution Licensee shall subtract the resource map developed in Clause12.2 from the demand forecast developed in Clause 6 of this Regulation

to identify the resource gap.

12.4. The Distribution Licensee shall conduct sensitivity and probability analysis to determine the most probable resource gap. It shall also develop Long-term, Medium-term, and Short-term resource gap plans for possible demand forecasting scenarios, while ensuring at least three different scenarios (most probable, business as usual, and Pessimistic Scenario) as specified by the CEA in Guidelines for Medium and Long-Term Power Demand Forecast issued from time to time.

12.5. Based on most probable scenario, the Distribution Licensee shall undertake development of Long-term, Medium-term, and Short-term Distribution Resource Adequacy Plan of each year to meet Resource Adequacy requirement.

12.6. Long-term National Resource Adequacy Plan (LT-NRAP) as may be published by Central Electricity Authority to determine the optimal Planning Reserve Margin (PRM) requirement at the national level for ensuring reliable supply targets and Short-term National Resource Adequacy Plan (ST-NRAP) as may be published by NLDC for a one-year look-ahead or any other Planning Reserve Margin approved by the Commission shall act as guidance for the Distribution Licensee for undertaking the Resource Adequacy exercises.

12.7. Based on the allocated share in national peak provided in LT-NRAP for the State, SLDC and / or as approved by the Commission shall allocate each Distribution Licensee's share in the national peak within 15 days of the publication of LT-NRAP.

12.8. The Distribution Licensee, based on the share in national peak provided in LT-NRAP, shall plan to contract the capacities over and above the State coincident demand in national peak prescribed by LT-NRAP or procure higher to meet their Resource Adequacy Requirement (RAR) at the time of national peak subject to approval of the Commission.

12.9. The Distribution Licensee may keep the share of Long-term contracts as decided by the Commission and the balance of RAR may be met through Medium-term / Short-term contracts

12.10. The contract mix mentioned under Clause 12.9 of this Regulation may be periodically reviewed by the Commission.

12.11. SLDC duly considering the inputs like CC etc., from the TGDISCOMs shall consolidate and prepare a 10-year Long-term Distribution Resource Adequacy Plan (LT-DRAP) to meet the peak demand and energy requirement for the State of Telangana

12.12. SLDC while formulating the LT-DRAP shall also consider the constraints mentioned in **Annexure–I** of this Regulation.

12.13. SLDC may take inputs from the LT-NRAP like PRM, capacity credits, etc., while formulating the LT-DRAP and shall send their plans to CEA by 30th September of each year for the ensuing year(s) for seeking inputs.

12.14. STU/SLDC shall file before the Commission the transmission resource adequacy plan in line with the MYT and Distribution Licensees shall file before the Commission distribution resource adequacy plans in line with the MYT on or before 30th October of each year.

12.15. Distribution Licensees shall submit the LT-DRAP duly taking the inputs from CEA as considered necessary along with necessary supporting documents, formats (enclosed as **Annexure-II** to this Regulation) and details for meeting RAR, to the Commission within 15 days from the date of receipt of inputs from CEA or 30th October of each year whichever is earlier

12.16. The Distribution Licensee may also demonstrate to the Commission 100% tie-up for the first year and a minimum 90% tie-up for the second year to meet the requirement of their contribution towards meeting national peak. Only resources with long / medium / short-term contracts shall be considered to contribute to the RAR.

12.17. For subsequent three years, the Distribution Licensee shall also furnish a plan to meet estimated requirement of their contribution to meet state peak for the Commission’s approval.

12.18. The LT-DRAP shall be carried out by the Distribution Licensee on an annual rolling basis considering the contracted capacity as a part of the system, which shall be optimized for additional capacity required.

12.19. The Distribution Licensee through LT-DRAP, shall demonstrate to the Commission their plan to meet their Peak demand and energy requirement with a mix of Long-term, Medium-term, and Short-term contracts, including Power

Exchanges

12.20. SLDC shall prepare one-year look ahead ST-DRAP (Short-term Distribution Resource Adequacy Plan) on an annual basis for operational planning, at the State level based on the LT-DRAP study results. The SLDC shall review the ST-DRAP on a daily, monthly and quarterly basis based on actual availability of generation resources.

CHAPTER 5- PROCUREMENT PLANNING

13. Procurement planning shall consist of:

(a) Optimal power procurement resource mix;

(b) Modalities of procurement type and tenure; and

(c) Sharing of Capacity.

14. Procurement Resource Mix

14.1. In power procurement strategy, the Distribution Licensee shall ensure an optimal procurement generation resource mix and also facilitate smooth integration of Renewable Energy (RE) sources in its portfolio of power procurement resource options, while meeting reliability standards and Renewable Purchase Obligation targets. Further, the future capacity mix may comprise existing capacities, planned capacities and capacity addition required to meet the increasing demand of the Distribution Licensees considering appropriate gestation period of the generation resource.

14.2. For identification of the optimal generation procurement resource mix, optimization techniques and least-cost modelling shall be employed by the Distribution Licensee in order to avoid stranded capacity. the Distribution Licensee shall demonstrate the same in LT-DRAP to be submitted to Commission for approval.

14.3. The Distribution Licensee shall contract the optimal portfolio of resources to meet Distribution Licensees' future demand and Resource Adequacy Requirement (RAR) obligations, based on the output derived from the LT-NRAP study results.

14.4. The Distribution Licensee shall consider Long / Medium / Short-term contracts of generation resources towards the contribution for meeting RAR.

14.5. The Distribution Licensee shall contract additional resources based on the LT-

DRAP to meet its own peak demand.

14.6. The power capacity procurement from Renewable Energy sources for fulfilling the RPO targets shall be carried out as per the Regulations notified by the Commission from time to time.

14.7. The power procurement from Wind, Solar PV, Wind Solar Hybrid, FDRE and Round the Clock (RTC) generation sources shall be carried out as per the guidelines for tariff based competitive bidding process notified by the Ministry of Power.

14.8. The Distribution Licensee shall contract storage capacity corresponding to the results of LT- DRAP capacity addition requirement for future years from Battery Energy Storage System (BESS) or Pumped Storage Projects (PSP) or any other storage technology as per the guidelines for tariff based competitive bidding process notified by the Ministry of Power.

Provided that, if the Licensee proposes to contract storage capacity from Battery Energy Storage System (BESS) or Pumped Storage Projects (PSPs) developed and owned by the Government owned (Government of Telangana / Government of India) generating companies by a process other than that specified by the Competitive Bidding Guidelines, the Licensee shall take prior approval of the Commission with proper justification.

14.9. The Distribution Licensee may contract power through State Generating Stations/ Central Generating Stations/ Independent Power Producers (IPPs)/ Captive Power Plants (CPPs)/ Renewable Power Plants including Co-Generation Plants/ Central Agencies /State Agencies/ Intermediaries / Traders / Aggregators / Power Exchanges or through Bilateral Agreements / Banking Arrangements and any other sources as may be approved by the Commission.

14.10. The Distribution Licensee may procure power on Short-term and Medium-term basis through DEEP and PUShP portal and Term-Ahead Markets (TAM). Further the Distribution Licensee may procure power on Short-term through OTC platform with prior approval of the Commission.

15. Procurement Type and Tenure

15.1. The Distribution Licensee, while determining the modalities and tenure of procurement of resources, shall ensure that procurement contracts shall be

decided first within the region, subject to the least cost resource availability considering transmission constraints and cost of transmission for procurement from outside the region and then across regions if necessary.

15.2. The Distribution Licensee shall identify the generation resource mix and also procurement strategy in Long-term, Medium-term and Short-term period and seek approval of the Commission.

15.3. The Distribution Licensee in its overall power procurement planning approach shall employ greater emphasis on adequate contracting through Long-Term and Medium-Term arrangements. However, the Distribution Licensee shall ensure that entering into new Long-Term and Medium-Term contracts does not contribute towards accumulation of stranded capacity and additional burden to the consumers on account of fixed cost associated with stranded capacity.

15.4. The Distribution Licensee through annual rolling plan shall ensure incremental capacity addition through Long-term/Medium-term/Short-term duly factoring the existing and planned procurement arrangements of the Distribution Licensees.

16. Sharing of Capacity

16.1. The Distribution Licensee shall duly factor in the possibility of Long-term / Medium-term/ Short-term capacity sharing while preparing the Resource Adequacy plan and optimally utilize the platform for Inter-State capacity sharing or trading mechanism created by the Central Commission/Central Government and optimize the capacity costs as far as possible.

17. Approval of Power Purchase Agreement

17.1. Any new capacity arrangement/tie-up shall be subject to the prior approval of the Commission in view of necessity, reasonableness of cost of power purchase and promotion of working in an efficient, economical and equitable manner.

17.2. All procurement of Long/Medium/Short-term power from various sources shall be carried out as per the Guidelines/Rules/Regulations/Policies issued by the Central Government/ Commission from time to time.

17.3. Any new Power Purchase Agreements (PPA's) for Long/Medium-term power procurement or amendments to existing Long/Medium-term Power Purchase Agreement (PPA's)/ Power Sale Agreement (PSA)/ Power Supply Agreement

entered into by the Distribution Licensee shall be subject to the prior approval of the Commission.

17.4. The Distribution Licensee shall submit the list of all existing Power Purchase Agreements executed with different conventional power plants as well as RE Generators along with the Resource Adequacy plan.

18. Variation in Power Purchase

18.1. The Distribution Licensee shall undertake additional power procurement during the year, over and above the approved resource adequacy procurement plan on account of following exigencies: -

(a) In case, where there has been an unanticipated increase in the demand for electricity or a shortfall or failure in the supply of electricity from any approved source of supply during the year or when the sourcing of power from existing tied-up sources becomes costlier than other available alternative sources, The Distribution Licensee may enter into additional agreement for procurement of power as per Clause 14.10.

(b) The Distribution Licensee may enter into a Short-term arrangement or agreement for procurement of power when faced with emergency conditions that threaten the stability of the grid, or when directed to do so by the SLDC to prevent grid failure or during exigency conditions and for banking with other States on Short-term basis without prior approval of the Commission:

Provided that the details of such procurement mentioned in Clause 18.1 (a) and (b) shall be submitted to the Commission within 15 days from date of procurement of power with proper justification.

CHAPTER 6- MONITORING AND COMPLIANCE

19. Monitoring and Compliance

19.1. Distribution Licensees shall comply with the Resource Adequacy requirement in accordance with the timelines specified under Clause 21 of this Regulation. In case of non-compliance, appropriate non-compliance charges as may be determined by the Commission, shall be applicable.

CHAPTER 7- ROLES AND RESPONSIBILITIES AND TIMELINES

20. Data Requirement and Sharing Protocol

20.1. Distribution Licensees shall maintain and share all data related to demand

assessment and forecasting with SLDC, such as:-

a) Consumer data;
b) Historical demand data;
c) Weather data;
d) Demographic and econometric variables;
e) Distribution Losses and intra/inter-State Transmission losses;
f) Actual energy requirement;
g) Availability including curtailment, peak electricity demand, and peak met along with changes in demand profile (e.g.: agricultural shift, time of use, etc.); and
h) Historical hourly load pattern, etc.

20.2. Distribution Licensees shall maintain and share all statistics and database pertaining to policies and drivers with SLDC, such as:-

a) LED penetration, efficient fan/ ACs penetration, appliance penetration, increased usage of electrical appliances for cooking, heating, cooling, etc., in households;
b) Increase in commercial activities for geographic areas/regions;
c) Increase in number of agricultural pumps;
d) Solarization within distribution licensees' area;
e) Changes in specific energy consumption;
f) Consumption pattern from seasonal consumers;
g) Demand Side Management (DSM);
h) Distributed Energy Resources (DERs);
i) Electric Vehicles (EVs);
j) Open Access (OA);
k) National Hydrogen Mission;
l) Reduction of AT&C losses, etc:

Provided that statistics and database pertaining to households such as LED penetration, efficient fan penetration, appliance penetration, increased usage of electrical appliances for cooking, etc., shall be utilized by SLDC whenever statistical information and database become available through Distribution Licensees.

20.3. Distribution Licensees shall maintain at least past 10 years of statistics in their

database pertaining to consumption profiles for each class of consumers, such as domestic, commercial, public lighting, public water works, agricultural/ irrigation, LT industries, HT industries, railway traction, bulk (non-industrial HT consumers), open access, captive power plants, insights from load survey, contribution of consumer category to peak demand, seasonal variation aspects, etc., and share the same with SLDC.

20.4. SLDC shall maintain the Distribution Licensee-specific as well as aggregate for State as a whole, statistics and database pertaining to aggregate demand assessment and forecasting data mentioned above and share State-level assessment with the Authority/NLDC and RLDC for regional/national assessment from time to time.

20.5. The Distribution Licensee shall share information and data pertaining to the existing and contracted capacities with their technical and financial characteristics including hourly generation profiles to STU/SLDC for computation of State-level capacity credit factors and for preparation of State-level assessment.

20.6. STU and SLDC shall aggregate generation data and share State-level projections with the Authority and NLDC as the case may be for assessment of Resource Adequacy requirement.

20.7. STU and SLDC shall communicate allocation of regional and national RA requirement to the distribution licensees

21. Timelines

21.1. The Distribution Licensees shall submit the category-wise consumption information of previous financial years and any other information as may be required by SLDC by 21st April of each year for the ensuing year(s).

21.2. The SLDC, on behalf of the Distribution Licensees in the State, shall submit demand forecasts (peak and energy requirement) for the next 10 years, assessment of existing generation resources, CC factor information and such other details as may be required for the LT-NRAP to CEA and ST-NRAP to NLDC by 31st May of every year for ensuing year(s).

21.3. As per the timelines provided in Annexure-F of Guidelines for Resource Adequacy Planning Framework for India notified by Ministry of Power dated

June 28th 2023, LT-NRAP report is to be published by CEA by 15th July of each year for the ensuing year(s) and ST-NRAP report is to be published by NLDC by 31st July of each year for the ensuing year(s).

21.4. SLDC shall allocate each Distribution Licensee's share in the national peak within 15 days of the publication of LT-NRAP report by 15th August of each year for the ensuing year(s).

21.5. SLDC shall submit the LT-DRAP plans to CEA by 30th September of each year for the ensuing year(s) for seeking inputs

21.6. SLDC shall immediately forward the LT-DRAP along with the inputs of CEA if any to the Distribution Licensees.

21.7. The Distribution Licensees shall submit the LT-DRAP plan for meeting the RAR to the Commission within 15 days from the date of receipt of CEA inputs or 30th October of each year whichever is earlier.

21.8. The Commission shall approve the Resource Adequacy Plan submitted by Distribution Licensees within 60 days from the date of submission or along with the Retail Supply Tariff order for ensuing year as per MYT Regulation.

21.9. The Distribution Licensee shall submit the details of the contracted capacities for the ensuing year for meeting RAR to SLDC within 30 days from the date of approval by the Commission.

21.10. SLDC shall aggregate the total contracted capacities at the State level and submit the information to the RLDC under intimation to the Commission, within 15 days from the date of receipt from the Distribution Licensee.

21.11. As per the timelines provided in Annexure-F of Guidelines for Resource Adequacy Planning Framework for India notified by Ministry of Power dated June 28th 2023, RLDC has to aggregate the capacities at the regional level and submit the information to the NLDC by the month of February.

21.12. The contracting for balance capacity shortfall as communicated by NLDC shall be completed by the end of March of each year for the ensuing year(s) by the Distribution Licensee

Provided that in case the Distribution Licensee contracts the balance capacity shortfall through Long/Medium-term power procurement the same shall be subjected to prior approval of the Commission as per Clause17.3 of

this Regulation.

21.13. The Distribution Licensee after contracting the balance capacity shall submit the information to the Commission by 1st April of each year for the current year(s).

Provided that in case there is delay in communication by NLDC for balance capacity shortfall, the Distribution Licensee may seek approval from the Commission for time extension for contracting the balance capacity by 25th March of each year.

CHAPTER 8- MISCELLANEOUS

22. Placing of information on websites

22.1. The monthly/weekly/day-ahead/intra-day power procurements/sale by the Distribution Licensee and generator schedule shall be made available on the websites of Distribution Licensees and SLDC within 45 days of such procurements/sale with ease of access to the current as well as archived data.

22.2. SLDC shall also publish the monthly Merit Order Dispatch (MoD) stack along with per unit variable cost of each generating station on its website.

23. Constitution of dedicated cells

23.1. Distribution Licensees shall establish a planning cell for Resource Adequacy within three months of this Regulation coming into force. The cell shall have the requisite capability and tools for demand forecast, capacity, RE integration, etc.

23.2. Another round the clock dedicated cell shall also be constituted by the Distribution Licensee for power purchase/sale of power on real-time basis and to also undertake intra-day, day-ahead, week-ahead power procurement through Power Exchanges or any other means. The Distribution Licensee shall frame suitable guidelines for the modus operandi of the dedicated cells in line with the spirit of this Regulation and shall apprise the Commission of the same within 45 days from the date of coming into force of this Regulation.

24. Assessment to involve consultation

24.1. The Distribution Licensee shall make the Resource Adequacy Plan in consultation with State Sector Generating Companies, Central Sector Generating Companies, Transmission Companies, National / Regional /State Load Despatch Centre, and Central Electricity Authority. It shall also make enquiries with the Trading Companies and States with surplus power to estimate the likely

availability and price of power across the country for peak, off-peak and normal periods:

Provided that the Distribution Licensee may also consult with research agencies with relevant experience.

25. Power to Issue Orders and Give Practice Directions

25.1. Subject to the provisions of the Electricity Act, 2003 and this Regulation, the Commission may from time to time issue such orders and practice directions as considered appropriate for the implementation of this Regulation and procedure to be followed.

26. Power to Relax

26.1. The Commission may by general or special order, for reasons to be recorded in writing, may relax any of the provisions of this Regulation on its own motion or on an application made before it by an interested person and the decision of the Commission is final.

27. Power to Remove Difficulties

27.1. If any difficulty arises in giving effect to any of the provisions of this Regulation, the Commission may, by an order, make such provisions, not inconsistent with the provisions of the Act and this Regulation, as may appear to be necessary for removing the difficulty/difficulties.

28. Power to amend

28.1. The Commission may from time to time add, vary, alter, modify or amend any provisions of this Regulation after following the necessary procedures.

29. Repeal and Savings

29.1. Nothing in this Regulation shall be deemed to limit or otherwise affect the inherent power of the Commission to make such orders as may be necessary to meet the ends of justice or to prevent abuses of the process of the Commission.

29.2. Nothing in this Regulation shall bar the Commission from adopting in conformity with the provisions of the Act or procedure, which is at variance with any of the provisions of this Regulation, if the Commission, in view of the special circumstances of a matter or class of matters and for reasons to be recorded in writing, deems it necessary or expedient for dealing with such a matter or class of matters.

29.3. Nothing in this Regulation shall, expressly or impliedly, bar the Commission dealing with any matter or exercising any power under the Act for which no Regulations have been framed, and the Commission may deal with such matters, powers and functions in a manner it thinks fit.

By Order of the Commission

V. Ramchander
Commission Secretary

Place: Hyderabad
Date: 24.02.2026

ANNEXURE -I

Methodology for Preparation of Resource Adequacy Plan with constraints

(a) The hourly demand profile for the Distribution Licensees shall be projected over the planning period by the Distribution Licensee, based on the forecasted values of annual energy requirement and peak demand trajectory. The annual energy requirement and peak demand shall be forecasted using the methods specified in Clause 6.7 of this Regulation. The projected hourly demand for the future years shall be used as inputs into the model. The Distribution Licensee shall ensure that the generation expansion planning model chosen is capable of simulating on an hourly chronological resolution[1]. This is necessary to capture the behaviour of the system with respect to ramping of conventional generation, profiles of RE generation, behaviour of energy storage, etc.

(b) After establishment of demand profile for all future years, the model would undertake an optimization exercise to minimize the total system cost to meet the future demand adhering to all power system parameters. Following constraints should be considered while modelling by the Distribution Licensee:

- **Planning Reserve Margin / Resource Adequacy Requirement:** The Resource Adequacy Requirement (RAR) constraint shall ensure that the total Resource Adequacy (Generation capacity) of the Distribution Licensees fulfils the Planning Reserve Margin as determined by CEA or any other Planning Reserve Margin approved by the Commission. The resource adequacy requirement for each Distribution Licensee shall be computed as:

  $$RAR = Contribution^{2}\ to\ forecasted\ national\ peak\ demand\ in\ GW \times (1 + PRM)$$

  From the supply side, the RAR shall be the sum of the "firm capacity" or "capacity credits" of contracted / planned capacities (including renewables, storage, other resources such as demand response) along with derated interconnection limits

[1] It is preferred to simulate all 8760 hours (8784 hours for leap year) on a chronological resolution in a year. However, if computational challenges are faced, the Distribution Licensee can select the representative periods, which may be different. The representative periods chosen are reflective of various projected demand and supply profiles for the base year and future years. Initially, hourly simulation is planned based on hourly data availability, however, the time granularity may be increased to sub-hourly provided there is availability of sub-hourly demand and RE generation data.

[2] This shall be calculated as Distribution Licensee's demand at the time of national peak demand or as approved by the Commission

(imports)[3].

Both, supply side and demand side RAR shall match. The Thermal capacity credit shall be calculated by reducing the auxiliary consumption and the forced outage rate from the installed capacity.

The capacity credits for generating resources and demand response resources to meet the national peak shall be as estimated by CEA, any other methodology other than above listed methodologies with suitable justification. The capacity credits published by CEA for each resource type may differ between existing and new resources and between resources in different regions. For example, a solar based power plant in the Southern Region will have a capacity credit, which could be different compared to a solar plant in the Northern Region. Similarly, an upcoming wind-based power plant could have a different capacity credit compared to an already commissioned wind plant in the same region. The Distribution Licensee shall use these capacity credits while planning to meet their RAR. For example, a Distribution Licensee having a PPA with an existing solar based power plant located in a southern State would use the capacity credit of existing solar based power plants in the Southern Region.

- **Portfolio balance constraints:** The portfolio balance shall ensure that the total generation within a control area of Region/State/Distribution licensees and the import of power to the control area of region/State/Distribution licensees is equal to the sum of the demand, exports from the control area of region/State/Distribution Licensees, any energy not served and curtailment, for each hour.

- **RE Generation constraints:** For renewable energy resources, such as solar and wind, the RE generation shall be constrained as per the hourly profile of the resource. Historic profiles of renewable sources shall be used to generate the hourly profiles. Additional constraints shall ensure that the Distribution Licensee's overall renewable generation targets are met and included while formulating LT-DRAP.

- **Conventional Generation constraints:**

(a) Unlike solar and wind, thermal resources are dispatchable, the thermal resources are bound by constraints such as maximum and minimum generation limits, ramp rates, spinning reserve offers, plant availability and unit commitment decisions.

[3] The firm capacity shall be calculated as provided in Annexure-III of this Regulation.

(b) The dispatch (energy offer) plus the reserve offer (specified through CERC/TGERC Regulations) for each generator is constrained to be within the maximum and minimum generation limits. Generation between two consecutive time blocks also must be within the ramping capabilities of the resources. Unit commitment decisions, such as start-up/shut-down, minimum up and down times, etc., require binary variables to implement and are to be included. Additionally, generation units may have periods of outages, which may need to be captured by using an availability factor.

(c) The capacity for each year needs to be tracked by a constraint, which shall ensure that the capacity in a particular year is equal to the capacity last year plus any new capacity investment minus capacity retirement, if any.

- **RPO constraints:** Fulfilment of Renewable Purchase Obligation shall be considered as one of the objectives of Resource Adequacy. Technology options like renewable energy generation for round the clock energy supply backed with storage (Battery and PSP), standalone renewable energy capacity along with hydro capacity for balancing renewable energy generation shall be considered while carrying out resource adequacy exercise for Distribution Licensees.

- **Storage constraints:** Due to the intermittent nature of renewable energy generation, the need for resources, which can store surplus energy and despatch the stored energy during low RE generation periods become vital. Storage charge and discharge at any instant are constrained by the storage level or the state of charge (SoC) of the storage resource, and the maximum charge / discharge limit. The resource shall only discharge if there is sufficient energy present due to prior charging of the resource. To implement this, considering the chronological sequence of time is also important.Since, storage resources convert electricity to other forms of energy, there are also some efficiency losses (round-trip efficiency) which shall be accounted for. Different technologies may have different discharge periods (energy limits), power outputs (maximum charge / discharge) and levels of efficiency.

- **Operating (Spinning) Reserve constraints:** Operating reserve shall ensure that sufficient resources are in the system and kept online or on standby each hour to account for load forecast errors, intermittency of RE or meeting contingencies in real time. The thumb rule for operating reserve requirement shall be defined based on discussions with the SLDC and shall be considered as an input parameter to the model.

- **Demand Response:** Potential for demand side management such as shifting of load or demand response can be considered while undertaking the Resource Adequacy Plan (RAP). The constraints such as periods when load shifting can occur, and the maximum quantum of load, which can be shifted over a period shall be included.

ANNEXURE -II

Formats (1 to 14) enclosed separately

ANNEXURE -III

The firm capacity to meet the Resource Adequacy Requirement (RAR) shall be calculated as shown below:

$$
\begin{aligned}
RAR = & \sum_{i=1}^{num\_solar} Solar\_Capacity * Solar\_Capacity\_Credit \\
& + \sum_{i=1}^{num\_wind} Wind\_Capacity * Wind\_Capacity\_Credit \\
& + \sum_{i=1}^{num\_hydro} Hydro\_Capacity * Hydro\_Capacity\_Credit \\
& + \sum_{i=1}^{num\_thermal} Thermal\_Capacity * Thermal\_Capacity\_Credit \\
& + \sum_{i=1}^{num\_nuclear} Nuclear\_Capacity * Nuclear\_Capacity\_Credit \\
& + \sum_{i=1}^{num\_storage} Storage\_Capacity * Storage\_Capacity\_Credit \\
& + \sum_{i=1}^{num\_other} Other\ Resource\_Capacity * Other\ Resource\ \_Capacity\_Credit \\
& + \sum_{i=1}^{num\_Other} Import\_limit * Capacity\_Credit
\end{aligned}
$$

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