



ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION

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**MONDAY, THE TWENTY FIFTH DAY OF MAY,
TWO THOUSAND AND TWENTY-SIX**

(25.05.2026)

Present:

Sri P.V.R. Reddy,
Member & Chairman^{i/c}

In the matter of The Andhra Pradesh Electricity Regulatory Commission
(Framework for Resource Adequacy) Regulation, 2026 (**Regulation No. 04 of 2026**).

Statement of Reasons (SOR)/ Order

The State of Andhra Pradesh has notified the Andhra Pradesh Integrated Clean Energy (ICE) Policy, 2024, which, inter alia, envisages a substantial addition of renewable energy capacity, with a long-term target of up to 160 GW. The State has been facilitating the development of renewable energy projects and energy storage infrastructure, including Pumped Storage Power (PSP) projects, and has initiated measures towards the deployment of battery energy storage systems and decentralised renewable energy initiatives such as PM-KUSUM and PM Surya Ghar programmes, with a view to promoting and utilising renewable energy potential in the State.

The increasing share of variable renewable energy, along with the addition of storage systems, is expected to result in greater generation variability and evolving demand patterns, necessitating a structured framework for planning and managing resources to ensure that demand, including peak demand, is met reliably and efficiently.

The Commission had earlier issued Guidelines for Load Forecasts, Resource Plans, and Power Procurement Plans on 28.02.2000 and mandated submission of Resource Plans under Clause 9 of Regulation No. 4 of 2005. The Distribution Licensees have been filing such plans, and the Commission has been issuing Orders from time to time, including the latest Order dated 27.06.2024 for the 5th

Control Period (FY 2024-25 to FY 2028-29) and indicative plans for the 6th Control Period (FY 2029-30 to FY 2033-34). While the aforementioned measures and the Commission's Orders provide a foundational basis for power planning, the rapid evolution of the power system driven by Andhra Pradesh's aggressive 160 GW renewable energy trajectory and the integration of large-scale storage necessitates a transition to a more granular and comprehensive Resource Adequacy framework.

The Ministry of Power (MoP) has further reinforced this transition by notifying the Electricity (Amendment) Rules, 2022, which mandate that State Commissions frame Resource Adequacy Regulations to ensure a 24x7 reliable and cost-effective power supply, and the Forum of Regulators has issued model Regulations to guide States accordingly. By adopting this standardised approach, the Commission aims to ensure that Andhra Pradesh remains a clean energy leader while maintaining a resilient, future-ready grid.

Accordingly, 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, the Andhra Pradesh Electricity Regulatory Commission (hereinafter referred to as "the Commission") has issued the draft Andhra Pradesh Electricity Regulatory Commission (Framework for Resource Adequacy) Regulation, 2026. A Public Notice and a copy of the Draft Regulation were placed on the Commission's website on 06.03.2026, inviting comments/ suggestions/ objections from stakeholders. In response, the Commission received comments/ suggestions/ objections from stakeholders, including the State utilities. The following paragraphs detail the comments/ suggestions/ objections received on the draft Regulation and the Commission's analysis and decisions on the same.

Comments/suggestions/objections received and the Commission's analysis and decisions

1. Applicability Period

Draft

“1.3. This Regulation shall come into force from the date of its publication in the Official Gazette of Andhra Pradesh.”

Objections/views/comments

Prayas (Energy Group) suggested that the Regulation's applicability should be limited to a five-year period, citing the nascent stage of the Resource Adequacy framework in India and the need for periodic revision to address evolving sector contexts and implementation experience. They proposed revising Regulation 1.3.

Commission's Analysis and Decision:

The Commission noted that resource planning is not a new concept in the State, and the new Regulations simply provide a more structured framework aligned with the national framework. Furthermore, Regulation 30 already grants the Commission the power to add, vary, alter, suspend, modify, amend, or repeal any provision from time to time, either *suo motu* or based on stakeholder representations, depending on implementation experience and sectoral requirements. Therefore, the Commission decided that incorporating a fixed sunset clause would create regulatory uncertainty in long-term planning and Resource Adequacy assessment. Accordingly, rejecting the views, the draft is retained as-is.

2. Objectives of the Resource Adequacy Framework

Draft

“2. Objectives

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

2.2. The RA Regulation shall cover demand assessment and forecasting, generation resource planning, planning of transmission and distribution network augmentation/strengthening, procurement planning, monitoring, and compliance. It shall ensure a 24x7 reliable and affordable power supply while integrating Renewable Energy (RE), fulfilling Renewable Purchase Obligation (RPO), and avoiding gratuitous load shedding”

Objections/views/comments

Sri Kandharapu Murali, Sri CH. Baburao and Sri M. Venugopala Rao submitted that the Commission had not objectively analysed the historical problems in the power sector. They argued that the current system, in its focus on fulfilling Renewable Purchase Obligations (RPOs) and avoiding load shedding, has failed to balance the demand curve with the power mix, resulting in higher tariffs rather than affordable power.

Commission’s Analysis and Decision

- Objective: The primary goal of the Resource Adequacy (RA) framework is to ensure sufficient resources are available to reliably meet projected demand at all times, asserting that reliability is fundamental to the power system.
- Benefits: The framework introduces a structured, forward-looking approach for demand forecasting, optimal resource mix, procurement planning, and network augmentation. This approach is intended to address imbalances in resource planning and reduce reliance on costly short-term procurement.
- Integration: It facilitates the planned integration of renewable energy with balancing and storage solutions to maintain grid stability.
- Cost Optimisation: The Commission expects efficient and prudent planning under the RA framework to optimise costs over the long term.

Accordingly, rejecting the views, the draft is retained as-is.

3. Applicability of the Regulation

Draft

“3.1. This Regulation shall apply to all the Generating Companies, the Distribution Licensees, the State Load Despatch Centre (SLDC), the State Transmission Utility (APTRANSCO), and other grid-connected entities and stakeholders within the State of Andhra Pradesh”

Objections/views/comments

Sri Kandharapu Murali, Sri CH. Baburao and Sri M. Venugopala Rao submitted that the Commission lacks jurisdiction over the "resource adequacy" of generating companies (including APGENCO) and other grid-connected stakeholders who are not direct licensees of the APERC. They argued that the regulation should apply only to the Commission's licensees.

Commission's Analysis and Decision

- **Resource Adequacy Scope:** Resource Adequacy is defined as a sector-wide planning framework that must involve all entities involved in generation, transmission, system operation, and the supply of electricity; limiting it to distribution licensees would render the framework ineffective.¹
- **Statutory Basis:** The Commission is empowered under Section 181 of the Electricity Act, 2003 (read with Sections 61, 66, and 86), to frame regulations governing planning and system operation to ensure reliable electricity supply.
- **Limited Applicability:** The applicability to generating companies and other grid-connected entities is limited to the extent necessary to implement the Resource Adequacy framework and does not exceed the scope of the Electricity Act, 2003.
- **Consistency:** This framework is consistent with the Electricity (Amendment) Rules, 2022, the Resource Adequacy Guidelines issued by the Ministry of Power, and the Model Regulations of the Forum of Regulators, all of which envision a comprehensive structure that covers all relevant power system entities.

Accordingly, rejecting the views, the draft is retained as-is.

4. Scope and Applicability

Draft

"3.2. This Regulation shall override any inconsistent provisions in earlier APERC Regulations (including the 2000 Guidelines for Load Forecasts, Resource Plans, and Power Procurement Process) to the extent of inconsistency."

Submissions by APEPDCL and APCPDCL:

- **Existing Guidelines:** They submitted that the draft Regulation should expressly repeal the revised Guidelines for Load Forecasts, Resource Plans and Power Procurement Plans issued in December 2006, which had superseded the 2000 Guidelines.
- **Regulation No. 1 of 2022:** They requested that Regulation No. 1 of 2022, concerning short-term procurement, also be repealed/overridden, or that its critical provisions be incorporated into the new draft Regulation to avoid duplication.
- **Implementation Timeline:** APEPDCL suggested that the new framework should only commence from the 6th Control Period, starting 01.04.2029, as resource planning for the 5th Control Period is already finalised.

Commission's Analysis and Decision

- **2006 Guidelines:** The Commission agreed that the December 2006 Guidelines superseded the 2000 Guidelines and decided to modify the clause in the draft Regulation to reference the 2006 Guidelines.
- **Regulation No. 1 of 2022:** The Commission notes that the present Regulations focus on resource adequacy planning, while Regulation No. 1 of 2022 details the procedure for actual short-term power procurement. Hence, both shall prevail. However, in case of any inconsistency, the provisions of 3.2 of this regulation have overridden the earlier Regulation No. 1 of 2022.
- **Implementation Timeline:** The Commission decided not to defer implementation until 01.04.2029, stating that Resource Adequacy planning is a continuous process. Distribution Licensees must file Resource Adequacy Plans under the present Regulations from the ensuing financial year onwards, including any necessary revisions to existing plans.

Accordingly, considering the views, the draft is modified as follows.

“3.2. This Regulation shall override any inconsistent provisions in earlier APERC Regulations (including the 2006 Guidelines for Load Forecasts, Resource Plans, and Power Procurement Process) to the extent of inconsistency.”

5. Definitions - Expected Energy Not Served (EENS) and Net Load

Draft

“4. Definitions

.....

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;

.....

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;”

Objections/views/suggestions

Sri Kandharapu Murali, Sri CH. Baburao and Sri M. Venugopala Rao raised two main points:

- **Net Load Definition:** They argued that defining "Net Load" by excluding actual Renewable Energy (RE) generation is a "whimsical approach" that "absurdly treats all RE generation as surplus".
- **EENS Planning:** They contended that if a 5% reserve margin is already included in the adequacy plan for exigencies, then planning for "Expected Energy Not Served (EENS)" implies the resource adequacy plan is "inherently deficient".

Commission's Analysis and Decision

- **Net Load:** It is a "well-established concept" used for planning to account for the "variability and intermittency" of RE generation. It represents the "residual demand to be met by dispatchable and firm resources" and does not treat RE as surplus.
- **EENS:** It is a "standard grid reliability metric" used to ensure generation and storage resources are sufficient to meet customer demand without frequent interruptions. Also, System operators use EENS alongside other probabilistic indices like *Loss of Load Probability (LOLP)* to determine Planning Reserve Margins.

Accordingly, rejecting the views, the clause is retained as-is.

6. Definitions - Medium-Term

Draft

"4. Definitions

.....

h) "Long-Term" means a duration of ten years for the 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;

.....

l) "Medium-term" means duration exceeding one year and up to five years for the 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."

Objections/views/comments

APEPDCL and **APCPDCL** requested that the periods specified for planning terms ("Long-Term" and "Medium-Term") and corresponding procurement terms ("Long-Term Power Procurement" and "Medium-Term Power Procurement") be aligned. APEPDCL specifically noted an inconsistency between the "Medium-term" definition (five years) and the "Medium-Term Power Procurement" definition (seven years).

Commission's Analysis and Decision

- **Distinct Purposes:** The terms serve distinct purposes:
 - a. "Long-Term" and "Medium-Term" relate to the **planning horizon** for demand forecasting and resource planning.
 - b. "Long-Term Power Procurement" and "Medium-Term Power Procurement" relate to the **tenure of contractual procurement arrangements**.
- **Flexibility and Continuity:** Providing a slightly longer tenure for procurement facilitates flexibility in contracting and ensures continuity of

supply, particularly when dealing with delays in capacity addition or uncertainties in capacity realisation.

- **Consistency:** The differentiation is consistent with prevailing regulatory and policy frameworks governing power procurement.

Accordingly, the requests of DISCOMS are not considered, and the draft is retained as-is.

7. Resource Adequacy Framework

Draft

“5.2. The RA framework encompasses a systematic process involving the following stages:

- 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; and*
- F. Monitoring and compliance.”*

Objections/views/comments

APEPDCL submitted that the various stages of the Resource Adequacy framework should preferably be executed through integrated analytical platforms to ensure data lineage, traceability, and an auditable linkage among forecasting assumptions, resource planning, and procurement decisions, thereby avoiding manual data transfer between disconnected systems.

Commission’s analysis and decision

The Commission notes that Clause 5.2 outlines the broad components of the Resource Adequacy framework. The specific tools, platforms, or methodologies to be adopted for implementation are operational aspects and shall be maintained by the respective licensees.

Accordingly, the draft is retained as-is.

8. Transmission and Distribution Planning Framework

Draft

“5.4. In compliance with this Regulation, the Distribution Licensees shall develop and prepare the following plans: the LT-DRAP, which is to be created concurrently with the Distribution plan; the MT-DRAP; and the ST-DRAP.

5.5. The STU is required to develop and prepare transmission planning criteria. These criteria must align with the latest transmission planning criteria from the CEA and the state grid code, and also consider the RA plan of the Distribution Licensees. The STU must file these criteria with the Commission as part of the MYT/Annual Tariff petitions.”

Objections/views/comments

Prayas (Energy Group) submitted that while the draft Regulations correctly include transmission and distribution network planning within the Resource Adequacy framework, they lack sufficient detail on the network planning framework. They requested two mandates to be developed within six months:

- **Transmission Planning Criteria:** The STU should be mandated to develop State-specific transmission planning criteria aligned with the latest CEA criteria and the State Grid Code. They also suggested the Commission update the State Electricity Grid Code.
- **Distribution Planning Criteria:** State-specific distribution network planning criteria should be developed with input from Distribution Licensees. They suggested that until new criteria are developed, existing APERC Guidelines, CEA Distribution Network Planning Criteria, and relevant Grid Code provisions should be used for distribution plans.

Commission’s Analysis and Decision

- **Existing Planning:** Transmission and distribution planning are already being undertaken by the STU and Distribution Licensees using existing guidelines, planning criteria, and the regulatory framework.

- **Purpose of Regulations:** The present Regulations are intended to streamline and integrate existing planning processes within the Resource Adequacy framework, not to create an entirely new planning framework.
- **Existing Timelines:** The existing guidelines/regulations already include timelines and procedural requirements for submitting Resource Adequacy plans, as well as transmission planning criteria. The STU is already submitting transmission planning exercises as part of the tariff and planning process.

Therefore, separate, additional timelines or directions are not necessary. However, the STU and Distribution Licensees must continue to align their planning exercises with applicable CEA Guidelines, Grid Code provisions, and other planning criteria.

Accordingly, the draft is retained as-is.

9. Demand Forecasting

Draft

“6.2. The Distribution Licensee shall conduct a comprehensive demand assessment and forecasting, covering hourly or sub-hourly periods within their distribution area. This must utilise scientific modelling tools and comprehensive input data, covering both the Long-term and Medium-term time horizons, to ensure accurate demand predictions.”

Objections/views/comments

Prayas (Energy Group) proposed revising Regulation 6.2 to explicitly specify "hourly or sub-hourly 15-minute block-wise periods" for production cost simulations to accurately capture operational constraints due to sub-hourly variability.

Commission's analysis and decision

The existing clause already provides flexibility for hourly- or sub-hourly-demand forecasting based on operational requirements. As hourly forecasting is already practised, the Commission decides that prescribing 15-minute block-wise forecasting is unnecessary at this stage, and the draft is retained as-is.

10. Submission Timeline for Consumption and Sales Data

Draft

“6.3. The Distribution Licensee shall furnish both category-wise and assessed consumption data for unmetered consumers within a specific class for demand forecasting. This consumption information, covering the preceding financial year, along with any other data requested by the SLDC, must be submitted by the Distribution Licensee no later than April 21st of each year.”

Objections/views/comments

APEPDCL and APCPDCL stated that the 21st April deadline for submitting Resource Adequacy Plans and sales data is impractical, as finalisation of sales data (which includes billing, agriculture consumption assessment, Open Access adjustments, corrections, and accounting reconciliation) typically requires at least six weeks. They requested that the deadline be revised from April 21st to May 21st each year.

Commission's Decision: The Commission noted that finalising the data requires a reasonable time after the close of the financial year and that timely submission is critical for accurate demand forecasting. The Commission decided to revise the timeline to provide adequate time while maintaining alignment with the national Resource Adequacy framework.

Accordingly, the draft is modified as follows:

“6.3. The Distribution Licensee shall furnish both category-wise and assessed consumption data for unmetered consumers within a specific class for the purpose of demand forecasting. This consumption information, covering the preceding financial year, along with any other data requested by the SLDC, must be submitted by the Distribution Licensee not later than April 30th of each year.”

11. DSM Accounts

Draft

“6.4. By the 21st of April each year, the SLDC shall provide the Deviation Settlement Mechanism (DSM) accounts for the preceding financial year to the Distribution Licensees.”

Objections/views/comments

APSLDC submitted that this clause can be enforced only after the APERC issues DSM regulations, as there is currently no DSM regulation in place for intra-state/inter-DISCOM accounting. APEPDCL and APCPDCL submitted that, in view of the submissions against clause 6.3 above, they suggested modifying the timeline to May 23rd or May 25th of each year.

Commission's analysis and decision

The Commission notes that, although intra-State DSM Regulations have not yet been notified, DSM-related accounting is in place for certain transactions, including wind and solar scheduling and inter-State transactions governed by the Central Electricity Regulatory Commission framework. Pending such notification, the SLDC shall provide available DSM-related data, to the extent applicable, to facilitate Resource Adequacy planning. In line with the revised timeline under Clause 6.3, the Commission considers it appropriate to retain the draft as-is.

12. Forecasting Methodologies and Tools

Draft

“6.5. The Distribution Licensee shall determine the energy forecast for each consumer category by utilising any of the following methodologies, individually or in combination:

A. Time Series Analysis and Trend Analysis: This includes assessing Year-on-Year growth or calculating the Compounded Annual Growth Rate (CAGR) over a specified historical period.

B. Econometric Modelling: This method must include a clear specification of the parameters used, the algorithm adopted, and the source of the data.

C. Advanced AI and Machine Learning Techniques: Specifically, this covers the use of Artificial Intelligence (AI), including machine learning, and Artificial Neural Networks (ANNs).

D. Specific Demand Forecasting Models: This includes the Auto-Regressive Integrated Moving Average (ARIMA) method.

E. End Use Methodology: This can be either a full End Use or a Partial End Use method.”

Objections/views/comments

- a. APEPDCL advocated for incorporating advanced forecasting methodologies, including AI/ML techniques and neural networks, with continuous, real-time data updation and accuracy benchmarking using RMSE and MAPE.
- b. APCPDCL requested a two-year delay in implementing the Resource Adequacy framework, citing that Load Forecasts for the 5th Control Period have already been finalised.
- c. Prayas (Energy Group) proposed that trend analysis must be disaggregated by geography, consumer, and energy service levels, with explicit descriptions of methodology and data. They also suggested renaming the "Time Series Analysis and Trend Analysis" methodology to "Disaggregated Time Series Analysis and Trend Analysis".

Commission's Analysis and Decision:

- a. The Commission notes that the draft Regulation already provides sufficient flexibility for Distribution Licensees to adopt appropriate forecasting methods, including advanced statistical and AI/ML-based techniques.
- b. Resource Adequacy planning is an existing exercise under the current regulatory framework and not new; hence, the request for deferment is rejected.
- c. The "Time Series Analysis and Trend Analysis" methodology is retained to maintain alignment with the national framework and avoid ambiguity.
- d. All adopted methodologies must ensure robustness, accuracy, consistency, transparency, and proper documentation.

Accordingly, the draft is retained as-is.

13. Forecasting

Draft

"6.8. The Distribution Licensee shall employ state-of-the-art tools, scientific methodologies, and a robust database. This database should comprehensively cover relevant data for the Licensee's area, including,

but not limited to, weather patterns, historical consumption data, demographic and econometric information, detailed consumption profiles, and the anticipated impact of various policies and market drivers.”

Objections/views/comments

- a. **APEPDCL** requested the use of analytical platforms for continuous, real-time forecast updates and rolling forecasts, arguing that static annual forecasts are insufficient.
- b. **Prayas (Energy Group)** proposed that the database should detail demand drivers (e.g., EVs, AC adoption), mandate the publication of load research studies within one year, and request a dedicated study of agricultural demand (25% of sales).

Commission's Analysis and Decision

The Commission notes that the existing clause already requires "state-of-the-art tools" and comprehensive databases. The real-time data and rolling forecasts are operational matters for Distribution Licensees. All forecasts of licensees will be placed in the public domain as a part of a rolling exercise, and therefore, a separate publication of load research of DISCOMS is not required.

Accordingly, the draft is retained as-is.

14. Demand Forecasting Parameters and Policy Influences

Draft

“6.9.

- *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 that can impact econometric parameters, and the impact of the national hydrogen mission.*

.....

Agricultural Sector Specifics:

- *For agricultural loads: season-wise changes, temperature, area-wise rainfall patterns, impact of water levels in agricultural pockets, irrigation facilities, area-wise crop types, number of crops, increase in the number of agricultural pump sets, and their solarisation.”*

Objections/views/comments

Sri Kandharapu Murali, Sri CH. Baburao and Sri M. Venugopala Rao submitted that the financial burden of government-initiated schemes (such as 24x7 supply or agricultural pump efficiency) should be borne entirely by the respective governments and licensees and should not be imposed on other consumers, either directly or indirectly.

APEPDCL submitted that collecting data and establishing correlations among agricultural parameters, such as rainfall patterns, water levels, crop patterns, and energy consumption, is extremely difficult, particularly for long- and medium-term forecasting. Accordingly, it was requested that such parameters be removed from the forecasting framework..

Commission’s analysis and decision

The Commission notes that the provisions of this clause pertain to demand forecasting for Resource Adequacy planning and do not relate to the determination or allocation of costs, which are addressed separately in tariff proceedings.

The Commission further notes that incorporating relevant parameters, such as agricultural and policy-related factors, is necessary to improve the accuracy and granularity of demand forecasts. While certain parameters may pose practical challenges for data collection, the Distribution Licensees are expected to utilise the best available data, reasonable assumptions, and appropriate methodologies for forecasting. In view of the above, the Commission finds no merit in removing the specified parameters.

Accordingly, the draft is retained as-is.

15. Load Research Analysis and Time-of-Use Tariffs

Draft

“7.2. The Distribution Licensee, in collaboration with the SLDC, shall conduct load research analysis to determine the hourly load profile and evaluate the contribution of different consumer categories to the peak demand. This analysis shall account for the impact of demand response initiatives, load shift measures, and time-of-use tariffs. A comprehensive explanation of the methodology employed for this analysis shall be provided.”

Objections/views/comments

Sri Kandharapu Murali, Sri CH. Baburao and Sri M. Venugopala Rao submitted that Time-of-Day (ToD) tariffs are an inequitable measure that should be dispensed with altogether, noting that previous objections to ToD tariffs have not been comprehensively addressed by the DISCOMs or the Commission.

Prayas (Energy Group) suggested that load research studies should be strengthened and periodically undertaken using granular consumer- and feeder-level data to improve demand-forecasting accuracy.

Commission's analysis and decision

The Commission notes this clause relates to load research and demand pattern assessment for Resource Adequacy planning. The mention of time-of-use tariffs is only to evaluate their impact on load behaviour; their design or continuation is outside this Regulation's scope.

Regarding suggestions to enhance load research with granular consumer and feeder data, the Regulations already permit Distribution Licensees and SLDC to conduct periodic reviews, make annual updates, and incorporate evolving data and methods. Hence, no further changes are necessary.

Accordingly, the draft is retained as-is.

16. Short-Term Demand Forecast

Draft

“7.3. The Distribution Licensee shall employ state-of-the-art tools, scientific and mathematical methodologies, and extensive data. This data shall include, but is not restricted to, weather data, historical data, demographic and econometric data, consumption profiles, policies, and drivers, as appropriate for the Distribution Licensee's area of operation.”

Objections/views/comments

APCPDCL suggested providing at least two years' leeway to implement the Resource Adequacy framework to gain knowledge and prepare for the latest technologies, as the Load Forecasts and Resource Plans for the 5th Control Period were finalised by the Commission via Order dated 27.06.2024.

Commission's analysis and decision

The Commission notes that load forecasting and resource planning are already done by Distribution Licensees under existing regulations and approved processes. The current Regulations aim to gradually improve this framework by providing better tools, methods, and data. Resource Adequacy planning is ongoing, with regular updates. Since the 5th Control Period plans have been approved, the framework's implementation cannot be delayed for two more years.

Accordingly, the draft is retained as-is.

17. State-Level Demand Forecast Aggregation by SLDC

Draft

“8.2. The SLDC shall aggregate demand forecasts—including Long-term, Medium-term, and Short-Term projections (in MW and MUs)—while accounting for factors such as load diversity, congruency, and seasonal variations. These aggregated State-level demand forecasts shall be submitted by the SLDC annually to the CEA, the National Load Despatch Centre (NLDC), and the Regional Load Despatch Centre (RLDC) by May 31st for the following year”

Objections/views/comments

APSLDC and **APEPDCL** stated that Distribution Licensees already account for load diversity, seasonal, and congruency in demand forecasts. Re-assessment by the SLDC might cause duplication, inconsistency, and overestimation. They suggest SLDC should only aggregate and consolidate licensees' forecasts. APCPDCL stated that state demand forecasts require the prior year's consumption data and departmental inputs, which are usually ready by around May 21st. More time is needed to analyse data for short-, medium-, and long-term forecasts. They propose revising the SLDC submission deadline from May 31st to July 10th.

Commission's analysis and decision

The Commission notes that SLDC is responsible for demand assessment and forecasting at the State level, including validation and refinement, to ensure accurate and consistent Resource Adequacy assessment. Regarding timelines, the Commission states that the proposed timelines align with the national Resource Adequacy framework. Allowing different timelines could disrupt regional and national planning by CEA, RLDC, and NLDC.

Therefore, the draft is retained as-is.

18. State Demand Estimation by STU

Draft

“8.3. The STU shall estimate the overall State demand across different timeframes (Long-term, Medium-term, and Short-term). This estimation process shall be based on inputs from the SLDC, on-demand projections from the State's Distribution Licensees, and on the State's load diversity.”

Objections/views/comments

APSLDC submitted that since the SLDC is already tasked with aggregating the overall state demand (under Clause 8.2), mandating the STU to estimate the state demand again is unnecessary and should be deleted to avoid duplication.

Commission's analysis and decision

The STU is responsible for transmission planning, which is, however, based on inputs from the SLDC.

Accordingly, the draft is retained as-is.

19. Flexible Operation of Thermal Generating Stations and Renewable Energy Integration Costs

Draft

"9.5. To accommodate the increasing amount of renewable energy in the grid, all state thermal generating companies shall implement flexible operations, i.e., the ability to quickly ramp production up and down to match the fluctuating "Net Load" (load minus variable renewable energy generation)."

Objections/views/comments

APCPDCL states that backing down thermal units below 55% isn't immediately feasible. According to the 2022 Regulations, coal units must gradually reach a 40% minimum load by December 2030. Operating at lower loads incurs additional costs, including part-load compensation, secondary fuel, and extra network and DSM costs from integrating renewables. It suggests that these integration costs should be recovered from renewable generators through additional charges, as determined by the Commission, for the costs caused by backing down thermal plants.

Sri Kandharapu Murali, Sri CH. Baburao and Sri M. Venugopala Rao questioned why the mandate applies only to state thermal companies and not to central or private plants with active PPAs. They argued that this clause admits that arbitrary RE targets cause imbalance, forcing thermal plants to back down and imposing fixed charges on consumers.

Commission's analysis and decision

The Commission reviewed submissions and noted that the current clause specifies a mandatory minimum operating level for thermal stations, allowing only flexible operation in accordance with technical standards and regulations issued by authorities such as the Central Electricity Authority. Implementation of this flexibility is already underway nationally. The recovery of costs arising from such flexible operation is in accordance with

the applicable Regulations. Regarding renewable energy integration, the Commission emphasises that it aligns with national policy under the Electricity Act and is necessary for energy security, environmental sustainability, and cost optimisation.

The Commission is of the view that renewable energy is vital for long-term energy security, self-reliance, and the reduction of imports. Integrating renewable resources and balancing measures are key to the power system. Flexible operation requirements should apply to all thermal companies in the State, regardless of ownership, within the scope of standards, regulations, and contracts.

The Commission rejects claims that the provision leads to arbitrary renewable integration or system imbalance, asserting that the Resource Adequacy framework supports prudent planning and reliable grid operation with an evolving resource mix.

For clarity, the Commission decides to amend the draft as follows.

“9.5. To accommodate the increasing amount of renewable energy in the grid, all thermal generating companies in the State shall implement flexible operations, i.e., the ability to quickly ramp production up and down to match the fluctuating "Net Load" (load minus variable renewable energy generation)”.

20. Capacity Crediting of Generation Resources

Draft

“10. Capacity Crediting of Generation Resources

10.1. The Distribution Licensee shall calculate the Capacity Credit (CC) for its contracted generation resources. This calculation shall utilise the net load-based approach detailed in Clause 10.2 of this Regulation. The Capacity Credit factor for a specific type of contracted generation resource shall be determined by averaging its CC factor over the preceding five years, calculated on a rolling basis.

10.2. The Capacity Credit (CC) factors for generation resources shall be determined using a Net Load-based methodology, as outlined below:

.....”

Objections/views/comments

APEPDCL questioned the use of the top 250 hours, noting it may not accurately capture the state's peak demand, especially during evening hours after solar declines, and suggested considering Time-of-Day and evening peaks for better Resource Adequacy planning. APCPDCL added that, due to increased renewable energy, Capacity Credit should be based on recent data, proposing a five-year rolling average starting from FY 2024–25.

Prayas (Energy Group) argued that the current methodology may not reflect the evolving contributions of different technologies and their interactions, especially as renewable penetration grows, and recommended considering technology combinations and ELCC-based methods, including 'Top Net-Load Hours' or 'Critical Days' approaches, for more accurate Capacity Credit assessment.

Commission's analysis and decision

The Commission notes that the proposed methodology for Capacity Credit factors aligns with the national Resource Adequacy framework, Guidelines, and Model Regulations issued by the Ministry of Power, Central Electricity Authority, and Forum of Regulators.

Accordingly, the draft is retained as-is.

21. Net Load Methodology for Determination of Capacity Credit Factors

Draft

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

10.5. For thermal generation resources, the CC factors shall be computed by considering both the availability of coal and any planned or forced outages.”

Objections/views/comments

APCPDCL argued that defining Net Load as Gross Load minus renewable energy may be unsuitable for calculating Capacity Credit (CC) for hydro and thermal resources. They suggested calculating Net Load by

deducting hydro or thermal generation from Gross Load and recommended including this procedure in the Regulations.

Commission's analysis and decision

The Commission notes that the Net Load-based methodology mainly assesses the variability of renewable energy sources. Hydro generation depends on water availability, while thermal plants are dispatchable and less intermittent. Therefore, the Commission is not inclined to add separate Net Load methods for these resources.

Accordingly, the draft is retained as-is.

22. Alternative Methodologies for Capacity Credit Determination

Draft

“10.6. Alternative methodologies may be followed by the Distribution Licensee, the SLDC, or the STU, provided they are justified and approved by the Commission.”

Objections/views/comments

APEPDCL suggested that the Commission may consider recognising the Effective Load Carrying Capability (ELCC) methodology as an alternative for Capacity Credit, especially for renewable energy and storage resources.

Commission's analysis and decision

The Commission notes that the clause allows for the adoption of alternative Capacity Credit methodologies, such as ELCC, with justification and approval.

Accordingly, the draft is retained as-is.

23. Timeline for Submission of CC Factors by Distribution Licensees

Draft

“10.7. The Distribution Licensee shall share CC factors for their contracted resources, along with justification for their computations, with the SLDC by 21st May of each year for the ensuing year.”

Objections/views/comments

APCPDCL suggested modifying the clause to require the Distribution Licensee to share CC factors and the justification for contracted resources with SLDC by June 30 each year.

Commission's analysis and decision

The Commission notes the Regulations' timelines align with the national Resource Adequacy framework. Changing state-level timelines could hinder planning and assessments by SLDC, RLDC, NLDC, and CEA. Therefore, the Commission does not intend to modify the timeline and keeps the draft unchanged.

24. Timeline for Submission of State-specific Capacity Credit Factors by SLDC

Draft

"10.8. The SLDC shall calculate State-specific CC factors. This calculation must be based on the State's aggregate Demand, State Net Load, and the contracted RE generation available. The SLDC shall then submit this CC factors information to the CEA, the RLDC, and the NLDC by the 31st of May annually, for the subsequent year"

Objections/views/comments

APCPDCL proposed that the clause be amended so that the SLDC calculates State-specific CC factors based on the State's demand, Net Load, and renewable energy, and then submits this information to CEA, RLDC, and NLDC by July 10 annually.

Commission's analysis and decision

The Commission notes the Regulations' timelines align with the national Resource Adequacy framework. Changing state-level timelines could hinder planning and assessments by SLDC, RLDC, NLDC, and CEA. Therefore, the Commission does not intend to modify the timeline and keeps the draft unchanged.

25. Planning Reserve Margin (PRM)

Draft

“11.1. The Planning Reserve Margin (PRM) is the percentage of capacity, in addition to the State's Coincident share of the National Peak Demand, that must be factored in when planning generation resources.”

Objections/views/comments

Sri Kandharapu Murali, Sri CH. Baburao and Sri M. Venugopala Rao questioned who would buy surplus power if states plan resource adequacy with added reserves. They suggested storing surplus power (RE and thermal) using Battery Energy Storage Systems to avoid high-cost market purchases.

Prayas (Energy Group) advised that state planning should consider demand variability, including differences between state and national peak demand, to ensure adequacy throughout.

Commission's analysis and decision

The Commission states that Planning Reserve Margin (PRM) is a reliability standard to ensure capacity meets demand under uncertainties like demand fluctuations, outages, and renewable energy variability. It does not create avoidable surplus but assures system reliability. PRM calculation considers demand uncertainty, generation availability, renewable variability, storage, and flexible resources.

Regarding submissions on demand variability and peak-demand differences among states, the existing framework already assesses demand patterns, seasonal variations, diversity factors, and state-specific conditions within Resource Adequacy Plans. The role of SLDC is to aggregate, validate, and refine forecasts for state-level assessment within regulatory timelines. No further changes are needed, so the draft is retained as-is.

26. Planning Reserve Margin (PRM)

Draft

“11.2. The PRM shall be as determined by the Authority or approved by the Commission, utilising reliability indices such as LOLP and NENS.”

Objections/views/comments

APEPDCL and **APCPDCL** stated that maintaining high Planning Reserve Margins and reliability indices like LOLP/NENS can be costly. They suggested initially reducing these indices, then scaling them up gradually based on operational experience and system development.

Commission's analysis and decision

The Commission notes that Planning Reserve Margin and reliability indices are crucial for supply adequacy and dependability. While they may incur costs, these are essential for a reliable power system and unavoidable. The PRM should be determined or approved by the Commission after considering reliability, system conditions, and costs to balance reliability and cost. The draft remains unchanged.

27. PRM in State-Level Resource Planning

Draft

"11.5. The STU/SLDC shall incorporate the PRM into the State-level Integrated Resource Plan during the State-level RA planning process."

Objections/views/comments

APEPDCL and **APCPDCL** suggested replacing "STU/SLDC" with "SLDC" in Clause 12, as it assigns State-level Resource Adequacy planning solely to the SLDC.

Commission's analysis and decision

The Commission notes that the SLDC currently operates under the STU in the State. Therefore, the term "STU/SLDC" remains to reflect the current institutional setup. The draft is kept unchanged.

28. Probabilistic Assessment of Resource Gaps

Draft

"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 scenarios (most probable, business as usual, and

Pessimistic) as specified by the CEA in the Guidelines for Medium and Long-Term Power Demand Forecast, issued from time to time”

Objections/views/comments

APEPDCL proposed that the Resource Adequacy framework include probabilistic analysis methods such as Monte Carlo simulations and stochastic modelling to assess resource gaps. It should consider uncertainties such as demand growth, variability in renewable generation based on historical weather data, fuel and carbon price trends, generator outages, interconnection timelines, construction delays, and other planning factors. The framework could report probability-based resource gap scenarios like P50, P75, P90, and P99 instead of single deterministic forecasts, and design the Resource Adequacy Plan to incorporate higher confidence levels for reliability and risk management.

Commission’s analysis and decision

The Commission notes that the provision aligns with the Central Electricity Authority's guidelines for demand forecasting and Resource Adequacy planning, which require scenario-based analysis. Consistency with the national framework is vital for coordinated planning. The clause doesn't restrict the use of advanced methods; licensees may use them internally if the outputs meet the framework and reporting standards. The draft is retained as proposed.

29. Consideration of Constraints

Draft

“12.12. The SLDC, while formulating the LT-DRAP, shall also consider the constraints set out in Annexure-I to this Regulation.”

Objections/views/comments

APSLDC stated that DISCOMS already considers constraints in Annexure-I when preparing LT-DRAP. Requiring SLDC to reconsider these constraints causes duplication. They requested removing this clause.

Commission’s analysis and decision

The Commission notes that constraints in Annexure-I must be considered both at the individual Licensee level when preparing LT-DRAPs and at the State-level during assessment and formulation by the SLDC. The

SLDC's role includes validating, coordinating, refining, and assessing Resource Adequacy Plans in light of grid conditions, operational constraints, and planning needs. Therefore, such constraints considered by the SLDC are not redundant.

Hence, the draft is retained without modification.

30. Filing of Resource Adequacy Planning

Draft

“12.14. The 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.”

Objections/views/comments

APSLDC, APCPDCL, and APEPDCL stated that the STU alone is responsible for transmission network resource planning as per clause 5.5. The reference to "SLDC" should be removed to clarify that only the STU is mandated to file the plan.

Commission's analysis and decision

The Commission notes that transmission planning is the STU's responsibility, including filing the resource adequacy plan. It finds merit in the suggestion and is inclined to modify the clause accordingly as follows:

“12.14. The STU 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.”

31. National Peak Contribution

Draft

“12.16. The Distribution Licensee may also demonstrate to the Commission a 100% tie-up for the first year and a minimum 90% tie-up for the second year to meet the requirement for their contribution to the

national peak. Only resources with long/medium/short-term contracts shall be considered to contribute to the RAR.”

Objections/views/comments

APEPDCL and **APCPDCL** argued that imposing the CEA's National Resource Adequacy Plan on DISCOMs isn't suitable because their peak demand may not align with the national peak. They stated the DISCOM-level plan should mainly focus on their own peak demand, with contribution to the national peak as secondary. They added that capacity needs depend on resource mix choices such as thermal, hydro, nuclear, wind, solar, hybrid with storage, PHPS, or BESS, and differing assumptions among agencies and DISCOMs could cause mismatches between the DISCOM plan and the national share.

Commission's analysis and decision

The Commission notes that the Distribution Licensee's primary duty is to ensure sufficient resources to meet demand, including peak demand. Contribution to the national peak is incidental and serves coordinated planning and system reliability. Once a Licensee has planned and secured resources to meet its demand, meeting the national peak contribution does not require additional capacity; it is only a part of overall planning. Therefore, the draft remains unchanged.

32. Review of Short-Term Resource Adequacy Plans

Draft

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

12.20. The SLDC shall prepare a one-year look-ahead of the ST-DRAP at the State level for operational planning, based on the LT-DRAP study results. The SLDC shall review the STDRAP on a daily, monthly and quarterly basis based on actual availability of generation resources.”

Objections/views/comments

APCPDCL stated that although Distribution Licensees sign long-, medium-, and short-term contracts, power sharing is based on monthly

average drawal ratios, not real-time peak demand. It proposed that SLDC review Distribution Licensee-wise Short-Term Distribution Resource Adequacy Plans (ST-DRAP) separately on a daily, monthly, and quarterly basis, in addition to the overall state assessment.

Commission's analysis and decision

The Commission notes that short-term operational planning, demand review, and power procurement through short-term arrangements such as power exchanges are already carried out by Distribution Licensees and SLDC under existing regulations, including APERC Regulation No. 1 of 2022. These Regulations primarily address Resource Adequacy planning and provide detailed procedures for short-term procurement, scheduling, and operational coordination. The daily, monthly, and quarterly reviews of ST-DRAP by SLDC aim to ensure continuous monitoring in response to resource and system conditions. Therefore, no change is needed, and the draft is retained as-is.

33. RPPO and RCO Targets

Draft

“14.6. Procurement of power capacity from RE sources by the Distribution Licensee to meet the RPO targets must adhere to the higher of the Regulations notified by the Commission periodically or the RCO targets specified in the notifications issued by the Ministry of Power (MOP) under the Energy Conservation Act, 2001 (as amended).”

Objections/views/comments

Sri Kandharapu Murali, Sri CH. Baburao and Sri M. Venugopala Rao argued that directing DISCOMs to meet MoP RPO targets that exceed the Commission's targets is an abdication of APERC's regulatory role. They said MoP targets are guidelines, and enforcing them without considering fluctuating demand and existing PPAs ignores state obligations.

Prayas (Energy Group) recommended that the Regulations also include compliance with the Energy Storage Obligation (ESO) targets notified by the Ministry of Power on 22.07.2022, given storage's role in reliable, cost-effective supply. They suggested that, since Resource Adequacy studies span 10 years, the Commission should consider issuing indicative long-term RPO/RCO/ESO trajectories if the Ministry does not. They emphasised that

RPO/RCO/ESO targets shouldn't cap renewable procurement, which should instead be guided by capacity and cost simulations considering costs, transmission, and timelines. They also recommend conducting production cost simulations at a 15-minute resolution to capture operational details such as ramping, start-up/shut-down costs, minimum operating levels, and storage needs.

Commission's analysis and decision

The Commission notes that Distribution Licensees must comply with the Renewable Purchase Obligation (RPO) under the APERC Regulations and the Renewable Consumption Obligation (RCO) under the Ministry of Power, thereby ensuring adherence to legal requirements without relinquishing regulatory authority. RPO/RCO are minimum obligations and do not cap renewable energy procurement. Suggestions on long-term RPO/RCO/ESO trajectories will be considered separately if needed. Regarding 15-minute production cost simulations, such detailed operational considerations are addressed during short-term planning. Therefore, the draft remains unchanged.

34. Power Procurement Framework and Storage Procurement

Draft

"14.7. 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 the 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 the LT-DRAP capacity addition requirement for future years from the BESS, the 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 the BESS or the PSPs developed and owned by the Government-owned (Government of Andhra Pradesh/ 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.”

Objections/views/comments

Indian Energy Exchange (IEX) stated that CERC (Power Market) Regulations 2021 prohibit OTC platforms from negotiating or settling contracts, and MoP guidelines don't recognise them for short-term purchases. IEX proposed amending the clause to require procurement through competitive bidding via DEEP, PUSHp portal, and TAM.

Sri Kandharapu Murali, Sri CH. Baburao and Sri M. Venugopala Rao oppose procurement via intermediaries, traders, and bilateral deals, claiming it undermines competitive bidding. They criticised SECI brokers, citing high, manipulative brokerage costs (e.g., 7 paise/unit for PSA lifespan), and urged DISCOMs to float tenders directly.

Prayas (Energy Group) recommended that procurement decisions be grounded in detailed planning, cost studies, and production simulations, not just obligation targets.

Commission's analysis and decision

The Commission notes the Regulations align with the tariff-based bidding framework and national policy, aiming for transparent, competitive, reliable power procurement to meet Resource Adequacy needs.

It recognises procurement through intermediaries, traders, and agencies as part of the existing policy, offering operational flexibility, aggregation, contract support, monitoring, and economies of scale, subject to regulatory approval to ensure transparency and consumer protection.

Regarding procurement via the DEEP Portal, PUSHp Portal, Term-Ahead Markets, or other mechanisms, the framework aims to ensure competitive processes in accordance with the guidelines, and any non-competitive procurement requires prior approval from the Commission

and justification. Hence, the Commission decides to delete bilateral contracts from the draft.

On cost simulations and optimisation studies, the Commission emphasises that procurement decisions must ensure reliable, quality power on a 24x7 basis, considering overall system needs and reliability, not just cost, and does not accept the suggestion to base decisions solely on costs.

Accordingly, Clause 14.9 is modified as follows:

“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 Banking Arrangements and any other sources as may be approved by the Commission.”

35. Linkage of Market Procurement with ST-DRAP

Draft

“14.10. The Distribution Licensee may procure power on a short-term and Medium-term basis through the DEEP and PUSH portal and Term-Ahead Markets (TAM). Further, the Distribution Licensee may procure power on a short-term basis through the OTC platform with the Commission's prior approval.”

Objections/views/comments

APCPDCL states that individual Distribution Licensees can only procure power on short- and medium-term bases after SLDC assesses their ST-DRAP. Scheduling should be done separately for each Licensee on a block-wise basis, comparing planned and actual drawals in real time to assess deviations. It recommends procurement via DEEP, PUSH portal, and TAM based on SLDC-certified ST-DRAP, and Licensees may buy short-term power through OTC with prior Commission approval.

Commission's analysis and decision

The Commission notes that short-term power procurement and operations are governed by APERC Regulation No.1 of 2022, which mainly outlines the Resource Adequacy planning framework. To ensure clarity and

consistency, the Commission decides to explicitly reference this Regulation in the draft. The draft is accordingly modified as follows.

“14.10. The Distribution Licensee may procure power on a short-term and Medium-term basis through the DEEP and PUSHP portal and Term-Ahead Markets (TAM) in accordance with APERC Regulation No.1 of 2022 and amendments thereto. Further, the Distribution Licensee may procure power on a short-term basis through the OTC platform with the Commission's prior approval.”

36. Prior Approval for Power Procurement Agreements

Draft

“15.1. The Distribution Licensee must prioritise procuring resources within the region. This in-region procurement is subject to the availability of the least-cost resource. When considering procurement from outside the region, the Licensee must first account for transmission constraints and the associated transmission costs. Only then, if necessary, may procurement decisions be made across regions. The modalities and tenure of all procurement contracts shall be determined with these steps in mind.

.....

17.3. Any new PPAs for Long/Medium-term power procurement or amendments to existing Long/Medium-term PPAs/PSA/Power Supply Agreements entered into by the Distribution Licensee shall be subject to the prior approval of the Commission.”

Objections/views/comments

Sri Kandharapu Murali, Sri CH. Baburao and Sri M. Venugopala Rao argued that requiring "prior approval" bypasses transparency. They suggested DISCOMs should file petitions only after choosing generators through competitive bidding, and PPAs should get approval after public hearings.

Commission's analysis and decision

The Commission is of the view that prior approval for power procurement is consistent with the Electricity Act, 2003, thereby ensuring regulatory oversight. The process follows regulations like the Conduct of

Business Regulations, which promote due process and transparency, including public participation when needed. This requirement does not bypass transparency but ensures prudent procurement for consumers' benefit. Therefore, the draft remains unchanged.

37. Pass-through of Fixed Costs for Reserve Capacity

Draft

“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. At the same time, the Distribution Licensee shall ensure that entering into new Long-Term and Medium-Term contracts does not contribute to the accumulation of stranded capacity or to additional consumer burdens arising from the fixed costs associated with stranded capacity.”

Objections/views/comments

APEPDCL proposed amending the clause to allow passing fixed costs of reserve capacity, maintained for Planning Reserve Margin, to consumers for Resource Adequacy compliance, due to potential underutilisation.

Commission's analysis and decision

The Commission notes that maintaining the Planning Reserve Margin and ensuring capacity adequacy are essential to a reliable power supply amid uncertainties. It notes that the current draft aims to pursue prudent power planning and avoid unnecessary stranded capacity and costs for consumers. Fixed costs and procurement expenses are reviewed on a case-by-case basis in tariff/FPPCA proceedings, and the Commission is not inclined to support blanket pass-through.

Therefore, the draft remains unchanged.

38. Additional Power Procurement

Draft

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

.....”

Objections/views/comments

Indian Energy Exchange (IEX) submitted that the draft allows extra power procurement during demand surges or supply shortfalls but doesn't require it to be competitive. IEX asked for a clause change to specify that additional agreements follow MoP short-term bidding guidelines under section 63 of the Act to safeguard consumers.

Commission's analysis and decision

The Commission reviewed submissions and noted that additional power procurement for emergencies, demand changes, grid issues, and short-term needs is governed by APERC Regulation No. 1 of 2022 and the relevant procurement framework. The draft is thus amended to align with APERC Regulation No.1 of 2022 and the procurement framework.

“18.1. The Distribution Licensee shall undertake additional power procurement, in accordance with APERC Regulation No.1 of 2022 and amendments thereto, during the year, over and above the approved RA procurement plan, on account of the following exigencies:

.....”

39. Exemption from Non-Compliance Charges during Initial Implementation Period

Draft

“19.1. Distribution Licensees shall comply with the RA 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 apply”

Objections/views/comments

APCPDCL stated that implementing the Resource Adequacy framework, which requires advanced forecasting, will take time to adapt. It proposed that exemption from non-compliance charges be granted during the initial phase, especially for delays in the first year or until Licensees are equipped, whichever comes first.

Commission's analysis and decision

The Commission notes that demand forecasting, resource planning, procurement, and system adequacy activities are already being carried out by Distribution Licensees under current regulations. It emphasises that strict compliance timelines are vital to the effective implementation of the Resource Adequacy framework and to timely decisions. Initially, Licensees may hire consultants or agencies for the RA framework, if necessary, until in-house capabilities grow.

Therefore, the Commission sees no reason to exempt licensees from non-compliance charges during initial implementation. Accordingly, the draft remains unchanged.

40. Use of Consumer Statistics and Databases for Forecasting

Draft

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

Objections/views/comments

APSLDC submitted that this statistical data is crucial for verifying and updating short-term demand forecasts. They suggested modifying the clause to explicitly mandate that Distribution Licensees provide this data to the SLDC strictly monthly, by the 10th of each month.

Commission's analysis and decision

The Commission notes that the clause allows the SLDC to use available statistical data from Distribution Licensees and to seek necessary data for system planning and operation. It's not necessary to specify a fixed submission schedule at this stage, so the clause remains unchanged.

41. Revision of Timeline for Submission of Consumption Data

Draft

“21.1. By the 21st of April each year, the Distribution Licensees shall provide the SLDC with category-wise consumption data for the previous

financial years, along with any other information the SLDC may require for the ensuing year.”

Objections/views/comments

APCPDCL proposes revising the deadline for distribution licensees to submit category-wise consumption data from April 21 to May 21 each year, citing the extensive work involved and to align with Clause 6.3.

Commission’s analysis and decision

In line with Clause 6.3, the Commission finds it appropriate to revise the timeline for the submission of category-wise consumption data and related information. It is inclined to modify the draft as follows.

“21.1. By the 30th of April each year, the Distribution Licensees shall provide the SLDC with category-wise consumption data for the previous financial years, along with any other information the SLDC may require for the ensuing year.”

42. Submission Timelines for LT-DRAP

Draft

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

Objections/views/comments

APSLDC submitted that a timeline must be set for the DISCOMs to provide the underlying data. They requested that the clause be amended to require Distribution Licensees to submit the final LT-DRAP to the SLDC by August 30th, thereby giving the SLDC sufficient time to aggregate and meet the CEA's September 30th deadline.

Commission’s analysis and decision

The Commission notes that the timely submission of data and Resource Adequacy plans by Distribution Licensees is essential for SLDC to aggregate, review, and submit the LT-DRAP to the CEA on time. It accepts the suggestion and amends the draft to specify a submission timeline as follows.

“21.5. The Distribution Licensees shall submit the LT-DRAP and requisite data/details to the SLDC by 30th August of each year. The

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

43. Revision of Timeline for Submission of LT-DRAP

Draft

“21.7. The Distribution Licensees shall submit the LT-DRAP plan to meet the RAR to the Commission within 15 days of receipt of the CEA inputs or on 30th October of each year, whichever is earlier.”

Objections/views/comments

APCPDCL proposed extending the LT-DRAP submission deadline from 15 to 30 days after receiving CEA inputs, citing the volume of work involved.

Commission’s analysis and decision

The Commission notes that the timelines in the Resource Adequacy framework are aligned with the national planning process, including the FoR Model Regulations. It emphasises that the timely submission of the LT-DRAP is crucial for effective coordination. Therefore, the prescribed timeline remains unchanged, and the clause is retained as is.

44. Contracting of Balance Capacity Shortfall

Draft

“21.12. The Distribution Licensee shall complete the contracting for any balance capacity shortfall, as communicated by the NLDC, by the end of March each year for the subsequent year. If the Distribution Licensee contracts this balance capacity shortfall through Long or Medium-term power procurement, it shall require the prior approval of the Commission, as specified in Clause 17.3 of this Regulation.”

Objections/views/comments

Sri Kandharapu Murali, Sri CH. Baburao and Sri M. Venugopala Rao submitted that leaving DISCOMs to contract for balance capacity shortfalls "as communicated by the NLDC" irrationally places DISCOMs under the NLDC's purview. They argued that DISCOMs and the APERC are fully capable of determining capacity additions without relying on NLDC communications.

Commission's analysis and decision

The Commission notes that the NLDC's requirement to communicate balance capacity shortfall aims to coordinate and assess Resource Adequacy in the interconnected grid. It does not give the NLDC regulatory control over Distribution Licensees. The clause states that any balance capacity shortfall procurement via Long-Term or Medium-Term methods needs prior Commission approval. The Commission will review all relevant aspects before granting approval. Therefore, no change is needed to the draft.

45. Timeline for Intimation of Contracted Balance Capacity

Draft

“21.13. The Distribution Licensee shall inform the Commission of the contracted balance capacity by the 1st of April each year, covering the current year. However, if the NLDC delays communication regarding the balance capacity shortfall, the Distribution Licensee shall seek the Commission's permission to extend the deadline for contracting the balance capacity, provided the request is submitted by the 25th of March each year.”

Objections/views/comments

APCPDCL suggested reconsidering the timelines in the clause based on the work scope at different Resource Adequacy stages. They proposed that the licensee inform the Commission of the contracted capacity for the current year by April 1 or within 90 days of NLDC communication, whichever is later. If NLDC is delayed, the licensee may request an extension from the Commission.

Commission's analysis and decision

The Commission is of the view that timely intimation and contracting of balance capacity under the Resource Adequacy framework. Existing provisions allow the Distribution Licensee to seek extensions from the Commission if NLDC delays communication. These requests should be considered on a case-by-case basis, as automatic extensions are inappropriate. Therefore, the draft remains unchanged.

46. Timeline for Establishment of Dedicated Resource Adequacy Planning Cell

Draft

“25.1. Within three months of this Regulation's commencement, the Distribution Licensee shall constitute a dedicated planning cell for RA. This cell shall be equipped with the necessary capabilities and tools for critical functions such as demand forecasting, capacity planning, and RE integration.”

Objections/views/comments

APCPDCL argued that establishing specialised Resource Adequacy planning cells with advanced tools within three months is impractical and would pose administrative challenges. It requested a one-year period to comply with this requirement.

Commission's analysis and decision

The Commission notes that resource adequacy functions, such as demand forecasting, resource planning, procurement, and renewable energy integration, are already undertaken by Distribution Licensees under existing regulations. It emphasises the need to establish a dedicated planning cell within the specified timeline for timely regulation implementation, better planning coordination, stronger analytical capabilities, and informed decisions amid a complex power system with more renewables and storage. Initially, Licensees may hire consultants or agencies for developing analytical tools and models, if necessary, until in-house capabilities grow. The Commission considers a three-month timeline reasonable and retains the draft as is.

47. Repeal existing Short-Term Power Procurement Regulations

Draft

“25.2. The Distribution Licensee shall establish a separate, dedicated, round-the-clock cell. This cell shall be responsible for the real-time purchase and sale of power, as well as for undertaking intra-day, day-ahead, and week-ahead power procurement via Power Exchanges or other available avenues. Within 45 days of this Regulation taking effect, the Distribution Licensee shall formulate appropriate guidelines

outlining the operational procedure (modus operandi) for these dedicated cells, in alignment with the spirit of this Regulation, and submit these guidelines to the Commission.”

Objections/views/comments

APCPDCL stated that provisions for a dedicated short-term power procurement cell exist under APERC Regulation No.1 of 2022, notified on 10.02.2022. Since the draft Resource Adequacy framework also covers short-term procurement, the existing regulation may need to be repealed or overridden to avoid duplication and confusion. APCPDCL suggested that essential provisions from the current regulations could be incorporated into the new framework to ensure clarity and consistency, and that Regulation no 1 of 2022 may be repealed.

Commission’s analysis and decision

The Commission notes that the Resource Adequacy Regulation and APERC Regulation No.1 of 2022 serve distinct purposes. The requirement for a dedicated cell under the current Regulation aims to improve operational planning and market participation. When functions overlap, Distribution Licensees may establish a separate cell or assign functions to the existing cell under APERC Regulation No. 1 of 2022, provided that responsibilities are effectively managed. Therefore, there's no need to repeal the existing Regulation now. The draft remains unchanged.

48. Consultation and Coordination for Preparation of RA Plan

Draft

“26.1. The Distribution Licensee shall prepare the RA Plan in consultation with State Sector Generating Companies, Central Sector Generating Companies, Transmission Companies, National/ Regional/ State Load Despatch Centres, and the CEA. Furthermore, the Distribution Licensee must assess the likely availability of power and pricing across the country—covering peak, off-peak, and normal periods—by making enquiries with Trading Companies and States that have surplus power. The Distribution Licensee may also consult with research agencies possessing relevant experience.”

Objections/views/comments

Sri Kandharapu Murali, Sri CH. Baburao and Sri M. Venugopala Rao submitted that the CEA, NLDC, and RLDC do not fall within the APERC's regulatory purview. They questioned the Commission's authority and prerogative to direct state licensees to submit aggregated demand forecasts and other strategic information to these external entities operating outside the Commission's jurisdiction.

Commission's analysis and decision

The Commission notes that Resource Adequacy planning requires coordination among entities at various levels to ensure system operation. Consultation and information sharing with entities such as CEA, NLDC, and RLDC facilitates planning, reliability, and efficiency without regulatory jurisdiction. The provision enables coordination and information exchange for assessment and planning, so no change is needed to the draft.

49. Power to Remove Difficulties

Draft

"29.1. If any difficulty arises in giving effect to any of the provisions of this Regulation, the Commission may, by a general or specific order, do anything, not inconsistent with the provisions of the Act, as may appear to be necessary for removing the difficulty/difficulties"

Objections/views/comments

Sri Kandharapu Murali, Sri CH. Baburao and Sri M. Venugopala Rao submitted that if the Commission intends to "do anything" to remove difficulties, it must make the action public, invite objections and suggestions, and hold public hearings before taking any steps.

Commission's analysis and decision

The Commission considers this a standard provision to address implementation issues related to the Regulations. Its powers are limited to issuing orders or clarifications in line with the Electricity Act, 2003, and cannot contradict the regulation. Therefore, no changes are needed to the draft.

50. Additional Clauses

Objections/views/comments

APEPDCL proposed adding/modifying clauses for mid-cycle updates of Resource Adequacy Plans, enhancing analytical and audit capabilities, and aligning short-term procurement provisions under existing regulations. They suggested equipping the dedicated cell with enterprise-grade platforms featuring audit trails, version control, role-based access, and comprehensive records for scenario creation, modifications, simulations, and reports, with the capacity to reproduce historical analyses for regulatory review. They also proposed that existing provisions in Regulation No. 1 of 2022 on short-term power procurement be repealed or integrated into the new framework to avoid duplication and confusion. **APCPDCL** pointed out the absence of a definition for “Gross Load,” which is necessary for accurate capacity and demand assessments, and recommended including this definition with relevant parameters in the regulation to ensure clarity.

Commission’s analysis and decision

The Commission notes that the present Regulation establishes a Resource Adequacy framework for planning and monitoring, while **APERC** Regulation No. 1 of 2022 governs short-term power procurement and sale. Both operate in different, complementary domains, so no repeal is needed. However, in case of any inconsistency, the provisions of 3.2 of this regulation have overridden the earlier Regulation No. 1 of 2022.

The Resource Adequacy framework involves periodic, rolling updates, making mid-cycle updates unnecessary. Distribution Licensees may adopt suitable systems and tools for implementation, in compliance with Regulation. Regarding “Gross Load,” the Commission is of the view that it is the total load, with “Net Load” defined for Resource Adequacy tasks; other parameters suggested by stakeholders can be used by Licensees, but a separate “Gross Load” definition is unnecessary.

51. Suo moto

Draft

“6.14 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 6.5 of this Regulation. Should the Distribution Licensee consider a different appropriate load factor for future years, a detailed justification for this consideration must be provided.”

Commission’s decision

The Commission notes a typo in the draft, mistakenly citing Clause 6.5 instead of correctly referencing Clause 6.13 of the Regulations. The draft is amended accordingly.

“6.14 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 6.13 of this Regulation. Should the Distribution Licensee consider a different appropriate load factor for future years, a detailed justification for this consideration must be provided.”

52. Suo moto

Draft

“10.2 The Capacity Credit (CC) factors for generation resources shall be determined using a Net Load-based methodology, as outlined below:

.....

*F. **CC Factor Formula:** The resultant CC factor is calculated using the following formula:*

Sum of RE Generation for 250 top net load hours (MUs)

CC factor = _____

{Sum of RE Capacity (MW) for 250 top load hours/ 1000} (MUs)”

Commission’s decision

The Commission observed there is an apparent error in the proposed formula and hence corrected the same as below:

“10.2 The Capacity Credit (CC) factors for generation resources shall be determined using a Net Load-based methodology, as outlined below:

.....

F. CC Factor Formula: The resultant CC factor is calculated using the following formula:

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

53. Suo moto

Commission's decision

The Commission notes that the CEA's Guidelines classify scenarios as optimistic, business-as-usual, and pessimistic, while draft Regulations used 'most probable', "business-as-usual", and "aggressive". To ensure consistency and clarity, the Commission has decided to modify the draft scenario terminology. Linking the Resource Adequacy requirement to the "most probable" (now 'optimistic') scenario could overestimate demand and raise fixed costs for consumers. Therefore, the Commission has determined that the Resource Adequacy Plan should align with the business-as-usual scenario.

Accordingly, clauses 6.6, 6.15, 12.4 and 12.5 are modified appropriately as shown below.

"6.6 The Distribution Licensee is required to adopt the most suitable combination of various methodologies for demand forecasting, considering scenarios such as the optimistic, business-as-usual, and pessimistic, as detailed in Clause 6.15 of this Regulation. While EPS projections may serve as a baseline, the Distribution Licensee may also employ any other methodology, provided a detailed justification for its adoption is furnished.

.....

6.15. The Distribution Licensee shall conduct sensitivity and probability analysis to arrive at the business-as-usual demand forecast. Furthermore, the Licensee must develop long-term and medium-term demand forecasts for at least three distinct scenarios: the optimistic, business-as-usual, and pessimistic.

.....

12.4. The Distribution Licensee shall conduct sensitivity and probability analysis to determine the business-as-usual 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 scenarios (optimistic, business-as-usual, and Pessimistic) as specified by the CEA in the Guidelines for Medium and Long-Term Power Demand Forecast, issued from time to time.

12.5 Based on the business-as-usual scenario, the Distribution Licensee shall undertake the development of Long-term, Medium-term, and Short-term Distribution RA Plan for each year, to meet the RA requirement.”

54. Suo moto

Draft

“Annexure-I

.....

3. Planning Constraints:

.....

- The RAR for each Distribution Licensee shall be calculated as:

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

Commission’s decision

The Commission notes that the Ministry of Power Guidelines for Resource Adequacy Planning use the national Planning Reserve Margin (PRM) to determine Resource Adequacy Requirement (RAR). To ensure consistency, the Commission has decided that the applicable PRM for RAR calculation shall be the national PRM. The relevant Annexure-I provision is amended accordingly as follows.

“Annexure-I

.....

3. Planning Constraints:

.....

- The RAR for each Distribution Licensee shall be calculated as:

RAR = Contribution to forecasted national peak demand in GW × (1+ National level PRM)”

55. Suo moto

Draft

“21.3 Annexure-F of the Ministry of Power's Guidelines for the RA Planning Framework for India, dated June 28th, 2023, mandates the following publication deadlines:

- *LT-NRAP report: To be published by the CEA by July 15th of each year for the ensuing year(s).*
- *ST-NRAP report: To be published by the NLDC by July 31st of each year for the ensuing year(s)”*

Commission's decision

The Commission decided to revise the publication date of the LT-NRAP report from 15th July to 31st July to align with the Ministry of Power Guidelines for the Resource Adequacy Planning Framework for India, resulting in a suitable clause modification.

“21.3 Annexure-F of the Ministry of Power's Guidelines for the RA Planning Framework for India, dated June 28th, 2023, mandates the following publication deadlines:

- *LT-NRAP report: To be published by the CEA by July 31st of each year for the ensuing year(s).*
- *ST-NRAP report: To be published by the NLDC by July 31st of each year for the ensuing year(s).”*

56. The Commission has incorporated the changes accepted by it above into the finalised Regulation at the appropriate places and corrected minor typographical errors. The final Regulation is set out in Annexure-2, and the list of objectors is set out in Annexure-1.

Sd/-
P.V.R.Reddy,
Member & Chairman i/c

Annexure - 1

List of Objectors

Sl.	Name of Stakeholders
1.	Sri. M. Venugopala Rao, Senior Journalist & Convener, Centre for Power Studies, Hyderabad.
2.	Sri. Kandharapu Murali, Secretariat Member, CPI(M), Tirupati District Committee, Tirupati.
3.	Sri. CH. Baburao, State Secretariat Member, CPI(M), Vijayawada.
4.	Sri. Ramakrishna, National Secretary, CPI, Vijayawada.
5.	Sri. Gaurav Maheshwari, Vice President - Regulatory Affairs, IEX.
6.	APSPDCL (Requested Time extension).
7.	APCPDCL.
8.	APEPDCL.
9.	APTRANSCO.
10.	Prayas (Energy Group), Pune.



Annexure - 2

Andhra Pradesh Electricity Regulatory Commission (Framework for Resource Adequacy) Regulation, 2026.

(Regulation No. 04 of 2026)

Introduction

The State of Andhra Pradesh has notified the Andhra Pradesh Integrated Clean Energy (ICE) Policy, 2024, which, inter alia, envisages a substantial addition of renewable energy capacity, with a long-term target of up to 160 GW. The State has been facilitating the development of renewable energy projects and energy storage infrastructure, including Pumped Storage Power (PSP) projects, and has initiated measures towards the deployment of battery energy storage systems and decentralised renewable energy initiatives such as PM-KUSUM and PM Surya Ghar programmes, with a view to promoting and utilising renewable energy potential in the State.

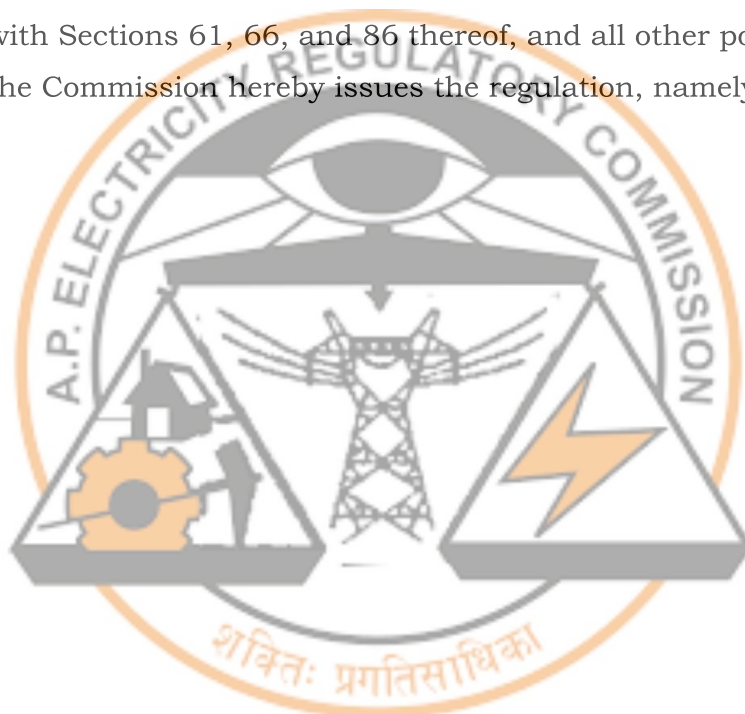
The increasing share of variable renewable energy, along with the addition of storage systems, is expected to result in greater generation variability and evolving demand patterns, necessitating a structured framework for planning and managing resources to ensure that demand, including peak demand, is met reliably and efficiently.

The Commission had earlier issued Guidelines for Load Forecasts, Resource Plans, and Power Procurement Plans on 28.02.2000 and mandated submission of Resource Plans under Clause 9 of Regulation No. 4 of 2005. The Distribution Licensees have been filing such plans, and the Commission has been issuing Orders from time to time, including the latest Order dated 27.06.2024 for the 5th Control Period (FY 2024-25 to FY 2028-29) and indicative plans for the 6th Control Period (FY 2029-30 to FY 2033-34). While the aforementioned measures and the Commission's Orders provide a foundational basis for power planning, the rapid evolution of the power system driven by Andhra Pradesh's aggressive 160 GW renewable energy trajectory and the integration of large-scale storage necessitates a transition to a more granular and comprehensive Resource Adequacy framework.

The Ministry of Power (MoP) has further reinforced this transition by notifying the Electricity (Amendment) Rules, 2022, which mandate that State Commissions frame Resource Adequacy Regulations to ensure a 24x7 reliable and cost-effective power supply, and the Forum of Regulators has issued model Regulations to guide

States accordingly. By adopting this standardised approach, the Commission aims to ensure that Andhra Pradesh remains a clean energy leader while maintaining a resilient, future-ready grid.

Accordingly, the Commission issued a Framework for Resource Adequacy Regulation, 2026, along with a Public Notice dated 06.03.2026 under Section 181(3) of the Electricity Act, 2003, read with the Electricity (Procedure for Previous Publication) Rules, 2005, inviting comments, suggestions, and objections from all stakeholders and interested parties. In response to the Public Notice, the Commission received comments/objections from various stakeholders. After careful examination of the suggestions as detailed in the Order dated 25-05-2026, 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, the Commission hereby issues the regulation, namely:



CHAPTER 1: PRELIMINARY

1. Short Title, Extent and Commencement

- 1.1. This Regulation shall be called the Andhra Pradesh Electricity Regulatory Commission (Framework for Resource Adequacy) Regulation, 2026.
- 1.2. This Regulation shall extend to the whole of the State of Andhra Pradesh.
- 1.3. This Regulation shall come into force from the date of its publication in the Official Gazette of Andhra Pradesh.

2. Objectives

- 2.1. The objective of this Regulation is to enable the implementation of the RA framework by outlining a mechanism for planning generation, transmission, and distribution resources to reliably meet projected demand in compliance with specified reliability standards, while serving the load with an optimal generation mix.
- 2.2. The RA Regulation shall cover demand assessment and forecasting, generation resource planning, planning of transmission and distribution network augmentation/strengthening, procurement planning, monitoring, and compliance. It shall ensure a reliable, 24x7, affordable power supply while integrating Renewable Energy (RE), fulfilling the Renewable Purchase Obligation (RPO), and avoiding gratuitous load shedding.

3. Scope and Applicability

- 3.1. This Regulation shall apply to all the Generating Companies, the Distribution Licensees, the State Load Despatch Centre (SLDC), the State Transmission Utility (APTRANSCO), and other grid-connected entities and stakeholders within the State of Andhra Pradesh.
- 3.2. This Regulation shall override any inconsistent provisions in earlier APERC Regulations (including the 2006 Guidelines for Load Forecasts, Resource Plans, and Power Procurement Process) to the extent of inconsistency.

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 subsection (1) of Section 70 of the Act;
- c) **“Capacity Credit”** or **“CC”** means a percentage of a resource’s installed 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 Andhra Pradesh Electricity Regulatory Commission (APERC) 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 a medium and long-term basis for each Distribution Licensee/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 a duration of ten years for the 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 a plan for assessment of long-term resource adequacy by the Distribution Licensee;
- k) **“Loss of Load Probability”** or **“LOLP”** means the 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 the 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 a 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) **“Normalised Energy Not Served”** or **“NENS”** is the normalisation 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 a 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 the 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 a plan for assessment of short-term resource adequacy by the Distribution Licensee;
 - aa) **“SLDC”** means the State Load Despatch Centre of Andhra Pradesh;
 - bb) **“State”** means the State of Andhra Pradesh;
 - cc) **“STU”** or **“State Transmission Utility”** means the Transmission Corporation of Andhra Pradesh Limited (APTRANSCO), notified as the State Transmission Utility under sub-section (1) of Section 39 of the Act.
 - dd) **“Year”** means the financial year commencing on 1st April of the year and ending on 31st March of the succeeding year.
- 4.2. Unless specifically defined within this Regulation, all other words and expressions shall carry the meaning assigned to them in the Act, other Regulations of the Commission, or the CEA Guidelines. Furthermore, any words and expressions used herein but not defined in this Regulation or the Act, yet defined under any law passed by the Parliament applicable to the electricity industry in the State, shall hold the meaning ascribed to them in that respective law.

CHAPTER 2: GENERAL

5. Resource Adequacy Framework

- 5.1. The Resource Adequacy (RA) framework serves as a strategic blueprint for ensuring that generation, transmission, and distribution resources are systematically planned to reliably meet projected demand, in accordance with specified reliability standards and an optimal generation mix.
- 5.2. The RA framework encompasses a systematic process involving the following stages:
- 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; and
 - F. Monitoring and compliance.
- 5.3. The RA exercise shall be prepared and developed annually, covering a rolling planning period of ten (10) years.
- 5.4. In compliance with this Regulation, the Distribution Licensees shall develop and prepare the following plans: the LT-DRAP, which is to be created concurrently with the Distribution plan; the MT-DRAP; and the ST-DRAP.
- 5.5. The STU is required to develop and prepare transmission planning criteria. These criteria must align with the latest transmission planning criteria from the CEA and the state grid code, and also consider the RA plan of the Distribution Licensees. The STU must file these criteria with the Commission as part of 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 assessments and forecasts, considering the guidelines for Long-term and Medium-term power demand forecasts issued by the CEA from time to time.
- 6.2. The Distribution Licensee shall conduct a comprehensive demand assessment and forecasting, covering hourly or sub-hourly periods within their distribution area. This must utilise scientific modelling tools and comprehensive input data, covering both the Long-term and Medium-term time horizons, to ensure accurate demand predictions.
- 6.3. The Distribution Licensee shall furnish both category-wise and assessed consumption data for unmetered consumers within a specific class for the purpose of demand forecasting. This consumption information, covering the preceding financial year, along with any other data requested by the SLDC, must be submitted by the Distribution Licensee not later than April 30th of each year.
- 6.4. By the 21st of April each year, the SLDC shall provide the Deviation Settlement Mechanism (DSM) accounts for the preceding financial year to the Distribution Licensees.
- 6.5. The Distribution Licensee shall determine the energy forecast for each consumer category by utilising any of the following methodologies, individually or in combination:
 - A. **Time Series Analysis and Trend Analysis:** This includes assessing Year-on-Year growth or calculating the Compounded Annual Growth Rate (CAGR) over a specified historical period.
 - B. **Econometric Modelling:** This method must include a clear specification of the parameters used, the algorithm adopted, and the source of the data.
 - C. **Advanced AI and Machine Learning Techniques:** Specifically, this covers the use of Artificial Intelligence (AI), including machine learning, and Artificial Neural Networks (ANNs).
 - D. **Specific Demand Forecasting Models:** This includes the

Auto-Regressive Integrated Moving Average (ARIMA) method.

E. **End Use Methodology:** This can be either a full End Use or a Partial End Use method.

- 6.6. The Distribution Licensee is required to adopt the most suitable combination of various methodologies for demand forecasting, considering scenarios such as the optimistic, business-as-usual, and pessimistic, as detailed in Clause 6.15 of this Regulation. While EPS projections may serve as a baseline, the Distribution Licensee may also employ any other methodology, provided a detailed justification for its adoption is furnished.
- 6.7. The Distribution Licensee shall select the energy forecasting methodology for each consumer category based on a statistical analysis. This selection should prioritise the method exhibiting the lowest standard deviation and the highest R-squared value. Alternatively, a different statistical technique may be used, provided it is adequately justified.
- 6.8. The Distribution Licensee shall employ state-of-the-art tools, scientific methodologies, and a robust database. This database should comprehensively cover relevant data for the Licensee's area, including, but not limited to, weather patterns, historical consumption data, demographic and econometric information, detailed consumption profiles, and the anticipated impact of various policies and market drivers.
- 6.9. The Distribution Licensee is permitted to modify the energy forecast for each consumer category to account for the anticipated effects of relevant activities. The Licensee must establish specific trajectories to incorporate the impact of these activities. These relevant factors include, but are not limited to, those derived from economic parameters, government policies, historical consumption data, and future projections. Specifically, the adjustments should consider the impact of the following:

Demand-Side and Grid Management:

- Demand-Side Management and demand response measures.
- Open Access.

- Distributed Energy Resources.
- Electric Vehicles and E-Vehicle Charging Stations.
- Tariff Signals, including Time of the Day (ToD) Tariff.

Consumption Pattern Changes:

- Changes in specific energy consumption.
- Increase in commercial activities with electrification.
- Changes in the consumption pattern of seasonal consumers, including seasonal variations for the Rabi/Kharif season and other crops.
- Impact of important festivals, working days or non-working days, and Peak and Off-Peak hours load pattern.

Agricultural Sector Specifics:

- For agricultural loads: season-wise changes, temperature, area-wise rainfall patterns, impact of water levels in agricultural pockets, irrigation facilities, area-wise crop types, number of crops, increase in the number of agricultural pump sets, and their solarisation.

Policy and Regulatory Influences:

- 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 that can impact econometric parameters, and the impact of the national hydrogen mission.

- 6.10. Any factor not specifically listed in Clause 6.9 of this Regulation may be considered by the Distribution Licensee, provided a detailed justification for its inclusion is submitted.
- 6.11. Load research analysis may be used to refine the long and medium-term load profiles of the consumer categories subjected to load research. Any such refinement must be accompanied by a detailed explanation.
- 6.12. The energy forecast for the Distribution Licensee at the consumer level is determined by the total energy forecast (in MUs) across all consumer categories, after necessary adjustments. These adjustments account for

energy forecasts for captive consumers, prosumers, and open-access consumers.

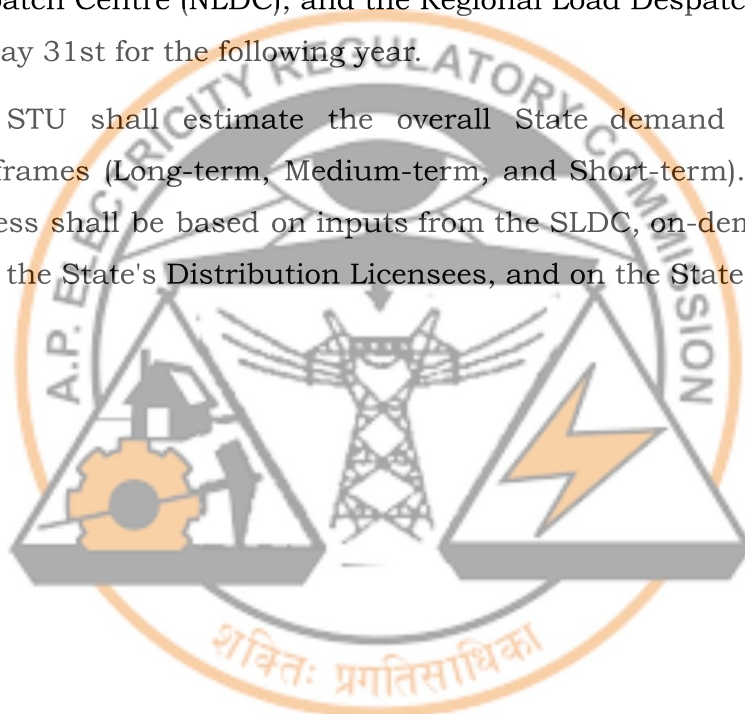
- 6.13. The energy forecast (MUs) must be calculated by the Distribution Licensee, incorporating the loss trajectory approved by the Commission in its most recent tariff order. Should the Commission not have approved a loss trajectory for the relevant planning horizon, the licensee shall utilise an appropriate loss trajectory as stipulated by State or National policies, provided a comprehensive explanation is furnished.
- 6.14. 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 6.13 of this Regulation. Should the Distribution Licensee consider a different appropriate load factor for future years, a detailed justification for this consideration must be provided.
- 6.15. The Distribution Licensee shall conduct sensitivity and probability analysis to arrive at the business-as-usual demand forecast. Furthermore, the Licensee must develop long-term and medium-term demand forecasts for at least three distinct scenarios: the optimistic, business-as-usual, and pessimistic.

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. The Distribution Licensee, in collaboration with the SLDC, shall conduct load research analysis to determine the hourly load profile and evaluate the contribution of different consumer categories to the peak demand. This analysis shall account for the impacts of demand response initiatives, load-shifting measures, and time-of-use tariffs. A comprehensive explanation of the methodology employed for this analysis shall be provided.
- 7.3. The Distribution Licensee shall employ state-of-the-art tools, scientific and mathematical methodologies, and extensive data. This data shall include, but is not restricted to, weather data, historical data, demographic and econometric data, consumption profiles, policies, and drivers, as appropriate for the Distribution Licensee's area of operation.

8. Aggregation of Demand Forecast

- 8.1. The Distribution Licensee shall prepare demand forecasts for the short-term (1-year), medium-term (5-year), and long-term (10-year) horizons (on a rolling basis). These forecasts must be prepared at either an hourly or sub-hourly granularity.
- 8.2. The SLDC shall aggregate demand forecasts—including Long-term, Medium-term, and Short-Term projections (in MW and MUs)—while accounting for factors such as load diversity, congruency, and seasonal variations. These aggregated State-level demand forecasts shall be submitted by the SLDC annually to the CEA, the National Load Despatch Centre (NLDC), and the Regional Load Despatch Centre (RLDC) by May 31st for the following year.
- 8.3. The STU shall estimate the overall State demand across different timeframes (Long-term, Medium-term, and Short-term). This estimation process shall be based on inputs from the SLDC, on-demand projections from the State's Distribution Licensees, and on the State's load diversity.



CHAPTER 4: RESOURCE PLANNING

9. Preparation of Generation Resource Planning

- 9.1. The Distribution Licensee shall plan and evaluate the necessary generation resources. This assessment should account for current resources, resources nearing commissioning, Capacity Credit, the additional capacity needed to satisfy the forecasted demand, and the planning reserve margin (PRM).
- 9.2. The process for Generation Resource Planning comprises the following key stages:
- A. Determining the Capacity Credit for generation resources.
 - B. Evaluating the required planning reserve margin.
 - C. Evaluating the RA requirement and its subsequent allocation to Distribution Licensees.
- 9.3. The Generation Resource Planning shall incorporate the following information, among others:

Demand and Load Characteristics:

- Actual demand met by the State/Distribution Licensee over the last five years, detailed in hourly time block resolutions.
- Estimated load growth throughout the planning period.

Generation Resource Parameters (Existing and Planned):

- **Critical Characteristics, Machine Characteristics, and Technical Parameters** (e.g., hydrology for hydro, heat rate for thermal):
 - Name of plant and location (State/Region).
 - Capacity (MW).
 - Heat Rate (for thermal generating stations).
 - Auxiliary Consumption (MW).
 - Maximum and Minimum Generation Limits (MW).
 - Ramp Up and Ramp Down Rate (MW/min).
 - Start-up time.
 - Plant Availability Factor (% of time).

- Capacity Utilisation Factor (CUF) for renewable resource-based power plants.
- All specified characteristics and parameter values for each generating plant considered must be included in the resource plan.

System Planning and Constraints:

- Planning Reserve Margin.
 - Under-construction capacity, retirement plans and contracted capacity.
 - Potential technologies, gestation periods, and the lifetime of different assets.
 - Capacities and generation profile of renewable generation.
 - Historical forced outage rates and planned maintenance rates for generation capacities.
 - The RPO, including Energy Storage Obligation targets.
 - Identified and listed constraints, such as penalties for unmet demand, forced outages, system emission limits defined by the State Grid Code and the Indian Electricity Grid Code, and emission norms specified by the Ministry of Environment, Forest and Climate Change (MoEFCC).
- 9.4. The Distribution Licensee shall map its existing, upcoming, and retiring resources in Megawatts (MW). This resource map is essential for developing the Long-term and Medium-term power procurement plans.
- 9.5. To accommodate the increasing amount of renewable energy in the grid, all thermal generating companies in the State shall implement flexible operations, i.e., the ability to quickly ramp production up and down to match the fluctuating "Net Load" (load minus variable renewable energy generation).

10. Capacity Crediting of Generation Resources

- 10.1. The Distribution Licensee shall calculate the Capacity Credit (CC) for its contracted generation resources. This calculation shall utilise the net load-based approach detailed in Clause 10.2 of this Regulation. The Capacity Credit factor for a specific type of contracted generation resource shall be determined by averaging its CC factor over the preceding five years, calculated on a rolling basis.

- 10.2. The Capacity Credit (CC) factors for generation resources shall be determined using a Net Load-based methodology, as outlined below:

Steps for Capacity Credit (CC) Factor Determination:

- A. **Gross Load Ordering:** The hourly (or sub-hourly) recorded Gross Load (in MW) for 8,760 hours (8,784 for a leap year) is arranged in descending order for each year.
- B. **Net Load Calculation and Ordering:** The Net Load (in MW) is calculated for each hour by subtracting the corresponding actual wind or solar generation (in MW) from the Gross Load. These 8,760 (or 8,784) Net Load values are then arranged in descending order.
- C. **Contribution Assessment:** The difference between the two load duration curves (Gross Load and Net Load, as per Clauses 10.2 (A) and (B)) represents the capacity-factor contribution of wind or solar generation.
- D. **Top Net Load Hour Capacity Summation:** The Installed Capacity (in MW) of wind or solar generation corresponding to the top 250 Net Load hours (or sub-hourly time blocks), selected from the descending order of Net Load, is summed up. This selection is based on the computation in Clause 10.2(C).
- E. **Top Net Load Hour Generation Summation:** The total generation (in MUs) from wind or solar during these top 250 Net Load hours is summed up.
- F. **CC Factor Formula:** The resultant CC factor is calculated using the following formula:

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

Annual and Averaging Process:

- A. The CC factor determination process must be carried out annually for the previous five years.
- B. The final resultant CC factor will be the average of the CC values calculated over these five years.

Exclusion of Abnormal Values:

- A. When determining the CC factor based on the past five years, the Distribution Licensee must exclude abnormal values from a given year due to the following, non-exhaustive list of events or circumstances:
- a. **Acts of God:** Including, but not limited to, lightning, drought, fire, explosion, earthquake, volcanic eruption, landslide, flood, cyclone, typhoon, tornado, geological surprises, natural disasters, or exceptionally adverse weather conditions exceeding the statistical measures of the last one hundred years.
 - b. **Declared Disasters:** Any disaster officially declared by the Central Government under the Disaster Management Act (as amended).
 - c. **Conflict/Hostilities:** Any act of war, invasion, armed conflict, act of a foreign enemy, blockade, embargo, revolution, riot, insurrection, terrorist, or military action.
- 10.3. The Distribution Licensee shall consider the CC factors for contracted RE generation resources, as prescribed by the Authority and approved by the Commission.
- 10.4. The CC factors for hydro generation resources shall be computed based on water availability. Distinct CC factors shall be computed for run-of-the-river hydro power projects and dam-based/storage-based hydro power projects.
- 10.5. For thermal generation resources, the CC factors shall be computed by considering both the availability of coal and any planned or forced outages.
- 10.6. Alternative methodologies may be followed by the Distribution Licensee, the SLDC, or the STU, provided they are justified and approved by the Commission.
- 10.7. The Distribution Licensee shall share CC factors for their contracted resources, along with justification for their computations, with the SLDC by 21st May of each year for the ensuing year.
- 10.8. The SLDC shall calculate State-specific CC factors. This calculation must be based on the State's aggregate Demand, State Net Load, and the contracted RE generation available. The SLDC shall then submit this CC

factors information to the CEA, the RLDC, and the NLDC by the 31st of May annually, for the subsequent year.

- 10.9. For energy storage projects, such as the Battery Energy Storage Systems (BESS) and the Pumped Storage Projects (PSP), the CC shall be computed in accordance with the guidelines issued periodically by the CEA and/or as specifically approved by the Commission.

11. Assessment of Planning Reserve Margin (PRM)

- 11.1. The Planning Reserve Margin (PRM) is the percentage of capacity, in addition to the State's Coincident share of the National Peak Demand, that must be factored in when planning generation resources.
- 11.2. The PRM shall be as determined by the Authority or approved by the Commission, utilising reliability indices such as LOLP and NENS.
- 11.3. The Distribution Licensee shall take the PRM (determined as above) into account when planning for their RA requirements and generation resource capacity.
- 11.4. The Distribution Licensee may consider higher PRMs, subject to prior approval from the Commission.
- 11.5. The STU/SLDC shall incorporate the PRM into the State-level Integrated Resource Plan during the State-level RA planning process.

12. RA Requirement and its Allocation

- 12.1. The Distribution Licensee shall determine the 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 then be 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 Clause 12.2 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 business-as-usual 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 scenarios (optimistic, business-as-usual, and Pessimistic) as specified by the CEA in the Guidelines for Medium and Long-Term Power Demand Forecast, issued from time to time.
- 12.5. Based on the business-as-usual scenario, the Distribution Licensee shall undertake the development of Long-term, Medium-term, and Short-term Distribution RA Plan for each year, to meet the RA requirement.
- 12.6. The 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 the 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 RA exercises.
- 12.7. Based on the allocated share in the national peak provided in the LT-NRAP for the State, the 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 the LT-NRAP.
- 12.8. The Distribution Licensee, based on the share in national peak provided in the LT-NRAP, shall plan to contract the capacities over and above the State coincident demand in national peak prescribed by the 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. The SLDC, duly considering the inputs like the CC, etc., from the Distribution Licensees, shall consolidate and prepare a 10-year LT-DRAP

to meet the peak demand and energy requirement for the State of Andhra Pradesh.

- 12.12. While formulating the LT-DRAP, the SLDC shall also consider the constraints set out in Annexure I to this Regulation.
- 12.13. The SLDC may take inputs from the LT-NRAP, such as PRM, Capacity Credits, etc., while formulating the LT-DRAP and shall send its plans to the CEA by 30th September of each year for the ensuing year(s) to seek inputs.
- 12.14. The STU 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 the 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 the 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 the national peak. Only resources with long/medium/short-term contracts shall be considered to contribute to the RAR.
- 12.17. For the subsequent three years, the Distribution Licensee shall also furnish a plan to meet the estimated requirement of their contribution to meet the 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 optimised for additional capacity required.
- 12.19. The Distribution Licensee, through the LT-DRAP, shall demonstrate to the Commission its plan to meet peak demand and energy requirement with a mix of Long-term, Medium-term, and Short-term contracts, including Power Exchanges.

- 12.20. The SLDC shall prepare a one-year look-ahead of the ST-DRAP annually for operational planning at the State level, based on the LT-DRAP study results. The SLDC shall review the STD RAP on a daily, monthly, and quarterly basis, based on the actual availability of generation resources.



CHAPTER 5: POWER PROCUREMENT PLANNING

13. Procurement planning shall consist of:

- A. Optimal power procurement resource mix.
- B. Modalities of procurement type and tenure.
- C. Sharing of Capacity.

14. Procurement Resource Mix

- 14.1. In the power procurement strategy, the Distribution Licensee shall ensure an optimal mix of generation resources and facilitate the smooth integration of RE sources into its portfolio of power procurement options, while meeting reliability standards and RPO targets. Further, the future capacity mix may comprise existing capacities, planned capacities, and additional capacity required to meet the Distribution Licensee's increasing demand, taking into account the appropriate gestation periods for generation resources.
- 14.2. For the identification of the optimal generation procurement resource mix, optimisation 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 the LT-DRAP and submit it to the Commission for approval.
- 14.3. The Distribution Licensee shall contract for the optimal portfolio of resources to meet its future demand and RAR obligations, based on the output of the LT-NRAP study.
- 14.4. The Distribution Licensee shall consider the Long/Medium/Short-term contracts of generation resources in contributing to the RAR.
- 14.5. The Distribution Licensee shall contract additional resources based on the LTDRAP to meet its own peak demand.
- 14.6. Procurement of power capacity from RE sources by the Distribution Licensee to meet the RPO targets must adhere to the higher of the Regulations notified by the Commission periodically or the RCO targets specified in the notifications issued by the Ministry of Power (MOP) under the Energy Conservation Act, 2001 (as amended).

14.7. The procurement of power from Wind, Solar PV, Wind-Solar Hybrid, FDRE, and Round-the-Clock (RTC) generation sources shall be carried out as per the guidelines for the 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 the LT-DRAP capacity addition requirement for future years from the BESS, the 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 the BESS or the PSPs developed and owned by the Government-owned (Government of Andhra Pradesh/ 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 Banking Arrangements and any other sources as may be approved by the Commission.

14.10. The Distribution Licensee may procure power on a short-term and Medium-term basis through the DEEP and PUSHp portal and Term-Ahead Markets (TAM) in accordance with APERC Regulation No.1 of 2022 and amendments thereto. Further, the Distribution Licensee may procure power on a short-term basis through the OTC platform with the Commission's prior approval.

15. Procurement Type and Tenure

15.1. The Distribution Licensee must prioritise procuring resources within the region. This in-region procurement is subject to the availability of the least-cost resource. When considering procurement from outside the region, the Licensee must first account for transmission constraints and the associated transmission costs. Only then, if necessary, may

procurement decisions be made across regions. The modalities and tenure of all procurement contracts shall be determined with these steps in mind.

- 15.2. The Distribution Licensee shall identify the generation resource mix and also procurement strategy in the Long-term, Medium-term and Short-term periods 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. At the same time, the Distribution Licensee shall ensure that entering into new Long-Term and Medium-Term contracts does not contribute to the accumulation of stranded capacity or to additional consumer burdens arising from the fixed costs associated with stranded capacity.
- 15.4. The Distribution Licensee, through an annual rolling plan, shall ensure incremental capacity addition through Long-term/Medium-term/Short-term contracts, duly factoring in the existing and planned procurement arrangements.

16. Sharing of Capacity

- 16.1. In preparing the RA plan, the Distribution Licensee shall optimise capacity costs. This involves factoring in the potential for sharing Long-term, Medium-term, and Short-term capacity and making optimal use of the Inter-State capacity sharing or trading mechanism established by the CERC or the Central Government.

17. Approval of Power Purchase Agreements

- 17.1. The Commission's prior approval shall be required for any new capacity arrangement or tie-up. This approval will be granted after evaluating the necessity of the arrangement, the reasonableness of the power purchase cost, and the extent to which it promotes efficient, economical, and equitable operations.
- 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 PPAs for Long/Medium-term power procurement or amendments to existing Long/Medium-term PPAs/PSA/Power Supply Agreements 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 PPAs executed with different conventional power plants, as well as RE Generators, along with the RA plan.

18. Variations in Power Purchase

- 18.1. The Distribution Licensee shall undertake additional power procurement *in accordance with APERC Regulation No.1 of 2022 and amendments thereto*, during the year, over and above the approved RA procurement plan, on account of the following exigencies:
- A. In case 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 agreements for the procurement of power as per Clause 14.10.
 - B. The Distribution Licensee may enter into a Short-term arrangement or agreement for the 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 a short-term basis without prior approval of the Commission.

Provided that the details of such procurements shall be submitted to the Commission within 15 days from the 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 RA 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 apply.
- 19.2. The Commission may consider appropriate performance-based incentives for Distribution Licensees that demonstrate a verifiable improvement in system reliability (e.g., achieving LOLP/NENS levels significantly better than the prescribed standard); achieve demonstrable, prudently managed cost savings for consumers through optimised long-term procurement and effective capacity sharing; and successfully integrate high volumes of variable renewable energy without compromising system security or reliability.



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 the 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 shifts, time-of-use, etc.).
 - H. Historical hourly load pattern, etc.
- 20.2. Distribution Licensees shall maintain and share all statistics and databases pertaining to policies and drivers with the SLDC, such as:
- 20.3. LED penetration, efficient fan/AC penetration, appliance penetration, and increased household use of electrical appliances for cooking, heating, cooling, etc.
- A. Increase in commercial activities for geographic areas/regions.
 - B. Increase in the number of agricultural pumps.
 - C. Solarisation within the Distribution Licensee's area.
 - D. Changes in specific energy consumption.
 - E. Consumption pattern of seasonal consumers.
 - F. Demand Side Management (DSM).
 - G. Distributed Energy Resources (DERs).
 - H. Electric Vehicles (EVs).
 - I. Open Access (OA).
 - J. National Hydrogen Mission.
 - K. Reduction of AT&C losses, etc.

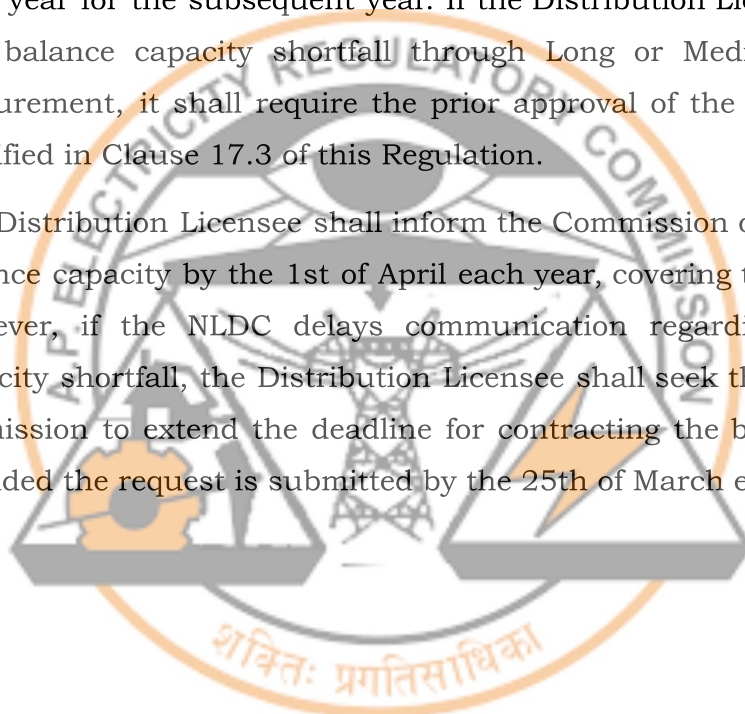
- 20.4. Provided that statistics and databases pertaining to households, such as LED penetration, efficient fan penetration, appliance penetration, increased usage of electrical appliances for cooking, etc., shall be utilised by the SLDC whenever statistical information and databases become available through Distribution Licensees.
- 20.5. 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 the SLDC.
- 20.6. The SLDC shall maintain Distribution Licensee-specific as well as aggregate statistics and databases for the State as a whole, pertaining to the aggregate demand assessment and forecasting mentioned above, and share State-level assessments with the CEA/NLDC and the RLDC from time to time for regional/national assessments.
- 20.7. The Distribution Licensee shall share information and data pertaining to existing and contracted capacities, including their technical and financial characteristics, as well as hourly generation profiles, with the STU/SLDC to compute State-level Capacity Credit factors and prepare the State-level assessment.
- 20.8. The STU and the SLDC shall aggregate generation data and, as the case may be, share State-level projections with the CEA and the NLDC for assessment of the RA requirement.
- 20.9. The STU and the SLDC shall communicate the allocation of regional and national RA requirements to the Distribution Licensees.

21. Timelines

- 21.1. By the 30th of April each year, the Distribution Licensees shall provide the SLDC with category-wise consumption data for the previous financial years, along with any other information the SLDC may require for the ensuing year.

- 21.2. On behalf of the State's Distribution Licensees, the SLDC shall submit the following details by May 31st of every year:
- **To the CEA:** The LT-NRAP information for the next 10 years, including demand forecasts (peak and energy requirement), assessment of existing generation resources, the CC factor, and any other necessary details.
 - **To the NLDC:** ST-NRAP information for the ensuing year.
- 21.3. Annexure-F of the Ministry of Power's Guidelines for the RA Planning Framework for India, dated June 28th, 2023, mandates the following publication deadlines:
- **LT-NRAP report:** To be published by the CEA by July 31st of each year for the ensuing year(s).
 - **ST-NRAP report:** To be published by the NLDC by July 31st of each year for the ensuing year(s).
- 21.4. Within 15 days of the publication of the LT-NRAP report, and by August 15th of each year, the SLDC shall allocate the national peak share to each Distribution Licensee for the ensuing year(s).
- 21.5. The Distribution Licensees shall submit the LT-DRAP and requisite data/details to the SLDC by 30th August of each year. The SLDC shall aggregate and submit the LT-DRAP plans to the CEA by 30th September of each year for the ensuing year(s) for seeking inputs.
- 21.6. The SLDC shall immediately forward the LT-DRAP, along with the inputs of the 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 the CEA inputs or 30th October of each year, whichever is earlier.
- 21.8. The Commission will approve the RA Plan submitted by Distribution Licensees within 60 days from the date of submission.
- 21.9. The Distribution Licensee shall submit the details of the contracted capacities for the ensuing year for meeting RAR to the SLDC within 30 days from the date of approval by the Commission.

- 21.10. The 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 RA Planning Framework for India, notified by the Ministry of Power dated June 28th 2023, the 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 Distribution Licensee shall complete the contracting for any balance capacity shortfall, as communicated by the NLDC, by the end of March each year for the subsequent year. If the Distribution Licensee contracts this balance capacity shortfall through Long or Medium-term power procurement, it shall require the prior approval of the Commission, as specified in Clause 17.3 of this Regulation.
- 21.13. The Distribution Licensee shall inform the Commission of the contracted balance capacity by the 1st of April each year, covering the current year. However, if the NLDC delays communication regarding the balance capacity shortfall, the Distribution Licensee shall seek the Commission's permission to extend the deadline for contracting the balance capacity, provided the request is submitted by the 25th of March each year.



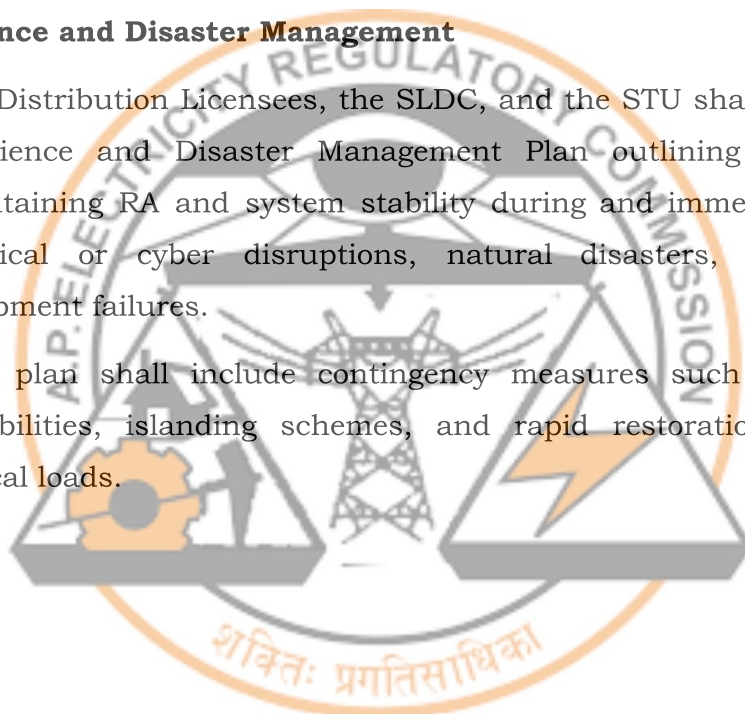
CHAPTER 8: CYBERSECURITY AND GRID RESILIENCE

22. Cybersecurity and Data Protection

- 22.1. The Distribution Licensees, the SLDC, and the STU shall develop and maintain a robust Cybersecurity and Data Protection Policy for all systems related to demand forecasting, generation resource planning, and real-time grid operations.
- 22.2. All entities shall implement security measures, including network segmentation and access control, to protect critical energy infrastructure data and operational technology systems from unauthorised access, disruption, or manipulation.

23. Grid Resilience and Disaster Management

- 23.1. The Distribution Licensees, the SLDC, and the STU shall develop a Grid Resilience and Disaster Management Plan outlining procedures for maintaining RA and system stability during and immediately following physical or cyber disruptions, natural disasters, or catastrophic equipment failures.
- 23.2. This plan shall include contingency measures such as black start capabilities, islanding schemes, and rapid restoration protocols for critical loads.



CHAPTER 9: MISCELLANEOUS

24. Placing of information on websites

- 24.1. The Distribution Licensee and the SLDC shall publish the details of monthly, weekly, day-ahead, and intra-day power procurements/sales, along with the generator schedules, on their respective websites. This information shall be made available within 45 days of the procurement/sale, ensuring both current and archived data are easily accessible.
- 24.2. The SLDC shall publish the monthly Merit Order Dispatch (MoD) stack, including the per-unit variable cost for each generating station, on its website.

25. Constitution of dedicated cells

- 25.1. Within three months of this Regulation's commencement, the Distribution Licensee shall constitute a dedicated planning cell for RA. This cell shall be equipped with the necessary capabilities and tools for critical functions such as demand forecasting, capacity planning, and RE integration.
- 25.2. The Distribution Licensee shall establish a separate, dedicated, round-the-clock cell. This cell shall be responsible for the real-time purchase and sale of power, as well as for undertaking intra-day, day-ahead, and week-ahead power procurement via Power Exchanges or other available avenues. Within 45 days of this Regulation taking effect, the Distribution Licensee shall formulate appropriate guidelines outlining the operational procedure (modus operandi) for these dedicated cells, in alignment with the spirit of this Regulation, and submit these guidelines to the Commission.

26. Assessment to involve consultation

- 26.1. The Distribution Licensee shall prepare the RA Plan in consultation with State Sector Generating Companies, Central Sector Generating Companies, Transmission Companies, National/Regional/State Load Despatch Centres, and the CEA. Furthermore, the Distribution Licensee must assess the likely availability of power and pricing across the country—covering peak, off-peak, and normal periods—by making enquiries with Trading Companies and States that have surplus power.

The Distribution Licensee may also consult with research agencies possessing relevant experience.

27. Power to Issue Orders and Practice Directions

27.1. 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 it considers appropriate for the implementation of this Regulation and the procedure to be followed.

28. Power to Relax

28.1. The Commission may, by general or special order, for reasons to be recorded in writing and after giving an opportunity of hearing to the parties likely to be affected, relax or waive any provisions of this Regulation on its own motion or on an application made before it by an interested person.

29. Power to Remove Difficulties

29.1. If any difficulty arises in giving effect to any of the provisions of this Regulation, the Commission may, by a general or specific order, do anything, not inconsistent with the provisions of the Act, as may appear to be necessary for removing the difficulty/difficulties.

30. Power to amend

30.1. The Commission may, from time to time, add, vary, alter, suspend, modify, amend, or repeal any provisions of this Regulation

31. Savings

31.1. 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 abuse of the process of the Commission.

31.2. Nothing in this Regulation shall bar the Commission from adopting in conformity with the provisions of the Act, 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.

- 31.3. Nothing in this Regulation shall, expressly or impliedly, bar the Commission from 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)

Place: Kurnool
Date: 25.05.2026

Sd/- 25/05/2026
P.KRISHNA
Commission Secretary i/c



ANNEXURE-I

Methodology for Preparation of RA Plan with Constraints

The RA planning for each Distribution Licensee shall follow a structured approach, starting with demand forecasting and culminating in an optimised generation expansion plan. The key steps and constraints are outlined below:

1. Demand Projection and Model Requirements:

- **Hourly Demand Profile:** The hourly demand profile for each Distribution Licensee shall be projected across the planning period. This projection shall be based on the forecasted annual energy requirement and the peak-demand trajectory, using the methodologies specified in Clause 6.7 of this Regulation.
- **Modelling Resolution:** The chosen generation expansion planning model shall be capable of simulation at an hourly chronological resolution. This high-resolution simulation is essential to accurately capture system dynamics, including conventional generation ramping, RE generation profiles, and energy storage behaviour.

2. System Optimisation and Cost Minimisation:

- Once the future demand profile is established, the model shall perform an optimisation exercise. The primary goal is to minimise the total system cost while simultaneously meeting all future demand and adhering to power system parameters.

3. Planning Constraints:

The Distribution Licensee shall incorporate the following specific constraints into the planning model:

- **RAR/PRM:**

- The total RA capacity shall meet the PRM determined by the CEA or as approved by the Commission.
- The RAR for each Distribution Licensee shall be calculated as:
$$RAR = \text{Contribution to forecasted national peak demand in GW} \times (1 + \text{National level PRM})$$
- **Supply-Side RAR:** This is the sum of the "firm capacity" or "capacity credits" from contracted/planned resources (including renewables,

storage, and demand response), plus derated interconnection limits (imports).

- **Matching Requirement:** The supply-side and demand-side RARs shall be equal.
- **Capacity Credits:** Capacity Credits for generating resources and demand response shall be those estimated by the CEA, or an alternative methodology justified and approved by the Commission. These Credits may vary by resource type, region (e.g., Southern vs Northern Region for solar), and whether the resource is existing or new.
- **Thermal Capacity Credit:** Shall be calculated by reducing auxiliary consumption and the forced outage rate from the installed capacity.
- **Portfolio Balance Constraints:**

For every hour, the total generation within a control area (Region/State/Distribution Licensee) plus power imports shall equal the sum of demand, exports, any unserved energy, and curtailment.
- **RE Generation Constraints:**
 - RE generation (solar, wind) shall be constrained to match its hourly profile, typically derived from historical data.
 - Additional constraints shall ensure that the Distribution Licensee's overall RE targets are met and included in the LT-DRAP formulation.
- **Conventional Generation Constraints:**
 - Since thermal resources are dispatchable, they are subject to operational constraints:
 - Maximum and minimum generation limits.
 - Ramp rates (generation change between consecutive time blocks).
 - Dispatch (energy offer) and reserve offer limits.
 - Unit commitment decisions (start-up/shutdown, minimum up/down times) requiring binary variables.
 - Plant availability factor to capture outages.

- **Capacity Tracking:** A constraint shall track annual capacity, ensuring the current year's capacity equals the previous year's capacity plus new investments minus any retirements.
- **RPO Constraints:**
 - Fulfilling the RPO is a critical objective of the RA exercise.
 - Technology options like Round-the-Clock (RTC) renewable energy with storage (Battery and Pumped Storage Hydro), standalone RE, and hydro capacity for balancing shall be considered.
- **Storage Constraints:**
 - These are vital for managing intermittent RE generation.
 - Charge and discharge limits are constrained by the State of Charge (SOC) and the resource's maximum limits.
 - Discharge can only occur if sufficient stored energy is available.
 - Temporal sequencing and round-trip efficiency losses shall be accounted for.
 - The model shall accommodate different discharge periods, power outputs, and efficiencies across different storage technologies.
- **Operating (Spinning) Reserve Constraints:**
 - Sufficient resources shall be online or on standby at all times to handle load-forecast errors, RE intermittency, or real-time contingencies.
 - The operating reserve requirement is an input parameter to be arrived at in consultation with the SLDC.
- **Demand Response (DR)/Demand-Side Management:**
 - The potential for DR, such as load shifting, can be incorporated into the RAP.

Constraints shall define the periods during which load shifting is permissible and the maximum quantum of load that can be shifted within a period.

ANNEXURE-II

Formats (1 to 14)

Demand Forecast (Summary Statement for State and All DISCOMs separately) - Discom-wise (Name of Discom: _____)									Format-1	
Sr. No.	Particulars	Actual of Previous Years			Current Year	YoY growth rate/CAGR - as applicable (%)	Projections			
		Yr-1	...	Yr-n			Yr-1	...	Yr-10	
1	Energy Sale - MUs (Consumer Category-wise as per Retail Supply Tariff Order)									
	LT Categories									
	LT- I- (A) Domestic									
	LT- II- (A) (i) Non-Domestic/Commercial									
	LT- II- (A) (ii) Advertising Hoardings									
	LT- II- (A) (iii) Function halls / Auditoriums									
	LT-II- (B) Startup power									
	LT-II- (C) Electric Vehicles/ Charging Stations									
	LT-II-(D) Green Power									
	LT- III- (A) Industrial									
	LT- III- (B) Seasonal Industries (off-season)									
	LT- III- (C) Energy Intensive Industries									
	LT-III-(D) Cottage Industries up to 10HP *									
	LT-IV-(A) Utilities (Street Lighting, NTR Sujala Pathakam, CPWS and PWS)									
	LT-IV-(B) General Purpose									
	LT-IV-(C): Religious Places (i): Contracted load up to 2 kW									
	LT-IV-(C): Religious Places (ii): Contracted load above 2 kW									
	LT- V- (A) (i) Corporate farmers									

Demand Forecast (Summary Statement for State and All DISCOMs separately) - Discom-wise (Name of Discom: _____)								Format-1	
Sr. No.	Particulars	Actual of Previous Years			Current Year	YoY growth rate/CAGR - as applicable (%)	Projections		
		Yr-1	...	Yr-n			Yr-1	...	Yr-10
	LT- V- (A) (ii) Non-Corporate farmers (Free Power)								
	LT- V- (A) (iii) Salt farming units up to 15 HP								
	LT- V- (A) (iv) Sugarcane crushing, (Free Power)								
	LT- V- (A) (v) Rural Horticulture Nurseries,(Free Power)								
	LT- V- (A) (vi) Floriculture in Greenhouse								
	LT- V- (B): Aquaculture and Animal Husbandry								
	LT- V- (D): Agro-Based Cottage Industries up to 10 HP								
	LT- V (E): Government / Private Lift Irrigation Schemes								
	HT Category at 11 kV								
	HT-I (B)- Townships, Colonies, Gated Communities and Villas								
	HT-II (A)-(i) Commercial								
	HT-II (A) (iii) Function halls / Auditoriums								
	HT-II (B) Startup power								
	HT-II (C) Electric Vehicles/ Charging Stations								
	HT-II (D) Green Power								
	HT-II (A) Industry								
	HT-III (B) Seasonal Industries (off-season)								
	HT-III (C) Energy Intensive Industries								
	HT-IV (A) Utilities (Street Lighting, NTR Sujala Pathakam, CPWS and PWS)								
	HT-IV (B) General Purpose								
	HT-IV (C): Religious Places								

Demand Forecast (Summary Statement for State and All DISCOMs separately) - Discom-wise (Name of Discom: _____)								Format-1	
Sr. No.	Particulars	Actual of Previous Years			Current Year	YoY growth rate/CAGR - as applicable (%)	Projections		
		Yr-1	...	Yr-n			Yr-1	...	Yr-10
	HT-IV (D): Railway Traction								
	HT-V (B): Aquaculture and Animal Husbandry								
	HT-V (E): Government / Private Lift Irrigation Schemes								
	HT Category at 33 kV								
	HT-I (B)- Townships, Colonies, Gated Communities and Villas								
	HT-II (A)-(i) Commercial								
	HT-II (A) (iii) Function halls / Auditoriums								
	HT-II (B) Startup power								
	HT-II (C) Electric Vehicles/ Charging Stations								
	HT-II (D) Green Power								
	HT-II (A) Industry								
	HT-III (B) Seasonal Industries (off-season)								
	HT-III (C) Energy Intensive Industries								
	HT-IV (A) Utilities (Street Lighting, NTR Sujala Pathakam, CPWS and PWS)								
	HT-IV (B) General Purpose								
	HT-IV (C): Religious Places								
	HT-IV (D): Railway Traction								
	HT-V (B): Aquaculture and Animal Husbandry								
	HT-V (E): Government / Private Lift Irrigation Schemes								
	HT Category at 132 kV								

Demand Forecast (Summary Statement for State and All DISCOMs separately) - Discom-wise (Name of Discom: _____)								Format-1	
Sr. No.	Particulars	Actual of Previous Years			Current Year	YoY growth rate/CAGR - as applicable (%)	Projections		
		Yr-1	...	Yr-n			Yr-1	...	Yr-10
	HT-I (B)- Townships, Colonies, Gated Communities and Villas								
	HT-II (A)-(i) Commercial								
	HT-II (A) (iii) Function halls / Auditoriums								
	HT-II (B) Startup power								
	HT-II (C) Electric Vehicles/ Charging Stations								
	HT-II (D) Green Power								
	HT-II (A) Industry								
	HT-III (B) Seasonal Industries (off-season)								
	HT-III (C) Energy Intensive Industries								
	HT-IV (A) Utilities (Street Lighting, NTR Sujala Pathakam, CPWS and PWS)								
	HT-IV (B) General Purpose								
	HT-IV (C): Religious Places								
	HT-IV (D): Railway Traction								
	HT-V (B): Aquaculture and Animal Husbandry								
	HT-V (E): Government / Private Lift Irrigation Schemes								
	HT Category at 220 kV and above								
	HT-I (B)- Townships, Colonies, Gated Communities and Villas								
	HT-II (A)-(i) Commercial								
	HT-II (A) (iii) Function halls / Auditoriums								
	HT-II (B) Startup power								

Demand Forecast (Summary Statement for State and All DISCOMs separately) - Discom-wise (Name of Discom: _____)								Format-1	
Sr. No.	Particulars	Actual of Previous Years			Current Year	YoY growth rate/CAGR - as applicable (%)	Projections		
		Yr-1	...	Yr-n			Yr-1	...	Yr-10
	HT-II (C) Electric Vehicles/ Charging Stations								
	HT-II (D) Green Power								
	HT-II (A) Industry								
	HT-III (B) Seasonal Industries (off-season)								
	HT-III (C) Energy Intensive Industries								
	HT-IV (A) Utilities (Street Lighting, NTR Sujala Pathakam, CPWS and PWS)								
	HT-IV (B) General Purpose								
	HT-IV (C): Religious Places								
	HT-IV (D): Railway Traction								
	HT-V (B): Aquaculture and Animal Husbandry								
	HT-V (E): Government / Private Lift Irrigation Schemes								
2	Total Energy Sale (MU)- (Cumulative of all consumer categories)								
3	YoY growth rate for total energy Sales (%)								
4	Distribution losses - in %								
	LT								
	11 KV								
	33 KV								
5	Distribution losses - in MU								
	LT								
	11 KV								
	33 KV								

Demand Forecast (Summary Statement for State and All DISCOMs separately) - Discom-wise (Name of Discom: _____)									Format-1
Sr. No.	Particulars	Actual of Previous Years			Current Year	YoY growth rate/CAGR - as applicable (%)	Projections		
		Yr-1	...	Yr-n			Yr-1	...	Yr-10
6	Supply / Requirement at DISCOM Boundary(MU)								
7	Intra-State Transmission losses - in %								
8	Intra-State Transmission losses - in MU								
9	Supply / Requirement at State Boundary(MU)								
10	Inter-State Transmission losses - in %								
11	Inter-State Transmission losses - in MU								
12	Ex-Bus Requirement of DISCOM (MU) (excluding OA Consumers) - RESTRICTED								
13	Sales by APDISCOMs to SEZ (as applicable)								
14	Energy Wheeled for OA Consumers (as applicable)								
15	Ex-Bus Requirement of DISCOM (MU) (including OA) -RESTRICTED								
16	Unsupplied energy due to system constraints (MU)								
17	Ex-Bus Requirement of DISCOM (MU) (excluding OA) - Unrestricted								
18	Ex-Bus Requirement of DISCOM (MU) (including OA) - Unrestricted								
19	System Load Factor								
20	Peak load of DISCOM (MW) (excluding OA)								
21	Peak load of DISCOM (MW) (including OA)								
Note:	1. The Demand Forecast should be supported by Graphs showing the yearly Demand Pattern for the consumer category, and wherever possible, a 24-hour load duration curve sample also needs to be provided								
	2. The Demand Forecast shall be done in accordance with Clause 6 of the APERC (Framework for Resource Adequacy) Regulation, 2026								

Monthly Ex-Bus Energy Requirement (MU)							FORMAT-2
Month	Actual of Previous years			Current Year	Projections		
	Yr-1	...	Yr-n		Yr-1	...	Yr-10
State DISCOMs (Including SEZ and Open Access consumers)							
Apr							
May							
Jun							
Jul							
Aug							
Sep							
Oct							
Nov							
Dec							
Jan							
Feb							
Mar							
APSPDCL							
Apr							
May							
Jun							
Jul							
Aug							
Sep							
Oct							
Nov							

Monthly Ex-Bus Energy Requirement (MU)							FORMAT-2
Month	Actual of Previous years			Current Year	Projections		
	Yr-1	...	Yr-n		Yr-1	...	Yr-10
Dec							
Jan							
Feb							
Mar							
APCPDCL							
Apr							
May							
Jun							
Jul							
Aug							
Sep							
Oct							
Nov							
Dec							
Jan							
Feb							
Mar							
APEPDCL							
Apr							
May							
Jun							
Jul							
Aug							
Sep							

Monthly Ex-Bus Energy Requirement (MU)							FORMAT-2
Month	Actual of Previous years			Current Year	Projections		
	Yr-1	...	Yr-n		Yr-1	...	Yr-10
Oct							
Nov							
Dec							
Jan							
Feb							
Mar							
SEZ							
Apr							
May							
Jun							
Jul							
Aug							
Sep							
Oct							
Nov							
Dec							
Jan							
Feb							
Mar							
Open Access Consumers							
Apr							
May							
Jun							
Jul							

Monthly Ex-Bus Energy Requirement (MU)							FORMAT-2
Month	Actual of Previous years			Current Year	Projections		
	Yr-1	...	Yr-n		Yr-1	...	Yr-10
Aug							
Sep							
Oct							
Nov							
Dec							
Jan							
Feb							
Mar							
SEZ and Others including deemed Distribution licencees							
Apr							
May							
Jun							
Jul							
Aug							
Sep							
Oct							
Nov							
Dec							
Jan							
Feb							
Mar							

Power Supply Projections-Summary Statement (10-Year Period)						Format-3
S. No.	Particulars	Projections				
		Yr-1	Yr-2	Yr-3	...	Yr-10
1	For DISCOMs & SEZ (MU)					
2	For State (including OA) (MU)					
3	Energy Requirement (MU) (Ex-Bus)					
4	Energy Availability (MU)					
	AP Genco Thermal Plants					
	AP Genco Hydel Plants					
	Central Sector Stations					
	IPPs					
	Wind Generators Availability					
	Solar Generators Availability					
	Other NCE Generators Availability					
	Other Generators Availability					
	Availability through banking/Power Market					
5	TOTAL (MU)					
6	Surplus(+)/Deficit(-) (MU) (5-3)					
7	Surplus(+)/Deficit(-)(%) (6/ <u>1</u>)					
8	Available Generation Capacity (MW)					
	AP GENCO Thermal					
	AP GENCO Hydel					
	Central Sector					
	IPPs					
	Wind Generators Capacity					
	Solar Generators Capacity					
	Other NCE Generators Availability					
	Other Generators Capacity					
9	TOTAL (MW)					

Note: The Monthly Power Supply Forecast for the State needs to be furnished separately.

The Power Supply Position should be supported by Graphs showing yearly and Monthly Pattern

Peak Power Supply Projections-Summary Statement (10-Year Period)						Format-4
Peak Hours (Morning/Day/Evening)						
S.No.	Particulars	Projections				
		Yr-1	Yr-2	Yr-3	...	Yr-10
1	For DISCOMs & SEZ (MU)					
2	For State (including OA) (MU)					
3	Energy Requirement (MU) (Ex-Bus)					
4	Peak availability (MU) -(Morning/Day/Evening)					
	AP Genco Thermal Plants					
	AP Genco Hydel Plants					
	Central Sector Stations					
	IPPs					
	Wind Generators Availability					
	Solar Generators Availability					
	Other NCE Generators Availability					
	Other Generators Availability					
	Availability through banking/Power Market					
5	Peak availability (excluding banking/Power Market)					
6	Peak availability (including banking/ Power Market)					
7	Surplus(+)/Deficit(-) (excluding banking/ Power Market)					
8	Surplus(+)/Deficit(-) (including banking/ Power Market)					

Note: The Monthly Peak Availability Forecast for the State for morning/day/evening needs to be furnished separately.

The Power Supply Position needs to be supported by Graphs showing yearly or monthly 24 hr load pattern based on Load Research by the Company.

Format-5 Available/Existing Generation Capacities- Summary Statement (MW)															
Year: 1.....10															
No.	Particulars	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Total	
1	State Gencos														
2	State Hydels														
3	Central Sector														
4	IPPs														
5	Renewables (Source Wise)														
6	Total Available Generation Capacity of Andhra Pradesh														
Note: The above format needs to be filled considering the plant-wise availability of each State/Central Generating plants, IPPs, Renewable plants and other Plants for the entire 10-year plan.															
Available/Existing Generation Availability- Summary Statement (MU)															
Year: 1.....10															
No.	Particulars	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Total	
1	State Gencos														
2	State Hydels														
3	Central Sector														
4	IPPs														
5	Renewables (Source Wise)														
6	Total Available Generation Capacity of Andhra Pradesh														
Note: The above format needs to be filled considering the plant-wise availability of each State/Central Generating plants, IPPs, Renewable plants and other Plants for the entire 10-year plan.															

Format-6 Planned Generation Capacities- Summary Statement (MW)														
Year: 1.....10														
No.	Particulars	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Total
1	State Gencos													
2	State Hydels													
3	Central Sector													
4	IPPs													
5	Renewables (Source Wise)													
6	Total Available Generation Capacity of Andhra Pradesh													
Note:	The above format needs to be filled considering the plant-wise availability of each State/Central Generating plants, IPPs, Renewable plants and other Plants for the entire 10-year plan.													
Planned Generation Availability- Summary Statement (MU) Year: 1.....10														
No.	Particulars	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Total
1	State Gencos													
2	State Hydels													
3	Central Sector													
4	IPPs													
5	Renewables (Source Wise)													
6	Total Available Generation Capacity of Andhra Pradesh													
Note:	The above format needs to be filled considering the plant-wise availability of each State/Central Generating plants, IPPs, Renewable plants and other Plants for the entire 10-year plan.													

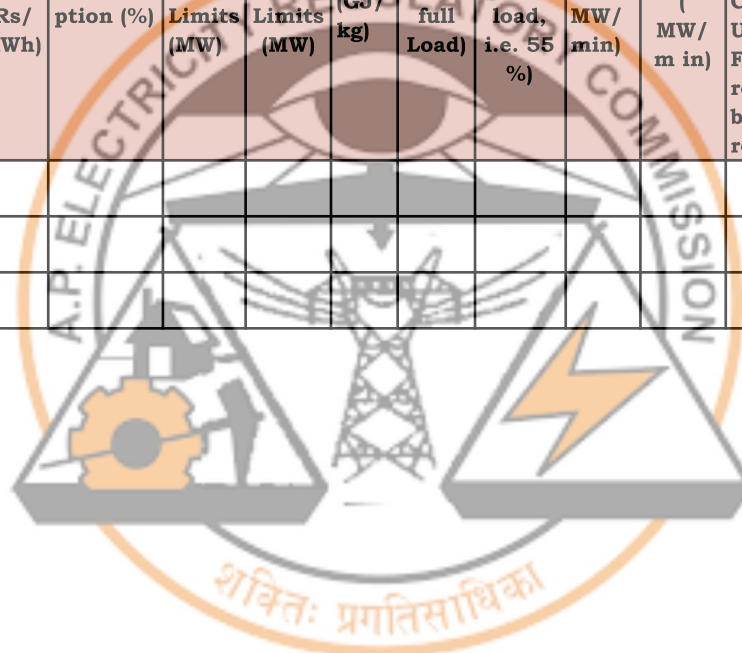
Generating Station Wise Capacity Available/Planned and RA (Long-Term/Medium-Term/Short-Term)																							Format-7
Name of Generating Stations	Type of Plant	C OD / SC OD	Capa city (MW)	AP Share		Year-wise Capacity (MW)			Peak Demand Requirement (MW)			Shortfall (MW)			Energy Availability (MU)			Energy Requirement (MU)			Shortfall (MU)		
				%	MW	Yr-1	...	Yr10	Yr-1	...	Yr10	Yr-1	...	Yr10	Yr-1	...	Yr10	Yr-1	...	Yr10	Yr-1	...	Yr10
Long-Term																							
Medium Term																							
Short-Term																							
Total																							

Format-8														
Addition of Generation Capacities- Summary Statement (MW)														
Year: 1.....10														
No.	Particulars	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Total
1	State Gencos													
2	State Hydels													
3	Central Sector													
4	IPPs													
5	Renewables (Source Wise)													
6	Total Available Generation Capacity of Andhra Pradesh													
Note:	The above format needs to be filled considering the plant-wise availability of each State/Central Generating plants, IPPs, Renewable plants and other Plants for the entire 10-year plan.													
Addition of Generation Availability- Summary Statement (MWh)														
Year: 1.....10														
No.	Particulars	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Total
1	State Gencos													
2	State Hydels													
3	Central Sector													
4	IPPs													
5	Renewables (Source Wise)													
6	Total Available Generation Capacity of Andhra Pradesh													
Note:	The above format needs to be filled considering the plant-wise availability of each State/Central Generating plants, IPPs, Renewable plants and other Plants for the entire 10-year plan.													

Generating Station Wise Capacity Addition (Long-Term/Medium-Term/Short-Term)															Format-9	
Name of Generating Station	Type of Plant	COD/ SCOD	Capacity (MW)	AP Share		Year-wise Capacity Addition program (MW)						Energy Availability (MU)				
				%	MW	Yr-1	Yr-2	Yr-3	...	Yr-10	Yr-1	Yr-2	Yr-3	...	Yr-10	
Long-Term																
Medium -Term																
Short-Term																
Total																

Summary - Generating Station Wise Capacity (Long-Term/Medium-Term/Short-Term)															Format-10	
Name of Generating Station	Type of Plant	COD/ SCOD	Capacity (MW)	AP Share		Year-wise Capacity Addition program (MW)						Energy Availability (MU)				
				%	MW	Yr-1	Yr-2	Yr-3	...	Yr-10	Yr-1	Yr-2	Yr-3	...	Yr-10	
Long-Term																
Medium -Term																
Short-Term																
Total																

																						Format-11
S. N o.	Name of Generating Station	Region /State	Installed capacity (MW)	Share of AP (%)	C O D / S C O D	Expected Retirement Year	Fixed Cost (Rs/ MW)	Variable Cost (Rs/ kWh)	Auxiliary Consumption (%)	Max Generation Limits (MW)	Min Generation Limits (MW)	Fuel GCV (GJ/ kg)	Heat Rate (at full Load)	Heat rate (at part load, i.e. 55 %)	Ramp Up rate (MW/ min)	Ramp down rate (MW/ m in)	Plant Availability Factor (in %) in case of Thermal and Hydro / Capacity Utilisation Factor for renewable based resources	Design Energy in the case of Hydro(MU)	Date of signing of PPA	Date of Expiry of PPA	Type of Capacity (Existing/ Planned/ Addition)	Contract Type (Long-Term/ Medium Term and Short Term)



Plan for Renewable Power Obligation (RPO)			Format-12(A)				
Sr. No.	Particulars		Projection				
			Yr-1	Yr-2	Yr-3	...	Yr-10
1	Ex-Bus Energy Requirement (MU) (DISCOMs + SEZ)						
2	Energy requirement to be considered for RPO (MU)						
a	Solar	RPO %					
b		RPO (MU)					
c	Non-Solar	RPO %					
d		RPO (MU)					
3	Year-wise Renewable Capacity already tied up (MW)						
a	Solar						
b	Non-Solar						
c	Total						
4	Energy Available from Existing Renewable Capacity (MU)						
a	Solar						
b	Non-Solar						
c	Total						
5	Additional capacity required for fulfilling RPO (MW)						
a	Solar						
b	Non-Solar						
c	Total						
6	Additional Energy required for fulfilment of RPO (MU)						
a	Solar						
b	Non-Solar						
c	Total						
7	Year-wise Total Renewable capacity required to fulfil RPO (MW)						
8	Year-wise Total Renewable Energy required to fulfil RPO (MU)						

Plan for Renewable Consumption Obligation (RCO)*							Format-12(B)
Sr. No.	Particulars		Projection				
			Yr-1	Yr-2	Yr-3	...	Yr-10
1	Ex-Bus Energy Requirement (MU) (DISCOMs + SEZ)						
2	Energy requirement to be considered for RCO (MU)						
a	Wind	RCO %					
b		RCO (MU)					
c	Hydro	RCO %					
d		RCO (MU)					
e	Distributed Renewable Energy	RCO %					
f		RCO (MU)					
g	Other Renewable Energy	RCO %					
h		RCO (MU)					
3	Year-wise Renewable Capacity already tied up (MW)						
a	Wind	RCO %					
b		RCO (MU)					
c	Hydro	RCO %					
d		RCO (MU)					
e	Distributed Renewable Energy	RCO %					
f		RCO (MU)					
g	Other Renewable Energy	RCO %					
h		RCO (MU)					
4	Energy Available from Existing Renewable Capacity (MU)						
a	Wind	RCO %					
b		RCO (MU)					
c	Hydro	RCO %					
d		RCO (MU)					
e	Distributed Renewable Energy	RCO %					
f		RCO (MU)					

g	Other Renewable Energy	RCO %					
h		RCO (MU)					
5	Additional capacity required for fulfilling RCO (MW)						
a	Wind	RCO %					
b		RCO (MU)					
c	Hydro	RCO %					
d		RCO (MU)					
e	Distributed Renewable Energy	RCO %					
f		RCO (MU)					
g	Other Renewable Energy	RCO %					
h		RCO (MU)					
6	Additional Energy required for fulfilment of RCO (MU)						
a	Wind	RCO %					
b		RCO (MU)					
c	Hydro	RCO %					
d		RCO (MU)					
e	Distributed Renewable Energy	RCO %					
f		RCO (MU)					
g	Other Renewable Energy	RCO %					
h		RCO (MU)					
7	Year-wise Total Renewable capacity required to fulfil RCO (MW)						
8	Year-wise Total Renewable Energy required to fulfil RCO (MU)						

* Format shall include all the sources as per MoP notification amended from time to time

Deviation in Demand Forecast (Summary Statement for State and All DISCOMs separately) - Discom-wise (Name of Discom:)					Format-13
Sr. No.	Particulars	Previous Years approved as per Plan (1)	Actual (2)	Deviation (3=2-1)	Reasons for deviation
1	Total Energy Sale (MU)- (Cumulative of all consumer categories)				
2	Distribution losses - in %				
3	Distribution losses - in MU				
4	Supply / Requirement at DISCOM Boundary(MU)				
5	Intra-State Transmission losses - in %				
6	Intra-State Transmission losses - in MU				
7	Supply / Requirement at State Boundary(MU)				
8	Inter-State Transmission losses - in %				
9	Inter-State Transmission losses - in MU				
10	Ex-Bus Requirement of DISCOM (MU) (excluding OACs) - RESTRICTED				
11	Sale by Discoms to SEZ (as applicable)				
12	Energy Wheeled to OA Consumers (as applicable)				
13	Ex-Bus Requirement of DISCOM (MU) (including OA) -RESTRICTED				
14	Unsupplied energy due to system constraints (MU)				
15	Ex-Bus Requirement of DISCOM (MU) (excluding OA) - Unrestricted				
16	Ex-Bus Requirement of DISCOM (MU) (including OA) - Unrestricted				
17	System Load Factor				
18	Peak load of DISCOM (MW) (excluding OA)				
19	Peak load of DISCOM (MW) (including OA)				

Deviation in Energy Availability					Format-14
Sr. No.	Particulars	Previous Years approved as per Plan (1)	Actual (2)	Deviation (2-1)	Reasons for deviation
1	Energy Requirement (MU) (Ex-Bus)				
2	For DISCOMs & SEZ (MU)				
3	For State (including OA) (MU)				
4	Energy Availability (MU)				
	AP Genco Thermal Plants				
	AP Genco Hydel Plants				
	Central Sector Stations				
	IPPs				
	Wind Generators Availability				
	Solar Generators Availability				
	Other NCE Generators Availability				
	Other Generators Availability				
	Availability through banking/Power Market				
5	TOTAL (MU)				

ANNEXURE-III

The firm capacity to meet the RAR shall be calculated as shown below:

num_solar

$$RAR = \sum_{i=1}^{num_solar} Solar_Capacity * Solar_Capacity_Credit$$

num_wind

$$+ \sum_{i=1}^{num_wind} Wind_Capacity * Wind_Capacity_Credit$$

num_hydro

$$+ \sum_{i=1}^{num_hydro} Hydro_Capacity * Hydro_Capacity_Credit$$

num_thermal

$$+ \sum_{i=1}^{num_thermal} Thermal_Capacity * Thermal_Capacity_Credit$$

num_nuclear

$$+ \sum_{i=1}^{num_nuclear} Nuclear_Capacity * Nuclear_Capacity_Credit$$

num_storage

$$+ \sum_{i=1}^{num_storage} Storage_Capacity * Storage_Capacity_Credit$$

num_other

$$+ \sum_{i=1}^{num_other} Other_Resource_Capacity * Other_Resource_Capacity_Credit$$

num_Other

$$+ \sum_{i=1}^{num_Other} Import_limit * Capacity_Credit$$

