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# THE ANDHRA PRADESH GAZETTE

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# NOTIFICATIONS BY HEADS OF DEPARTMENTS, Etc.

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## ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION KURNOOL

**Lr. No. APERC/Secy/F.No. S-19(Vol-III)/D.No.1016, Date:11-09-2025**

**[Regulation No. 5 of 2025]**

**Andhra Pradesh Electricity Regulatory Commission [Planning, Procurement, Deployment, and Utilisation of Battery Energy Storage Systems (BESS)] Regulations, 2025**

**Preamble**

The Electricity Act, 2003, empowers the State Electricity Regulatory Commissions to promote efficiency, economy, and competition in the electricity sector, and to regulate the purchase, distribution, supply, and utilisation of electricity within the State.

And whereas the Ministry of Power, Government of India, has issued guidelines dated 11 March 2022 for the procurement, utilisation, and integration of Battery Energy Storage Systems (BESS) as part of generation, transmission, and distribution assets, as well as for the provision of ancillary services in the electricity grid.

And whereas the Government of India has further notified a National Framework for Energy Storage Systems in August 2023 to support the integration of renewable energy, ensure grid stability, and enable market-based participation in energy storage technologies.

And whereas Battery Energy Storage Systems have emerged as a critical enabler for enhancing grid flexibility, maintaining frequency and voltage stability, managing peak loads, facilitating the integration of renewable energy, and providing ancillary and balancing services.

And whereas the Government of Andhra Pradesh has issued the "Andhra Pradesh Integrated Clean Energy Policy, 2024" with a commitment to promote renewable energy generation by creating a more conducive policy and investment framework to spur competition and private participation in the sector, while maintaining a balance in the interests of all stakeholders. The objectives of the policy inter alia are to promote decentralisation of renewable energy generation and develop an ecosystem for distributed Solar generation, to create an energy storage market in the State to integrate more RE into the grid and offer grid support services, such as peak reduction, curtailment management, contribution to reliability needs, transmission deferrals, intraday and seasonal variation management and to develop AP as a storage capital and clean energy hub in the country and the preferred destination for clean energy innovative projects. This policy aims to add over 160 GW of renewable energy capacity in the State and set a target for the addition of approximately 25 GWh of BESS under various modes.

In order to successfully implement the policy above, the Government of Andhra Pradesh (GoAP), acting through the Special Chief Secretary of the Energy Department, and invoking Section 108 of the Electricity Act, 2003, addressed a letter to the Commission. In the letter, the GoAP requested that the Commission devise appropriate guidelines and regulations in line with the MoP guidelines dated March 11, 2022, to promote the development of BESS and create a market for ancillary services within the State. The letter also stated that this will enable and enhance market penetration of Battery Energy Storage Systems (BESS) and support grid stability through ancillary services.

In light of the above, there is a need to establish a comprehensive regulatory framework for the deployment, ownership, operation, and market participation of BESS in the State of Andhra Pradesh, in line with the evolving needs of the electricity market and grid management practices.

Therefore, the Andhra Pradesh Electricity Regulatory Commission issued the draft Regulation. Following the previous publication under Sub-section (3) of Section 181 of the Electricity Act, 2003, read with the Electricity (Procedure for Previous Publication) Rules,

2005, after stakeholder consultation as discussed in the Order dated 10.09.2025, in exercise of the powers conferred under subclause (zp) of Section 181(2) read with Sections 61, 66, and 86(1)(e) of the Electricity Act, 2003, and all other powers enabling it in this behalf, the Commission hereby issues following final Regulation:

**1. Short Title, Commencement, and Applicability**

1.1 These Regulations may be called the Andhra Pradesh Electricity Regulatory Commission [Planning, Procurement, Deployment, and Utilisation of Battery Energy Storage Systems (BESS)] Regulations, 2025.

1.2 These Regulations shall come into force from the date of their publication in the Andhra Pradesh Gazette.

1.3 These Regulations shall apply to all Licensees, Generating Companies, Renewable Energy Developers, Aggregators, Battery Energy Storage System (BESS) Service Providers, and other entities involved in the deployment, operation, or utilisation of Battery Energy Storage Systems within the State of Andhra Pradesh.

**2. Definitions**

(1) In these Regulations, unless the context otherwise requires:

a) **"Act"** means the Electricity Act, 2003 (36 of 2003);

b) **"Aggregator(s) or *"Distributed Energy Resources Aggregator or DERA"*** *means an entity registered/ appointed with/by the distribution licensee to provide aggregation of one or more services like demand response services under the demand response mechanism, Distributed Generation, Energy Storage, etc., within a license area. The aggregators shall assist the DISCOMs, inter alia, in the promotion of Distributed Generation/storage like Solar Rooftop projects with/without storage for all categories of consumers by managing, dispatching, metering, and settling the individual Distributed Energy Resources (DERs) energy, disbursement of rooftop subsidies, within their aggregation, as well as empanelling of vendors, and construction of systems, etc."*

c) **"Automatic Generation Control" or "AGC"** means a mechanism through which the generation of the SRAS Provider in a control area is automatically adjusted in response to the Secondary Control Signal.

d) **"Ancillary Service" or "AS"** in relation to power system operation, means the service necessary to support the grid operation in maintaining power quality, reliability and security of the grid and includes Primary Reserve Ancillary Service,

Secondary Reserve Ancillary Service, Tertiary Reserve Ancillary Service, active power support for load following, reactive power support, black start, and such other services as defined in the Indian Grid Code/ AP Grid Code/this Regulation.

e) **"AS capacity obligation"** is the capacity signalled for despatch by the Nodal Agency under SRAS or the capacity procured by the Nodal Agency under TRAS;

f) **"Banking"** means a facility through which the unutilised portion of energy (underutilisation by the consumer or excess generation over and above the schedule by the generator) from any of the Green Energy Sources during a billing month is kept in a separate account and such energy accrued shall be treated in accordance with the conditions laid down in the Andhra Pradesh Electricity Regulatory Commission (Green Energy Open Access, Charges, and Banking) Regulation, 2024 (Regulation No 3 of 2024) as amended from time to time.

g) **"Battery Energy Storage Systems" or "BESS" shall** mean the system(s)/projects utilising methods and technologies such as electrochemical batteries (Lead Acid, Li-ion, solid state batteries, flow batteries, etc.), or any other technology as per the definitions, guidelines and directions issued by the Ministry of New and Renewable Energy (MNRE) from time to time, providing a facility that can store chemical energy and deliver the stored energy in the form of electricity.

h) **"Battery Energy Storage System Developer" or "BESSD" or "Developer"** shall mean the entity owning/operating the BESS facility for the supply of power under this regulation.

i) **"Commission"** means the Andhra Pradesh Electricity Regulatory Commission.

j) "**Distribution Licensee", "Transmission Licensee", "Generating Company", and "SLDC**" shall have the meanings assigned to them under the Act.

k) **"Firm and Dispatchable RE Power" means** the power profile configuration that is defined in the RfS that is sought to be met by RE power sources and will include configurations like assured peak power, Round the Clock RE with firm delivery of power at rated capacity at any hour of the day as per demand or load following power delivery as specified by DISCOM, Clean Energy Project with firm delivery of power for fixed hours of requirement by DISCOMs, etc.

l) **"Force Majeure"** means any event or circumstance which is beyond the reasonable direct or indirect control and without the fault or negligence of the Energy Producer or Developer and which results in Energy Producer's/Developer's inability, notwithstanding its reasonable best efforts, to perform its obligations in

whole or in part and may include rebellion, mutiny, civil unrest, riot, strike, fire, explosion, flood, cyclone, lightning, earthquake, act of foreign enemy, war or other forces, theft, burglary, ionising radiation or contamination, Government action, inaction or restrictions, accidents or an act of God or other similar causes.

m) **"Fuel Cell" means** an electrochemical cell that converts the chemical energy of a fuel and an oxidising agent (often oxygen) into electricity through a pair of redox reactions.

n) **"Nodal Agency"** means the Andhra Pradesh State Load Despatch Centre, which shall be responsible for the implementation of the Ancillary Services at the intra-state level through the Area Load Despatch Centres.

o) **"Primary Reserve Ancillary Service" or "PRAS"** means the Ancillary Service which immediately comes into service through the governor action of the generator or through any other resource in the event of a sudden change in frequency.

p) **"Secondary Control Signal"** means an automated signal generated from the Nodal Agency through which injection or drawal, or consumption of an SRAS provider is adjusted, and includes AGC signal.

q) **"Secondary Reserve Ancillary Service" or "SRAS"** means the Ancillary Service comprising SRAS-Up and SRAS-Down, which is activated and deployed through a secondary control signal.

r) **"Secondary Reserve Ancillary Service Provider" or "SRAS Provider**" means an entity which provides SRAS-Up or SRAS-Down in accordance with these regulations;

s) **"SRAS-Down"** means an SRAS that reduces active power injection or increases drawal or consumption, as the case may be, in response to a secondary control signal from the Nodal Agency.

t) **"SRAS-Up"** means an SRAS that increases active power injection or decreases drawal or consumption, as the case may be, in response to a secondary control signal from the Nodal Agency.

u) **"Standalone BESS**" means a BESS operating independently as a merchant unit that has the capability to engage in energy or capacity trading in power markets or AS, in accordance with this Regulation.

v) **"Tertiary Reserve Ancillary Service" or "TRAS**" means the Ancillary Service comprising TRAS-Up and TRAS-Down and consists of spinning reserve or

non-spinning reserve, which responds to despatch instructions from the Nodal Agency;

w) **"TRAS-Down"** means a TRAS that reduces active power injection or increases drawal or consumption, as the case may be, in response to despatch instructions of the Nodal Agency;

x) **"TRAS-Down Provider"** means an entity which provides TRAS-Down in accordance with these regulations.

y) **"TRAS-Up"** means a TRAS that increases active power injection or decreases drawal or consumption, as the case may be, in response to despatch instructions of the Nodal Agency;

z) **"TRAS-Up Provider"** means an entity which provides TRAS-Up in accordance with these regulations.

aa) **"Un-Requisitioned Surplus" or "URS"** means the capacity in a generating station that has not been requisitioned and is available for despatch, and is computed as the difference between the declared capacity or maximum possible generation (Pmax), as the case may be, of the generating station and its total schedule.

(2) Save as aforesaid and unless repugnant to the context or the subject-matter otherwise requires, words and expressions used in these regulations and not defined, but defined in the Act, or the Grid Code or any other regulation of the Commission/CERC shall have the meaning assigned to them respectively in the Act or the Grid Code or such other regulation.

(3) Reference to any Act, Rules and Regulations shall include amendments or consolidations or re-enactment thereof.

**3. Objectives**

The primary objectives of these Regulations are:

(a) To enable deployment and utilisation of BESS as part of generation, transmission, and distribution assets;

(b) To facilitate the participation of BESS in ancillary services and energy markets;

(c) To promote cost-effective energy storage solutions that support grid stability, frequency management, and renewable energy integration;

(d) To establish a framework for Aggregators and third-party BESS developers to participate in the electricity market.

**4. Ownership and Business Models**

4.1 BESS may be developed and owned by:

- Distribution Licensees;
- Transmission Licensees;
- System operators
- GENCOs
- Independent Power Producers (IPPs);
- Renewable Energy Developers;
- An independent energy storage service provider
- Aggregators;
- Any other third-party investors.

4.2 BESS may be deployed as:

- Co-located with renewable or conventional generators;
- Grid-connected standalone storage;
- Embedded in distribution or transmission networks;
- Behind-the-meter (consumer-level) storage.
- Integrated with Electric Vehicle Charging stations and battery swapping stations.
- Integrated with Electric Vehicles for Vehicle to Grid (V2G) services and Grid-to-Vehicle (G2V) services.

4.3 The Battery Energy Storage System shall be utilised either as an independent battery energy storage system or as part of the generation, transmission, or distribution system or integrating the consumer's load independently or with RE sources co-located behind the meter.

4.4 The Battery Energy Storage System can be developed, owned, leased, or operated by a generating company, a transmission licensee, a distribution licensee, a consumer, a system operator, or an independent battery energy storage service provider.

4.5 The Battery Energy Storage System shall have the same legal status as that of the owner:

Provided that if such a Battery Energy Storage System is not co-located with, but owned and operated by, the generating station or distribution licensee or consumer, the legal status shall still be that of the owner, but for the purpose of

scheduling and dispatch and other matters, it shall be treated at par with a separate storage element.

**5. Planning and Procurement**

5.1 The reverse power flow from lower voltage to higher voltage at various substations shall be the criterion for finalising the BESS locations in the Distribution System or Transmission System by Distribution/Transmission licensees.

5.2 The DISCOMs/TRANSCO shall encourage the installation of BESS at the co-location at the generation point for ancillary services, as this will reduce grid integration costs.

5.3 *Minimum* individual *project size of power rating of 1MW and above, with a suitable energy rating of at least two* hours *based on the application at one site, connected at 11 kV or above*

5.4 The Distribution Licensees may also set up BESS at the DTR level to store the power from SRTs locally. In such cases, the capacity as specified in clause 5.3 would not apply. *For OA/captive users, consumers installing behind-the-meter BESS at any voltage level and the LT level, the ratings may be as per their choice.*

5.5 The licensees shall obtain prior approval from the Commission for BESS capacity procurement.

**6. Utilisation for Ancillary Services**

BESS shall be eligible to provide:

- Frequency regulation (primary, secondary, tertiary);
- Spinning and non-spinning reserves;
- Voltage support;
- Black start services;
- Demand response services.

**7. Role of Aggregators**

7.1 Aggregators may aggregate BESS resources (co-located storage, grid-connected standalone storage, EVs, EV charging stations with BESS, battery swapping stations, distributed renewable energy resources with BESS, etc.) from multiple sites to provide services to the SLDC/TRANSCO/DISCOMs or other market participants.

7.2 Aggregators registered/appointed with/by the DISCOMs shall follow the protocols issued by SLDC.

**8. Commercial Agreements**

Aggregators and AS providers may enter into commercial agreements with Licensees or other market participants for the provision of BESS services.

**9. Tariff and Market Participation**

9.1 All procurement of BESS capacity and services by Licensees shall be undertaken only through tariff-based competitive bidding.

9.2 The Commission shall determine the cost recovery for Licensee-owned BESS assets based on prudent investment norms and the relevant regulations.

9.3 Market-linked BESS services shall be compensated based on market-clearing prices in the ancillary services market or other mechanisms approved by the Commission.

9.4 Renewable energy procured and used for charging BESS shall retain its renewable character upon discharge and consumption. Accordingly, obligated entities or consumers shall be eligible to claim the RPO/RCO benefit for such consumption.

**10. Technical Standards**

10.1 BESS installations shall conform to technical standards specified by the Central Electricity Authority (CEA), MNRE and other relevant authorities. They shall abide by all the relevant rules and regulations framed under the Electricity Act, 2003, including the Indian Electricity Grid Code (IEGC), Grid Connectivity Standards, and other relevant rules/procedures issued by the Commission from time to time.

10.2 BESS providers shall submit real-time and periodic data to SLDC in the prescribed formats notified by SLDC.

**11. Safety, Cybersecurity, and Environmental Norms**

11.1 BESS systems shall comply with applicable regulations, standards and codes issued by the Central Electricity Authority (CEA) regarding safety.

11.2 Cybersecurity and communication protocols shall adhere to the guidelines of the Ministry of Electronics and Information Technology (MeitY), the Central Electricity Authority (CEA), and the Ministry of Power (MoP).

11.3 Environmental management and end-of-life disposal of batteries shall be in accordance with the guidelines/regulations of the Government of India/GoAP. The responsibility of disposal shall lie with the owner of the BESS.

**12. Role of Distribution Licensees**

12.1 The Distribution Licensees shall publish on their websites, potential sites at the 11 kV voltage level in their 33/11 kV substations for establishing a BESS of the required capacities based on the feeder level solarisation and SRT installations in the feeder purview. The Distribution Licensee shall also identify Distribution Transformers (DTs) where Solar Rooftop (SRT) systems have capacities exceeding 50 percent of the DTR capacity, and shall publish such list on its website, updating it on an annual basis.

12.2 The DISCOMs shall register the AS providers and Aggregators in accordance with this Regulation.

12.3 *The Distribution Licensees shall include BESS in their resource planning and file their proposals for Commission approval through investment plans, MYT filings, or other regulatory mechanisms. All approved expenditure on BESS shall be recoverable through ARR:*

a. *Payments for BESS ancillary services procurement shall be claimed under Power Purchase Cost (PPC) as a separate sub-head titled "Expenditure on Ancillary Services / Energy Storage Services" in the ARR of Retail Supply Business.*

b. *Expenditure on Licensee-owned BESS assets shall be treated as capital expenditure and recovered through depreciation, RoE/RoCE, and O&M in the Distribution Business ARR, under a dedicated budget head for energy storage.*

c. *Where BESS procurement is undertaken through competitive bidding by paying a fixed cost, such expenditure shall be claimed under a separate head, under other relevant expenditure in the Distribution Business ARR, to ensure transparency and proper regulatory scrutiny.*

12.4 BESS procurement by Licensees, in cases not covered under clause 9.2, shall be undertaken only through competitive bidding, subject to guidelines issued by the Government of India.

12.5 The DISCOMs shall maintain a database of information regarding the behind-the-meter BESS systems installed within their licensed area for planning purposes.

12.6 The Distribution Licensee shall also publish on its website the list of Aggregators registered/approved under these Regulations.

## 13. Role of APTRANSCO

13.1 Licensees shall include BESS in their resource planning and file their proposals for Commission approval through investment plans, MYT filings, or other regulatory mechanisms. All approved expenditure on BESS shall be recoverable through ARR:

a. Expenditure on Licensee-owned BESS assets shall be treated as capital expenditure and recovered through depreciation, RoE/RoCE, and O&M in the Transmission Business ARR, under a dedicated budget head for energy storage.

b. Where BESS procurement is undertaken through competitive bidding by paying a fixed cost, such expenditure shall be claimed under a separate head, under other relevant expenditure in the Transmission Business ARR, to ensure transparency and proper regulatory scrutiny.

13.2 BESS procurement by Licensees, in cases not covered under Clause 9.2, shall be undertaken only through competitive bidding, subject to guidelines issued by the Government of India, if any.

13.3 APTRANSCO shall prepare the standard agreement format for procuring ancillary services and obtain the Commission's approval before entering into agreements.

13.4 The TRANSCO shall maintain a database of information regarding the behind-the-meter BESS systems installed within its licensed area for planning purposes.

## 14. Role of Nodal Agency (APSLDC)

14.1 APSLDC shall verify the governor settings of all thermal generators regarding their automatic primary response to changes in the system frequency, as per IEGC, for the automatic adjustment of generation to meet demand in the System. The action taken and status report shall be posted on its website within three months from the date of the publication of this Regulation. Accordingly, it shall arrive at the PRAS required from BESS. The report shall also specify the requirements for the BESS capacity required under SRAS or TRAS, as well as the locations in the Grid Substations. The report shall be updated annually and published on its website.

14.2 The SLDC shall estimate the requirements of PRAS, SRAS, and TRAS for each DISCOM area for the specified period, using an appropriate methodology, and publish the results on its website. It shall reassess the requirement of SRAS and TRAS on a day-ahead basis, along with any incremental requirements on a real-time basis, and update this information on its website.

14.3 The SLDC shall specify eligibility criteria for BESS resources to provide ancillary services, based on technical criteria and operational performance, and publish on its website within one month from the date of notification of this Regulation.

14.4 The SLDC, in consultation with TRANSCO and DISCOMs, shall prepare and publish on its website the eligibility criteria for the registration of Aggregators/AS providers within one month from the date of notification of this Regulation.

14.5 The SLDC shall prepare a procedure for Scheduling, Metering, Accounting, Settlement, and Commercial mechanisms for the operationalisation of ancillary services, for approval by the Commission, within two months from the date of publication of this Regulation.

14.6 The SLDC shall monitor:

- State of Charge (SoC),
- Round-Trip Efficiency,
- Availability and response time,
- Aggregated performance metrics.

**15. Role of GENCOS/IPPs/CPPs/BESS Developers**

GENCOS/IPPs/CPPs may establish BESS at the generation point, in co-location, or as a grid-connected stand-alone unit, and may participate in the ancillary market under this regulation or the Central Electricity Regulatory Commission (Ancillary Services) Regulations, 2022, as amended from time to time. BESS installed at the generation point by GENCOS/IPPs/CPPs may be used for their own use or for their consumers through open access/providing AS. BESSDs may establish BESS at any point in the system after obtaining due approvals from the concerned licensees. GENCOS/IPPs/CPPs/BESSD shall register with the distribution licensee to provide AS.

**16. Consumers/Prosumers**

*All Consumers, including those covered under net-metering/billing,* may also establish behind-the-meter BESSs with or without Solar power plants, without requiring permission from the concerned DISCOMs or TRANSCO, as the case may be. However,

all such systems shall comply with the technical standards as per the Connectivity Regulations issued by the CEA. The DISCOMs or TRANSCO, as the case may be, shall be informed before commissioning behind-the-meter BESS. If there is any lapse on such standards, they shall be rectified and get certified by DISCOMs or TRANSCO, as the case may be, before integration with the Grid. However, if the system is operated standalone, not connected with the grid, such inspections are not required.

Consumers/prosumers with eligible behind-the-meter BESS, in addition to self-utilisation, may participate in the ancillary services market directly or through an Aggregator. All consumers/prosumers intending to provide AS directly shall register with the concerned DISCOM in accordance with this Regulation.

**17. Open Access to BESS**

The APERC Green Energy Open Access Charges and Banking Regulation 2024, as amended from time to time, shall govern the open Access and charges.

**18. Role of the Commission**

The Commission shall:

- Approve capacities, investment and tariff proposals for BESS deployment/procurement by Licensees;
- Approve the Procurement by SLDC under PRAS, SRAS and TRAS;
- Approve the Procedures and eligibility conditions prepared by the Nodal Agencies;
- Approve the Agreement formats prepared by the licensees;
- Monitor implementation of these regulations through reports and compliance filings;
- Whenever considered necessary, through separate Orders, mandate the integration of BESS with rooftop solar or other renewable energy systems or specify a percentage of BESS obligation to obligated entities in the interest of grid stability and security.

**19. Dispute Resolution**

All consumer-related disputes shall be dealt with by the Consumer Grievance Redressal Forum (CGRF). Any other dispute arising under this regulation that does not fall under the purview of the CGRF shall be adjudicated by the Commission.

**20. Power to give directions**

The Commission may, from time to time, issue such directions and orders as it considers appropriate for the implementation of these Regulations.

**21. Power to relax**

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, may relax any of the provisions of these Regulations on its own motion or on an application made before it by an interested person.

**22. Power to amend**

The Commission may, from time to time, add to, vary, alter, suspend, modify, amend, or repeal any provision of these Regulations.

**23. Power to remove difficulties**

If any difficulty arises in giving effect to the provisions of these Regulations, the Commission may, by an order, make such provisions, not inconsistent with the provisions of the Act and these Regulations, as may be necessary for removing the difficulty.

**(By Order of the Commission)**

**Place: Kurnool**
**Date: 10.09.2025.**

**P.KRISHNA**
**Commission Secretary** i/c

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