CENTRAL ELECTRICITY AUTHORITY — REGULATORY ONE-PAGER

CEA Technical Standards for Construction of Electrical Plants and Electric Lines

2022 Base Regulations + 2025 Right-of-Way Amendment + 2026 RE & BESS Amendment

APPLICABILITY & STRUCTURE (2022)

Applies to generating companies, transmission & distribution licensees, CTU and STUs; in force from publication (23 Dec 2022). Chapters I General, II Thermal, III Hydro-Electric, IV Sub-stations & Switchyards, V Electric Lines, plus HVDC Technical Standards.

2025 RIGHT-OF-WAY AMENDMENT

Amends Regulation 84(4) and substitutes Schedule VII for RoW values by voltage, conductor, terrain and approach-section configuration. Different RoW values from new conductor configuration/type or technology require separate CEA approval.

2026 RE + BESS AMENDMENT

Inserts Chapter VI (Regs 106A–106ZS): Part A Solar, Part A1 Floating Solar, Part B Onshore Wind, Part B1 Offshore Wind, Part C BESS. Adds BESS-related definitions. Comes into force on 1 April 2027.

GENERAL REQUIREMENTS (ALL 5 PARTS)

AWS (WMO-compliant) for plants ≥10 MW; Phasor Measurement Units per Authority guidelines; power plant controllers for active/reactive control; redundant secure communications; protection/control comms segregated from SCADA channels.

SOLAR & FLOATING SOLAR

Design life ≥ 25 years. 0.75 m inverter clearance; 2.5 m array spacing; salt-mist corrosion test in marine sites. Floating solar: panels ≥12 in. above water, floaters ≥6 in.; adaptive mooring/anchoring; earthing at bed or shore.

ONSHORE & OFFSHORE WIND

Design life ≥ 25 years. Offshore: site per National Offshore Wind Policy 2015; blade tip clearance ≥22 m from mean high water spring; export cable buried underground to transition junction box.

BESS — USE CASES & CAPABILITIES

10 use cases incl. RE integration, firm capacity, price arbitrage, congestion avoidance, black-start. All BESS: active/reactive power, voltage & frequency control, ride-through, SCADA/EMS comms. ≥50 MW: additional AGC, grid-forming inverter, black-start capability.

BESS — TECHNICAL SPECIFICATIONS

Performance guarantee: 90% at 5 yrs, 80% at 10 yrs, 70% at 15 yrs. Min. depth of discharge ≥80%; PCS efficiency ≥95%; round-trip efficiency ≥70%. PCS/EMS data retention 90 days, ≥1,000 samples/second.

ILLUSTRATIVE RIGHT-OF-WAY VALUES (SCHEDULE VII)

1200 kV AC / ±800 kV HVDC (horizontal, normal route): 400 m • 765 kV D/C: 400 m normal / 300 m forest / 250 m urban • 400 kV D/C: 400 m / 300 m / 250 m • 220 kV D/C: 350 m / 300 m / 200 m • 132 kV D/C: 320 m / 200 m / 150 m • 66 kV: 250 m / 150 m / 100 m (illustrative; refer to full Schedule VII for all conductor types & configurations)

BESS APPLICATION USE CASES (REGULATION 106ZJ)

- Grid integration of renewables — reduce output volatility and variability
- Firm capacity from renewable energy sources
- Price arbitrage — charge during low-price periods, discharge during high-price periods
- Transmission & distribution performance enhancement / imbalance offsetting
- Congestion cost avoidance and deferral of infrastructure upgrades
- Substation auxiliary power for switching, communication and control equipment
- Supply-demand balancing and reactive power / voltage management
- End-user electricity cost reduction through peak-shifting
- Black-start service to avoid fuel cost and emissions from conventional generators
- Any other grid-interactive application

TIMELINE & EFFECTIVE DATES

BASE & AMENDMENT DATES

2022 Base Regulations: notified 23 Dec 2022, effective on publication. 2025 RoW Amendment: notified with effect from 9 Oct 2025 (last-amendment date referenced in the 2026 notification). 2026 RE+BESS Amendment: notified 22 June 2026.

2026 AMENDMENT COMMENCEMENT

The Technical Standards Amendment Regulations, 2026 (Chapter VI — RE & BESS) come into force on 1 April 2027, giving entities a lead time to prepare for the new solar, wind and battery storage construction standards.

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