Comments and Suggestions on the Staff Paper on Capacity Market for Electricity in India by SEIL Energy India Ltd.

We appreciate the initiative of the Hon'ble Commission to initiate stakeholder consultation on Capacity Markets in India. The increasing penetration of renewable energy, growing demand variability, and evolving resource adequacy requirements necessitate mechanisms that ensure availability of reliable and dispatchable capacity during periods of system stress.

However, India's power sector differs significantly from mature energy-only markets where capacity markets have evolved. The existing long-term PPA framework already provides capacity remuneration through availability-based fixed charges. Therefore, any capacity market framework should complement, and not disrupt, the existing contracting arrangements that have enabled large-scale investments in generation capacity.

1. General Observation

We submit that direct replication of Western capacity market designs may not be suitable for Indian conditions due to several structural differences highlighted within the Staff Paper itself.

a) **Lack of Mandatory Resource Adequacy (RA) Enforcement:** The Paper notes that India does not yet have a fully enforced RA framework, and that States often fail to procure adequate reserves, forcing NLDC to procure reserves centrally. Without binding RA obligations, capacity market signals will remain weak or distorted.

b) **Dominance of Long-Term PPAs:** India's long-term PPAs inherently function as capacity contracts ensuring fixed cost recovery and obligated availability. Western markets do not have such a dominant PPA structure. Transitioning from assured fixed cost recovery to market-based payments requires prudence and phasing.

c) **Financial Fragility of Discoms:** Discom finances are a key systemic risk. A capacity market presumes financially robust buyers who can honour capacity payments. This underlying requirement is presently weak in India.

d) **Inadequate Reserve & Ancillary Services Infrastructure:** The Paper acknowledges reserve insufficiency and dependence on NLDC-coordinated procurement for State deficits.

e) **Thermal Fleet Technical Constraints:** India's coal-dominant fleet is characterized by higher minimum loads and slower ramp rates compared to the flexible gas-based systems in Western markets. Given these factors, direct transplantation of foreign designs may create transitional instability and unintended distortions.

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2. Concerns Regarding Pure Capacity Market Model

The proposal involving separate capacity auctions and energy market participation raises several concerns:

a) **Revenue Uncertainty:** Unlike the current framework, generators would be exposed to substantial energy market risk. Lenders and investors may not view such arrangements as bankable for long-term investments.
b) **Missing Money Risk**: Indian power exchanges currently account for a relatively small share of total electricity procurement. Reliance on energy market revenues may not adequately compensate generators for fixed costs.
c) **Financing Challenges:** Long-term PPAs remain the primary basis for project financing. Capacity-only contracts may adversely affect financing availability and increase cost of capital.

3. Determination of Net Cost of New Entry (Net CONE)

The Staff Paper proposes determination of **Net Cost of New Entry (Net CONE)** as a key parameter for capacity market design. While Net CONE serves as an important benchmark for capacity demand curves and capacity price formation, adopting a uniform Net CONE across all technologies may not appropriately reflect the diverse cost structures, operational characteristics, and risk profiles of different generation resources.

In the Indian context, generation technologies exhibit significant variation in Capital cost requirements, Fixed and variable O&M costs, Fuel-related risks, Operating flexibility, Plant life and utilization factors, Contribution to system reliability during stress periods.

Accordingly, the Commission may consider:

a) Determination of technology-specific Net CONE values based on the cost and operational characteristics of each resource category.
b) Separate Net CONE benchmarks for Coal-based thermal generation, Gas-based generation, Hydro generation, Pumped storage projects, Battery energy storage systems, Renewable energy coupled with storage.
c) Recognition of flexibility and reliability attributes while determining Net CONE so that resources capable of providing firm capacity during system stress are adequately compensated.

The Staff Paper proposes the use of Net Cost of New Entry (Net CONE) as a fundamental parameter for capacity market design. However, the methodology for determination of Net CONE should clearly specify the financing assumptions, particularly the debt-equity ratio, cost of debt, return on equity, loan tenure, and other financing parameters.

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The Commission may note that financing assumptions have a significant impact on annualized fixed costs and consequently on Net CONE values. Even small variations in debt-equity ratio or cost of capital can materially alter capacity market outcomes and investment signals.

4. **Sequencing of Market Reforms – Resource Adequacy First, Ancillary Services Next, Capacity Market Thereafter.**

The Commission may consider adopting a phased and sequential approach toward market evolution.

At present, the Resource Adequacy (RA) framework in India is still under implementation and several aspects relating to demand forecasting, procurement obligations, compliance monitoring, and enforcement mechanisms are evolving.

Further, the Ancillary Services Market has only recently begun expanding and requires sufficient operational experience to establish reliable price signals, reserve procurement mechanisms, and performance assessment frameworks.

In this regard, introducing a full-fledged Capacity Market before the Resource Adequacy and Ancillary Services frameworks attain sufficient maturity may lead to overlapping mechanisms, inefficient cost recovery, and regulatory uncertainty.

5. **Structural Reforms Required Before Implementing a Capacity Market**

We submit that the following reforms are essential prerequisites:

a) **Strict Multi-Year RA Obligations for All Discoms:** RA compliance should be binding and enforceable prior to operationalizing any capacity market.
b) **Development of Deep Reserve & Ancillary Service Markets:** The Staff Paper highlights the need for robust SRAS and TRAS procurement frameworks.
c) **Financial Strengthening of Discoms:** Sustainable capacity markets require creditworthy buyers.
d) **Flexibility Modernisation of Thermal Plants:** Thermal plants must be supported in undertaking retrofits for flexibility, including low-load operation and ramping enhancements.
e) **Carefully Phased Migration for Existing PPA-Based Generators:** Existing generators should not be exposed to abrupt revenue shocks.

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6. **Key Risks and Challenges for Thermal Generators Under the Proposed Framework**

Following are the key risks and challenges for thermal Generators under the proposed framework.

a) **Existing PPAs:** No clarity has been provided on existing PPAs which are legally binding, resulting in conflicting compliance requirements for generators to struggle between state utility (Discom) dispatch obligations and a centralized system operator's capacity call-ups.

b) **Revenue Uncertainty Post-PPA Expiry:** The Paper clarifies that international capacity markets generally do **not** guarantee full recovery of fixed costs. For plants like ours, this creates substantial business continuity risks.

c) **Mandatory Clearing During Stress Hours & Penalties** The requirement to clear as price takers during stress hours, with penalties up to **1.5×** the capacity charge for non-compliance, poses challenges for coal plants with inherent technical constraints.

d) **Increased Exposure to Market Volatility:** Short-term capacity markets (1–3 months) may not align with overhaul cycles and thermal cost structures.

e) **Competition from RE + Storage:** As storage prices decline, thermal units may be disadvantaged in Net-CONE-based auctions.

f) **Fuel Supply Risks:** Coal logistics and quality uncertainty may threaten reliability obligations.

g) **State vs National Compliance:** The capacity market proposal requires each state to assess how much capacity it needs which may not be aligned with national grid operators. Legal/Bureaucratic disputes can derail the entire national level system.

h) **Penalty for non-clearance:** The proposed penalty of 1.5 times the capacity charge for failure to clear during peak/stress hours is severe. A graded penalty based on the degree of shortfall, with force majeure exemptions, would be more equitable.

7. **Suggestions for Protecting Existing Thermal Capacity and Ensuring Orderly Transition**

We respectfully propose the following measures:

a) **Transitional Revenue Floor for Post-PPA Units:** A minimum assured revenue covering Fixed O&M + Debt Service + Environmental Compliance Expenditure must be provided.

b) **Multi-Year Capacity Contract Options (5–7 Years):** Thermal generators require longer-term revenue visibility to commit to overhauls, retrofits, and fuel agreements.

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c) **Recognition of Flexibility Constraints & Compensation for Start-Up Costs:** Start-up fuel, wear-and-tear, and cycling costs must be compensated rather than relying primarily on penalties.
d) **RA-Linked Fuel Supply Assurance:** Coal availability should be integrated into RA compliance to avoid penalizing generators for factors beyond their control.

Concluding Submissions

We reiterate our appreciation for Hon'ble CERC initiating the discourse on capacity markets. We respectfully submit that while India must move toward a modern resource adequacy framework, the transition must be calibrated, phased, and aligned with India's unique power sector structure.

Thermal capacity will remain essential for grid stability—especially during peak and stress hours—over the next decade. Ensuring financial and operational viability of existing thermal plants is therefore critical for a stable, reliable transition toward higher renewable penetration.

We request the Hon'ble Commission to consider our suggestions while refining the capacity market design and transition framework.