

The Decision Framework: When is Demand Flexibility the Right Choice

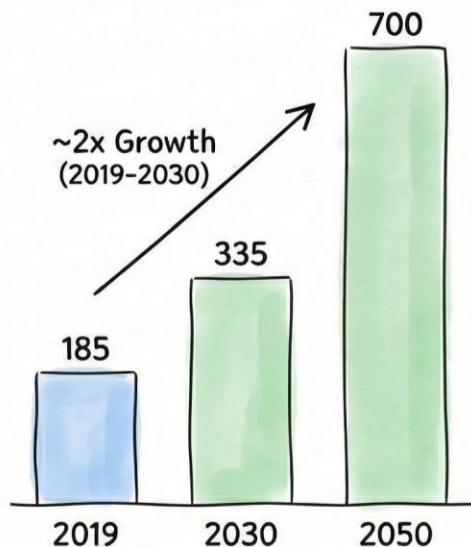
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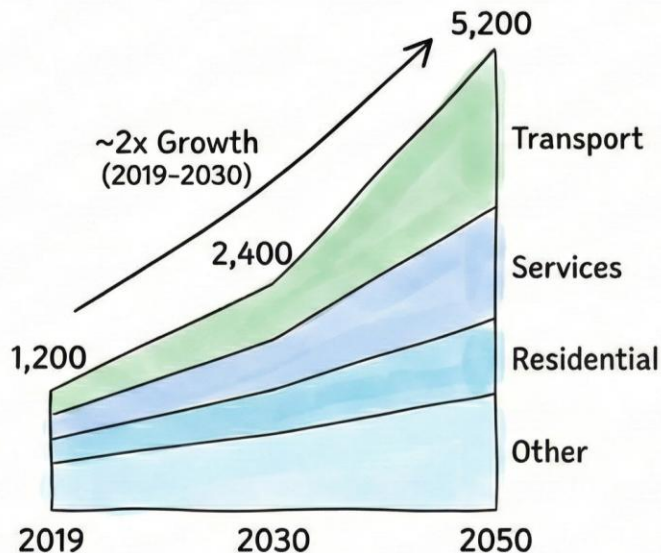


The Rising Tide of Power Demand

PEAK ELECTRICITY DEMAND (GW)



ELECTRICITY CONSUMPTION BY SECTOR (TWh)



KEY DRIVERS & INSIGHTS



01. INFRASTRUCTURE EXPANSION

Massive development in airports, roads, railway electrification, and new building construction



02. RISING LIVING STANDARDS

Higher disposable incomes and urbanization fueling demand for comfort, especially cooling and appliances



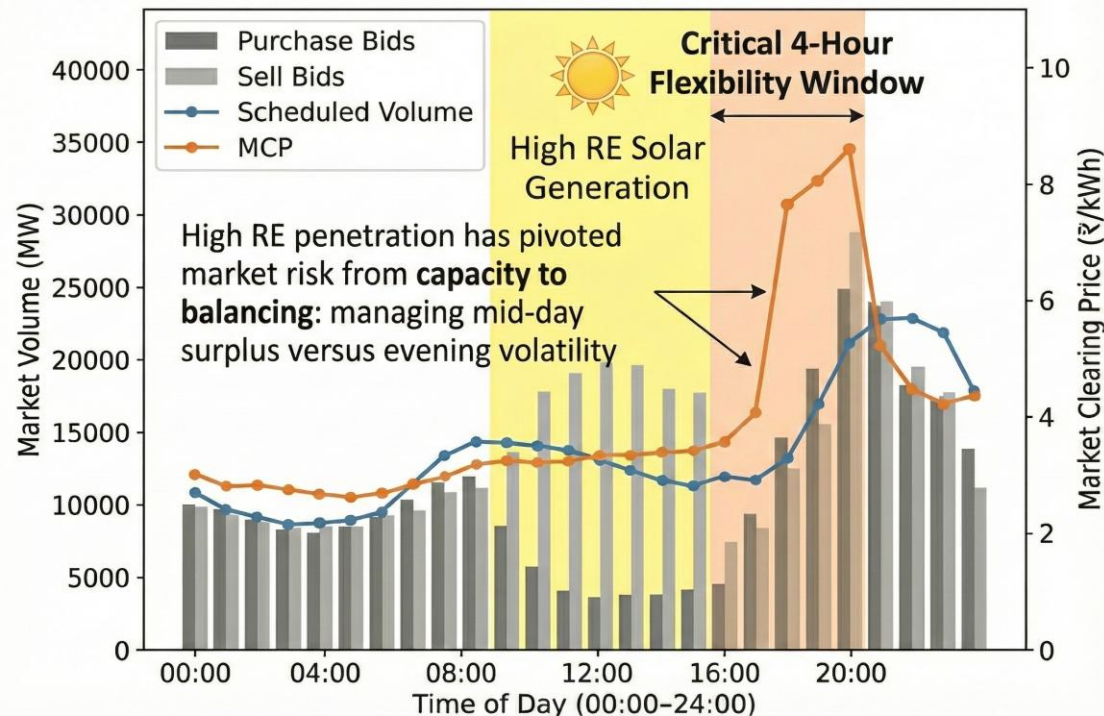
03. DIGITAL ECOSYSTEM GROWTH

Strong digital backbone with IT services doubling and a surge in data center power needs

Peak Demand is outpacing Energy Requirement, driven by structural shifts.

Highest growth in Transport (10%), Services (6%), and Residential (5.5%)

Need for Flexibility



Demand asymmetry impacts **Distribution System Planning and Network Planning**

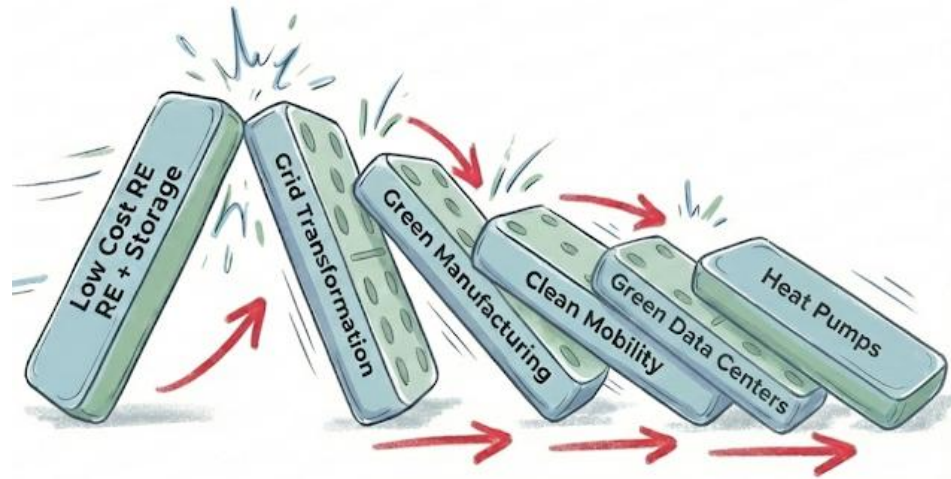
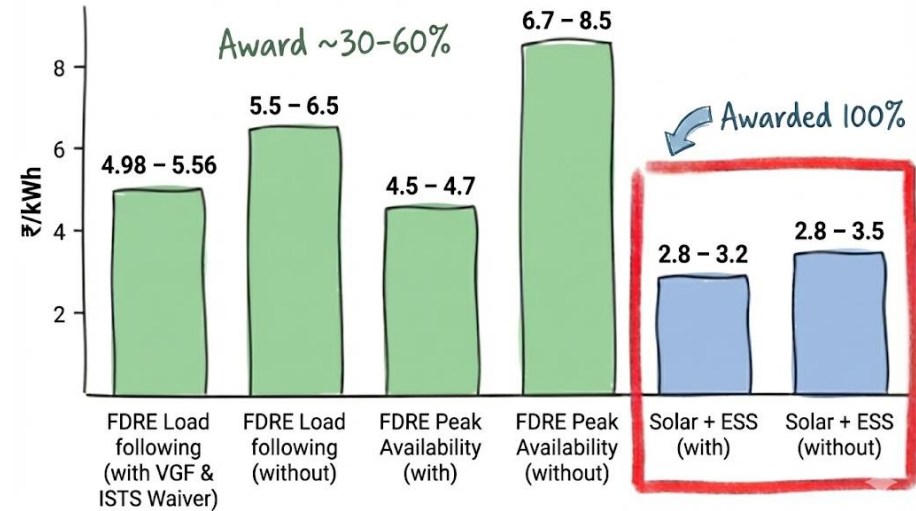
- High RE causes over voltages, leading to curtailment and localized stress
- Price and volume volatility increase the procurement cost.
- Merchant DAM exposure, price economics, congestion, leading to delays in signing PPAs.



Turning the Tide on India's Energy Mix : RE + Storage

India is now one of the top 4 power-producing countries in the world today. (RES~40%)

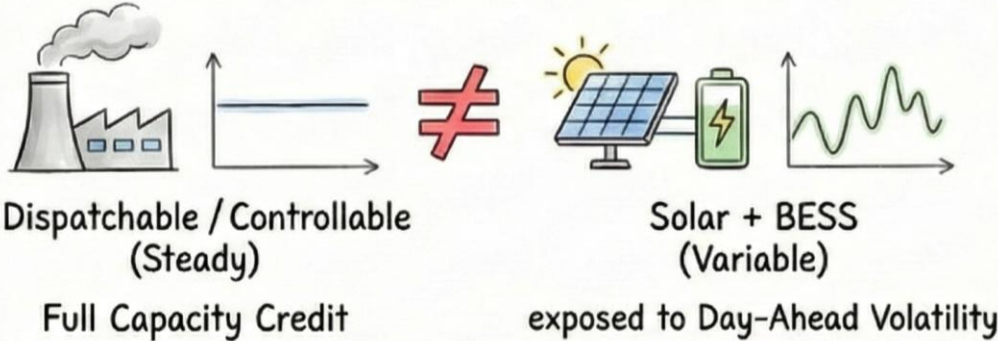
FY 2025



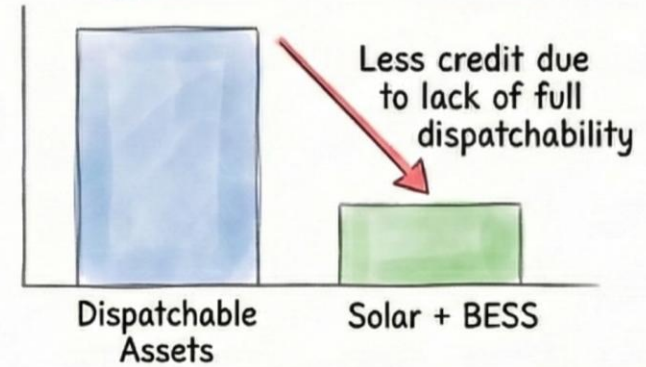
Low-cost clean energy is anchor for India's next-generation economic growth and global leadership

The Reality Check

NOT A THERMAL CLONE



IRP CAPACITY CREDITS



INDIA'S CRITICAL CONTEXT



(A) Geopolitical Tensions



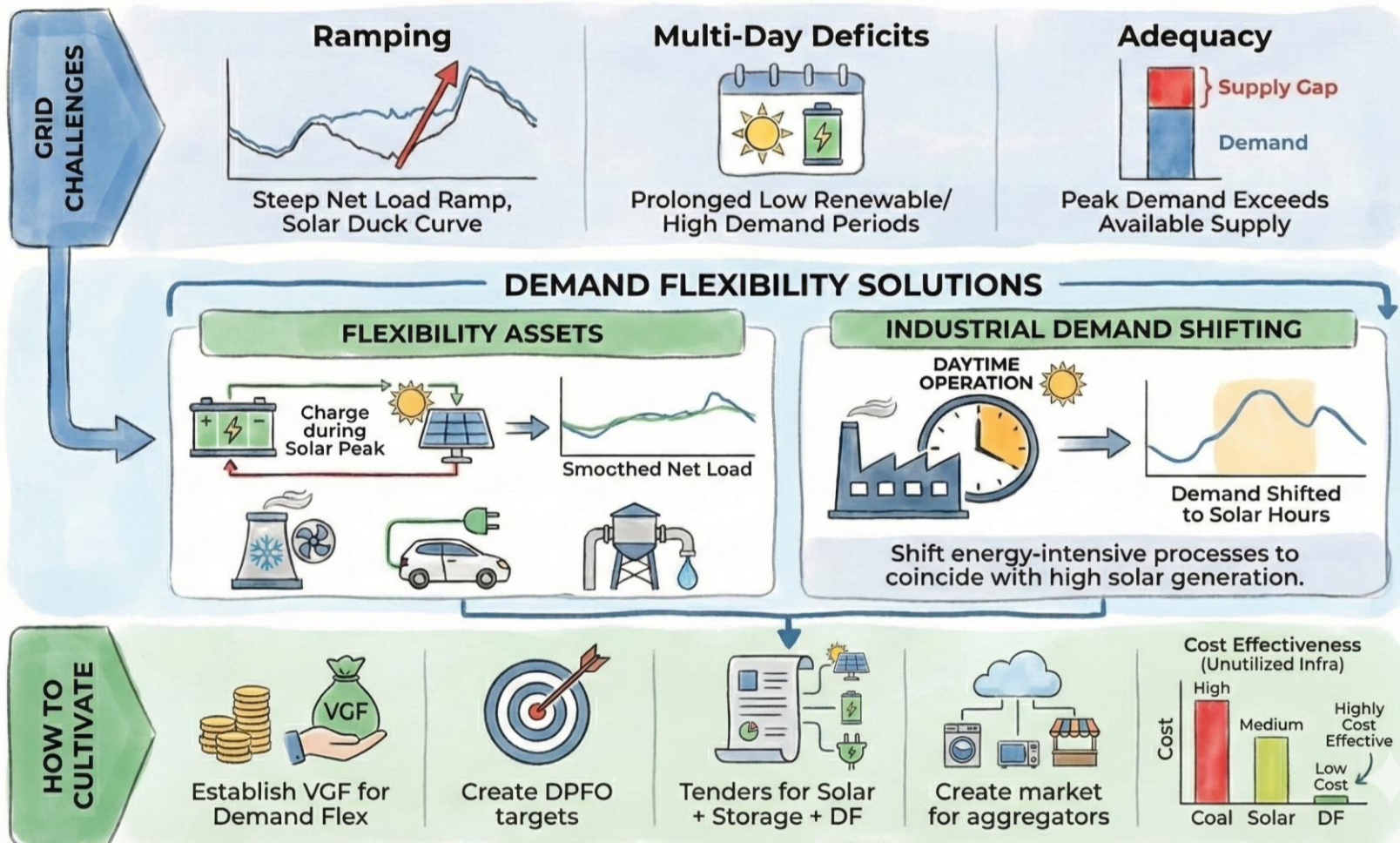
(B) Industrial & Service Growth Needs



(C) Reduce Import Dependence (Oil, Rare Earths)

CONCLUSION: We cannot rely on a single tool. Storage is vital, but must be matched to the right job in the mix.

Why Cultivate Demand Side Resources



DISCOM INITIATIVES & ENABLING REGULATIONS



DISCOMs INITIATIVES (TATA Power)



Behavioral DR (Delhi):
>100,000 participants



Automated DR (Mumbai):
DF assets like water works

RESULT: Noticeable demand reduction in MW achieved.



ENABLING REGULATIONS (MERC, KERC,* APDCL)



Progressive Targets:
Starting 1.5% peak to 3% peak in 5 years



Incentive/Penalty:
20 Lakh/MW for achieving/not achieving

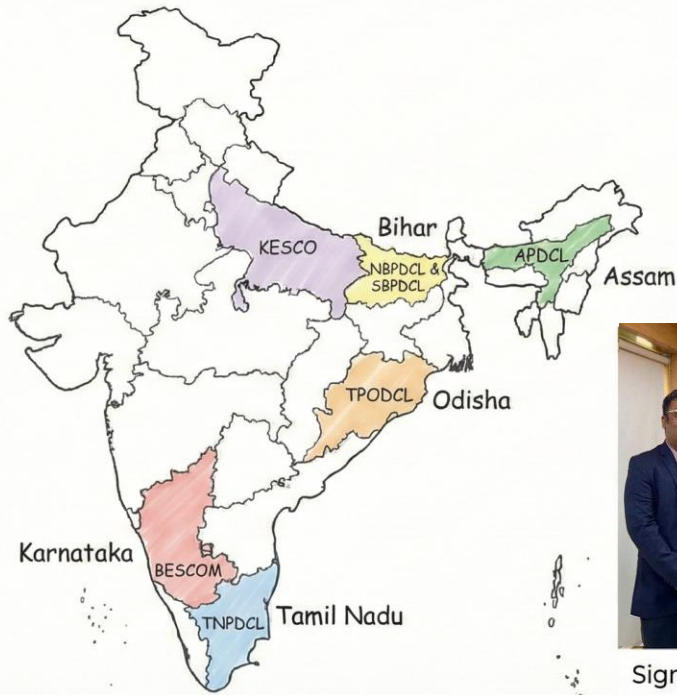


Aggregators:
Appointed aggregators can implement program.

Ongoing Demand Flexibility Initiative

AEEE and AIDA are collaborating with seven DISCOMs on an aggregator-led program.

Participating DISCOMs & Collaboration



- **KESCO**
- **NBPDC, SBPDCL**
- **TPODCL**
- **BESCOM**
- **APDCL, MSEDCL**



Signing of the collaboration agreement.

Key Programme Objectives



Assess Demand Flexibility Potential



Create Aggregator Market (Res, Com, Ind)



Design Effective Incentive Structure



Facilitate Regulatory Sandboxing



Thank You

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