

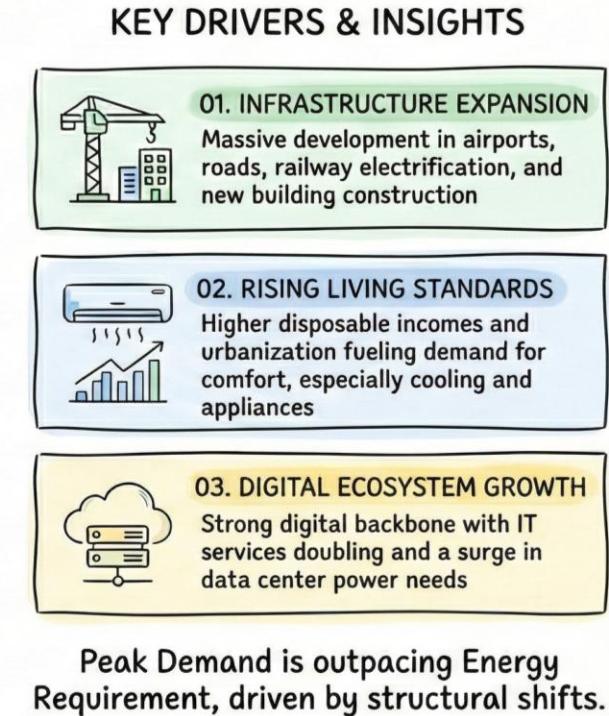
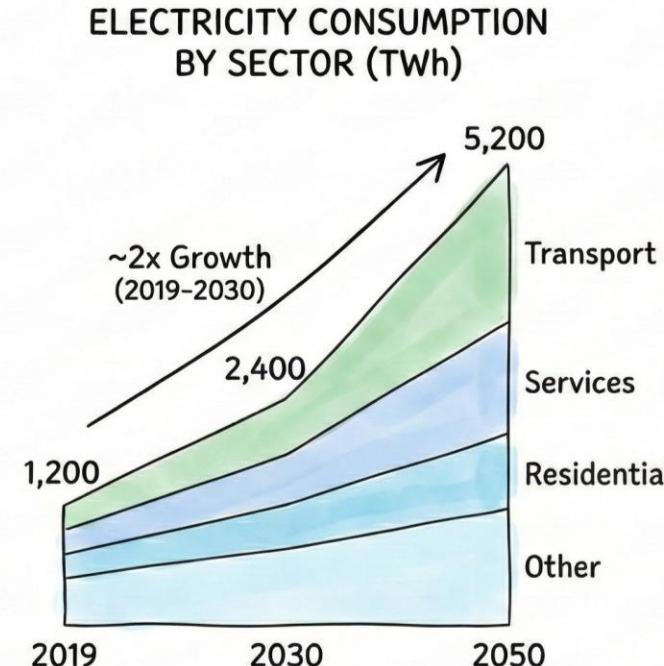
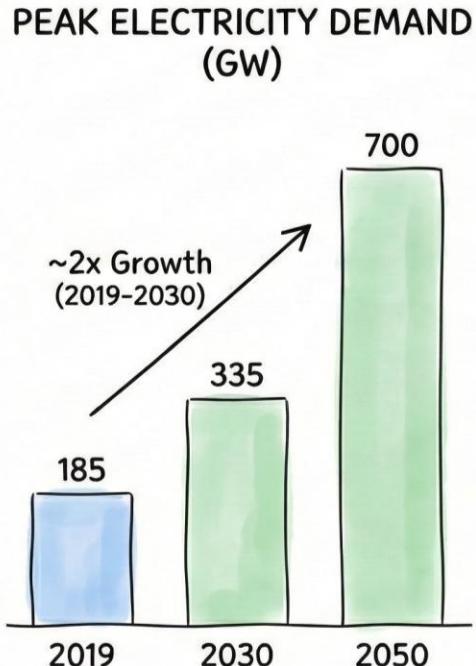
# The Decision Framework: When is Demand Flexibility the Right Choice

January 2026

Presented by :  
Sumedh Agarwal, Director, AEEE



# The Rising Tide of Power Demand

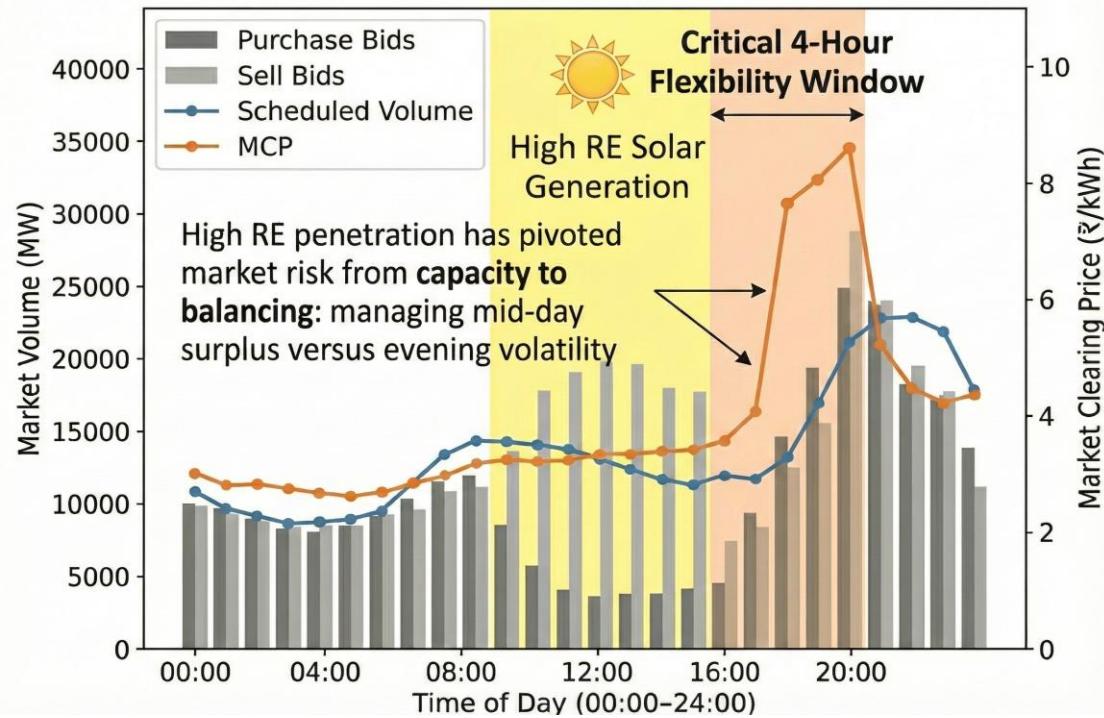


Highest growth in Transport (10%), Services (6%), and Residential (5.5%)

Source: ICED, 2025,

# 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.

THE NEW INDIAN EXPRESS

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Tamil Nadu

TN grid curtailment wastes 70 million units of renewable energy amid falling demand, rising RPO targets

This has resulted in a waste of 70 million units of renewable energy, which is equivalent to 10% of the total electricity generated by the state's renewable energy sources. The grid curtailment is a result of the falling demand and rising RPO targets.

Reuters

World Business Markets Sustainability Legal More

India curbs solar power output to keep grid stable amid low demand, ministry says

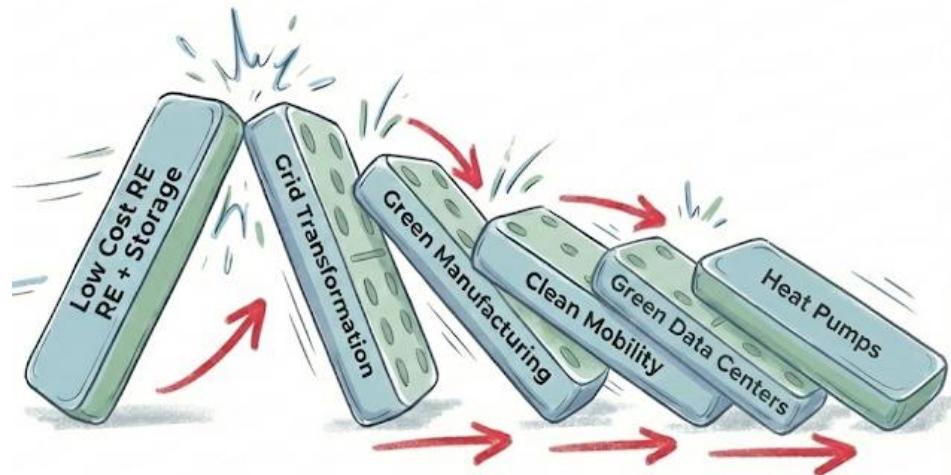
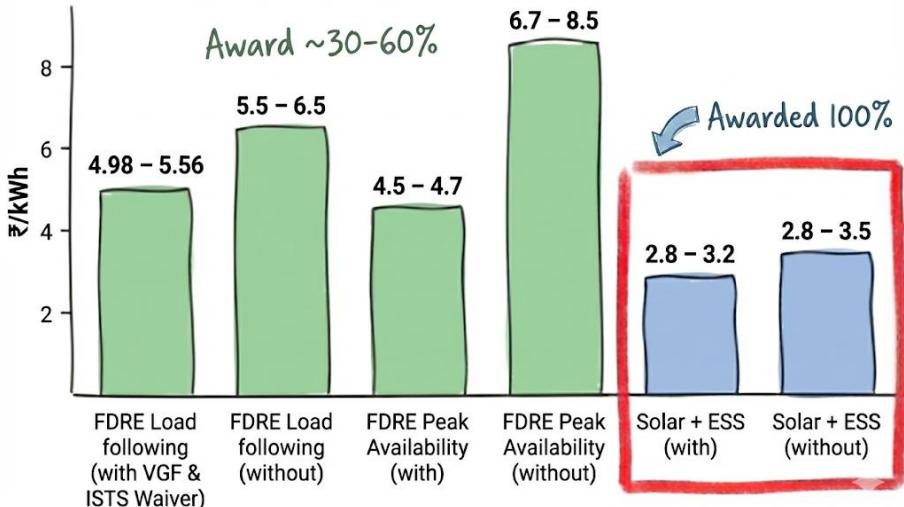
By Sudarshan Varadhan and Sethuraman N R

August 19, 2025 10:38 AM GMT+5:30 - Updated August 19, 2025

# 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%)

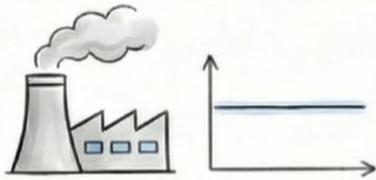
FY 2025



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

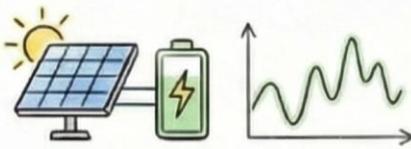
# The Reality Check

## NOT A THERMAL CLONE



Dispatchable / Controllable  
(Steady)

Full Capacity Credit



Solar + BESS  
(Variable)

exposed to Day-Ahead Volatility

## IRP CAPACITY CREDITS



Dispatchable Assets

Less credit due  
to lack of full  
dispatchability

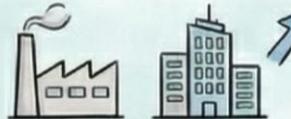


Solar + BESS

## 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

## GRID CHALLENGES

### Ramping



Steep Net Load Ramp,  
Solar Duck Curve

### Multi-Day Deficits



Prolonged Low Renewable/  
High Demand Periods

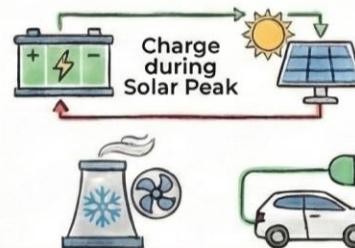
### Adequacy



Peak Demand Exceeds  
Available Supply

## DEMAND FLEXIBILITY SOLUTIONS

### FLEXIBILITY ASSETS



Smoothed Net Load

### INDUSTRIAL DEMAND SHIFTING



Demand Shifted  
to Solar Hours

Shift energy-intensive processes to coincide with high solar generation.

## HOW TO CULTIVATE



Establish VGF for  
Demand Flex



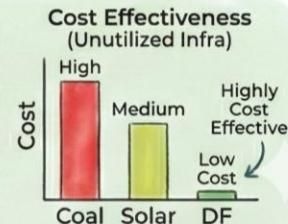
Create DPFO  
targets



Tenders for Solar  
+ Storage + DF



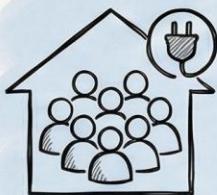
Create market  
for aggregators



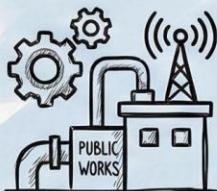
# DISCOM INITIATIVES & ENABLING REGULATIONS



## 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

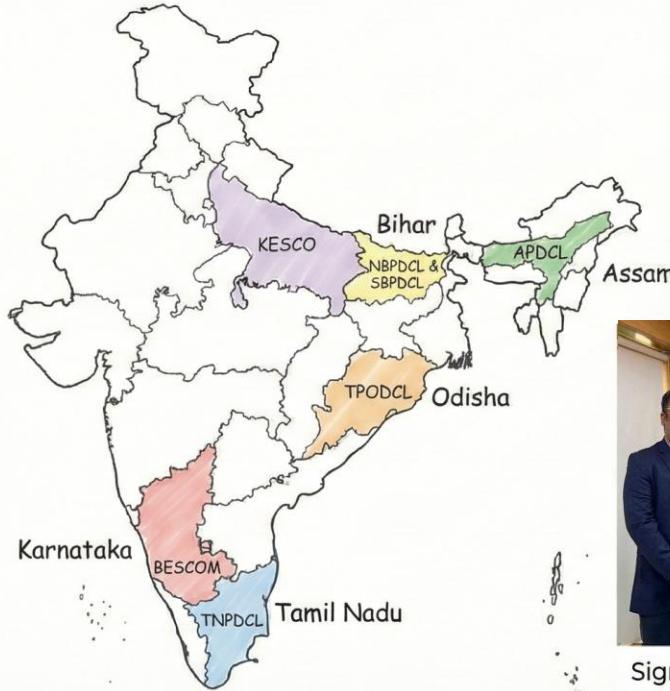


Aggregators:  
Appointed aggregators  
can implement program.

# Ongoing Demand Flexibility Initiative

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

## Participating DISCOMs & Collaboration



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

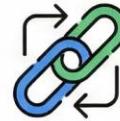


Signing of the collaboration agreement.

## 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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