Climate And Sustainability Initiative

India's Renewable Energy Trading Is Evolving. But can the markets keep up with the momentum?

As we race toward 500 GW of clean energy capacity by 2030, our power markets are struggling to keep up. In May 2025, something unprecedented happened: electricity prices crashed to nearly ₹0/MWh during peak solar hours.

Swipe to discover why India's green energy success story needs urgent market innovation. →

The Scale of Growth

The numbers behind India's renewable revolution
FY2025 additions:

- 23.8 GW of solar capacity
- 4.15 GW of wind power

Total non-fossil capacity: 228 GW

The challenge: Unlike coal plants that deliver predictable power, renewables depend on weather patterns that don't align with demand curves.

Solar peaks at midday when demand is moderate. Wind varies unpredictably. Traditional power markets weren't built for this reality.

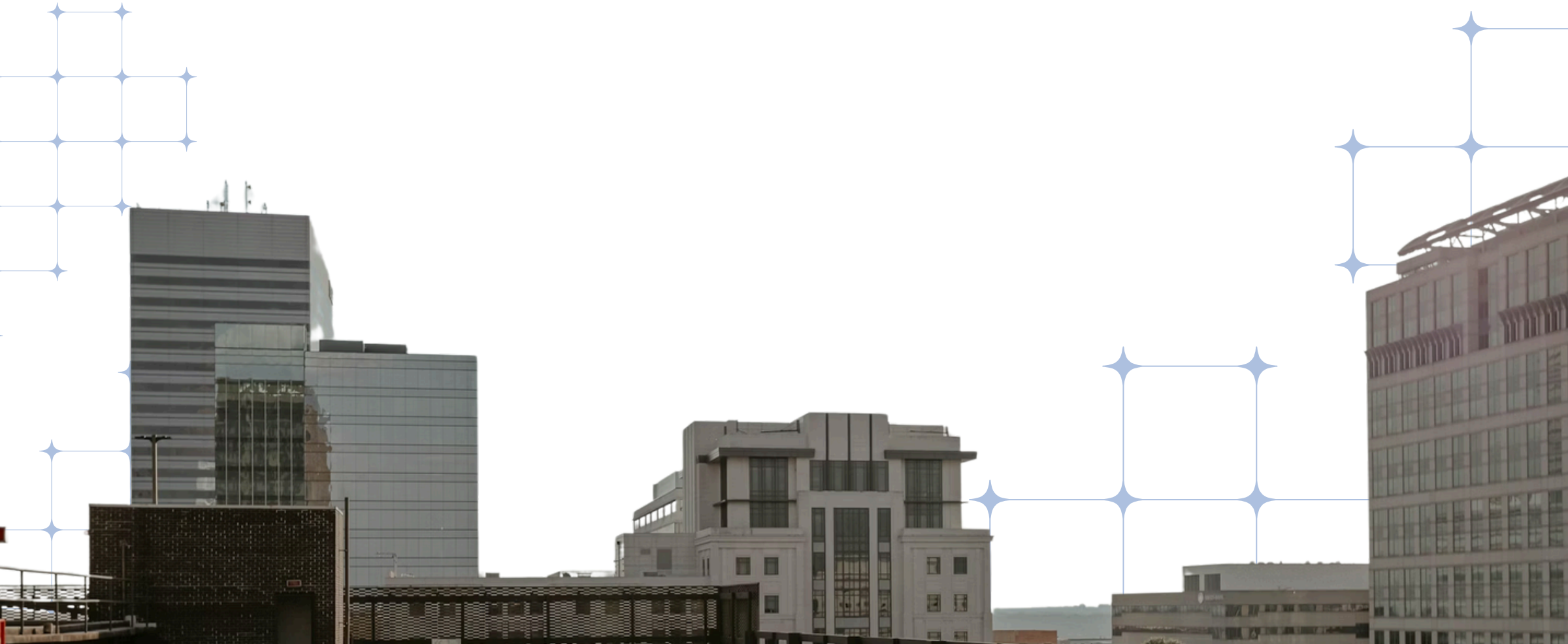
Market Evolution in Action

India's short-term power markets are adapting fast

2024-2025 Growth:

- Green Day-Ahead Market: +233% growth
- Real-Time Market: +29% growth
- Total electricity generation: +4% growth

Why this matters: RE-linked and time-sensitive trading is exploding, even as overall generation grows modestly. The market is desperately seeking flexibility.



But Volatility Is Showing

May 25 - June 1, 2025:

- Sale bids almost doubled vs. 2024
- Purchase bids fell by 5%
- Average price crashed from ₹4,618 to ₹2,531 per MWh
- Prices hit nearly ₹0/MWh during peak solar hours

The math: Sale bids reached 3.56 million MWh, but purchase bids were only 1.44 million MWh (just 41% of supply).

What the Data Warns Us

Even with rising renewables, **financial stability is not guaranteed**

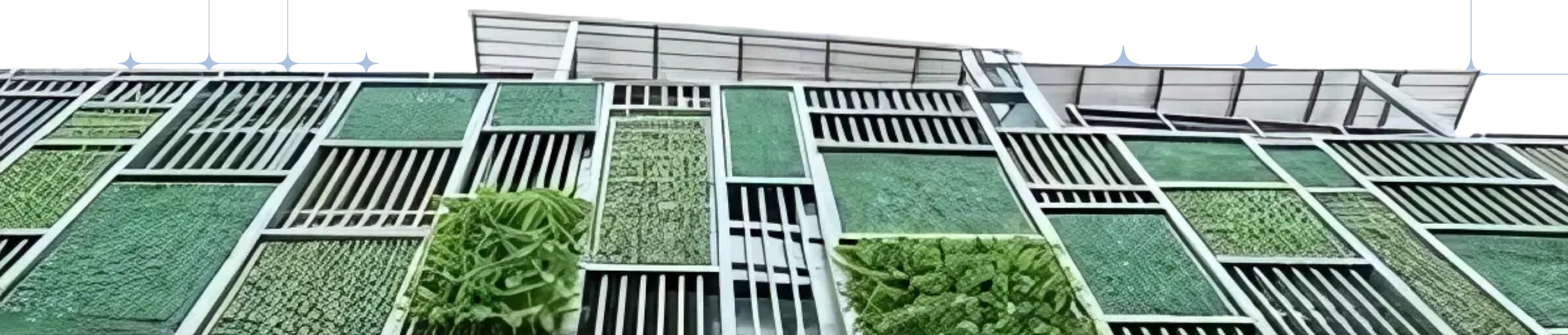
- From 8 AM–4 PM: Oversupply crashes prices
- After 6 PM: Prices spike as solar supply drops
- Flexible demand must catch up — or markets may become unviable

Meet the Green Real-Time Market (G-RTM)

IEX's proposed solution to the renewable trading crisis:

- **RE-only participation** - Dedicated space for clean energy
- **Bundled green attributes** - Power + green certificates together
- **Real-time responsiveness** - Hour-ahead scheduling for weather variability
- **RPO compliance** - Purchases count toward renewable obligations

The promise: Better price discovery and value realization for renewable energy.



Why Market Design Matters Now

With new tenders under India’s FDRE (Firm & Dispatchable RE) framework...

→ Excess generation is expected
→ Projects will rely on short-term market sales

Green-RTM may become **critical to RE project viability**

What This Means for India's Energy Future

Three key takeaways

1. Speed ≠ Stability

Adding 28 GW of renewables annually is impressive, but markets must evolve just as fast.

2. Innovation is survival

G-RTM represents the kind of adaptive thinking India's energy transition demands.

3. The next frontier: Demand flexibility

Supply-side innovation alone won't solve the puzzle. We need responsive, intelligent demand.

The bottom line: India's renewable success story is writing new rules for power markets worldwide.

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The conversation India's energy sector needs to have

As we sprint toward 2030 targets, are we building the market infrastructure to support 500 GW of renewables?

Questions for the community:

- How can we create more flexible electricity demand?
- What role should storage play in market design?
- Are current market mechanisms ready for a renewable-dominant grid?

Read our full analysis in our latest blog

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