



Power Markets

Ravi Seth

Vice President, IEX

July 2025

Evolution of Power Markets

Market

*“A market is one of the many varieties of systems, institutions, procedures, social relations and infrastructures whereby parties engage in **exchange**” (Wikipedia)*

- While parties may exchange goods and services by barter, most markets rely on sellers offering their goods or services (including labor) in exchange for money from buyers
- It can be said that a market is the process by which the prices of goods and services are established



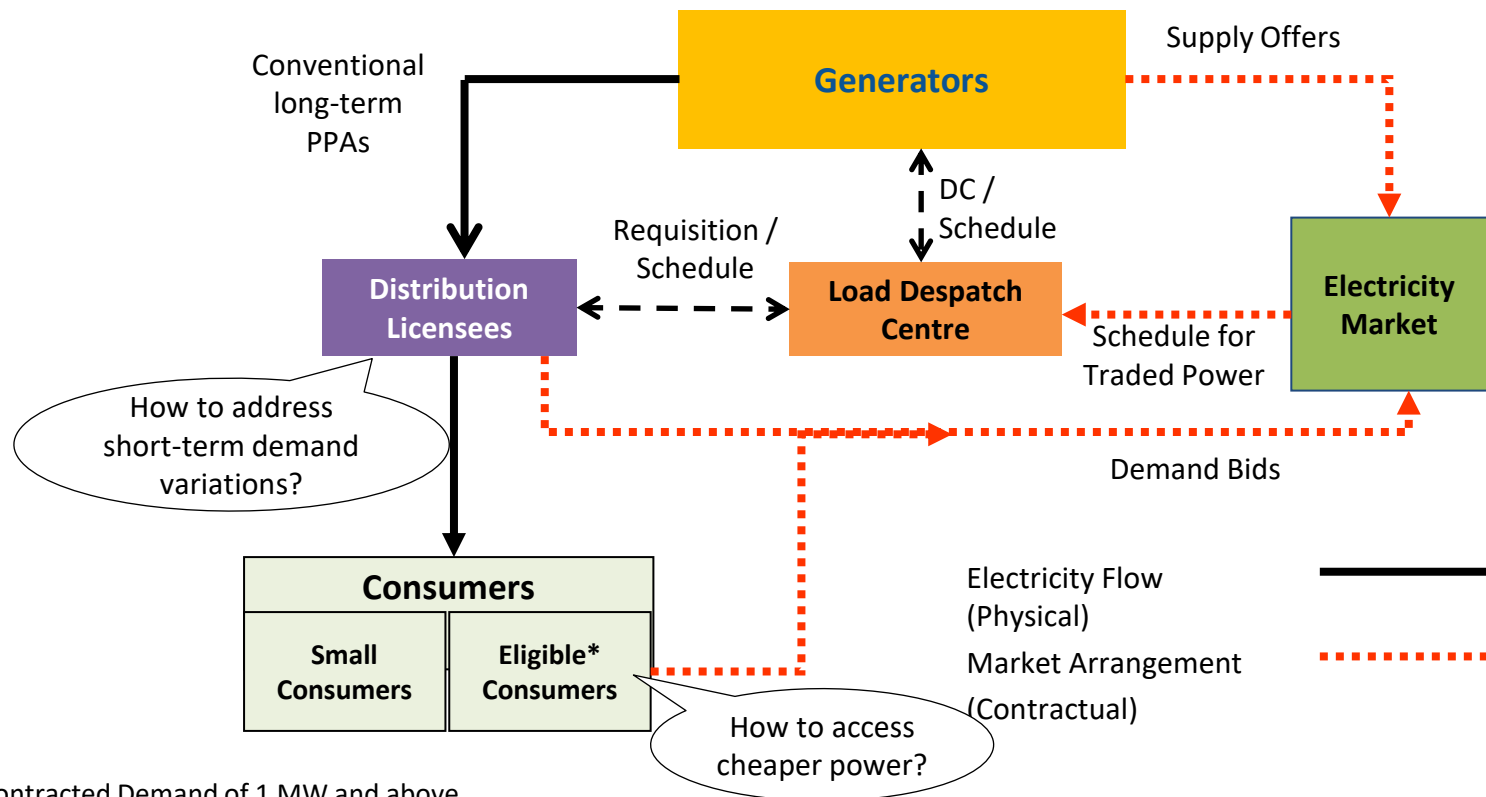
Power Market

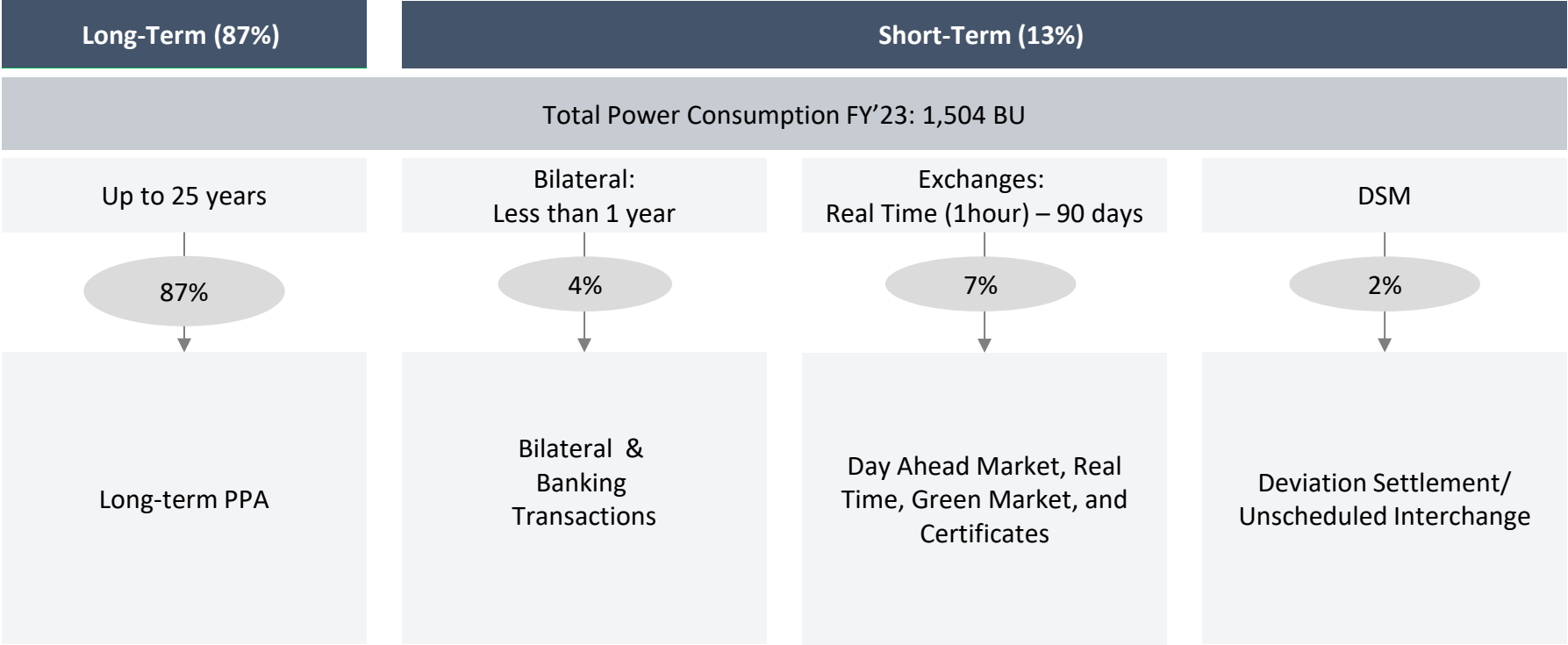
*“Power market is a system for effecting **purchases**, through bids to buy; **sales**, through offers to sell; and short-term trades, generally in the form of **financial** or **obligation swaps**” (Wikipedia)*

- Electricity as a commodity
 - being bought, sold and traded
 - no defined delivery path
 - follow laws of physics
 - demand-supply balancing in real time



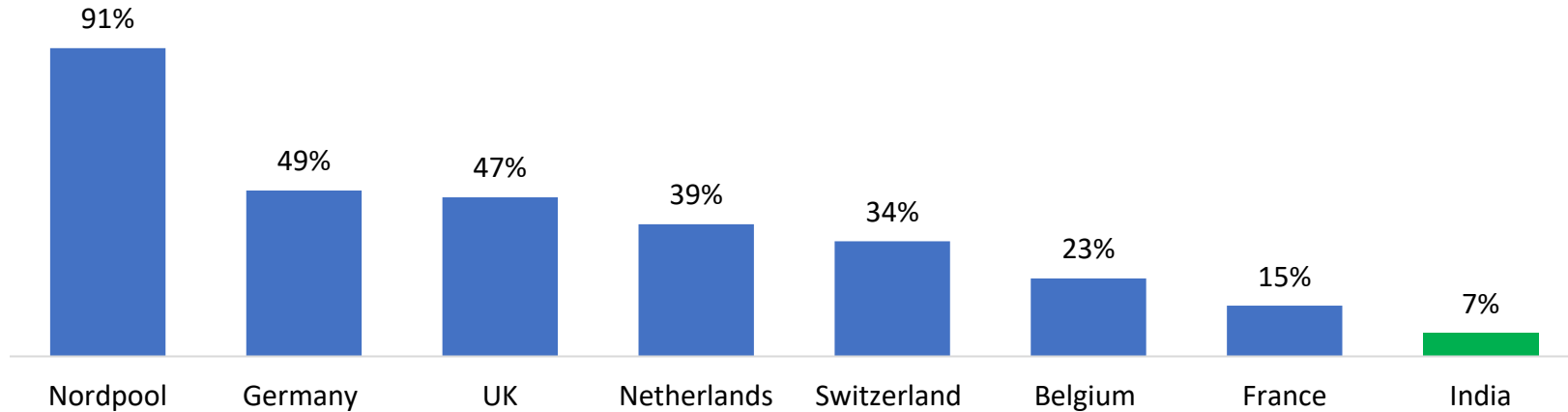
Evolution of Power Market Framework





Source: CERC MMR Report till March'23

Immense Potential to Deepen India's Power Market



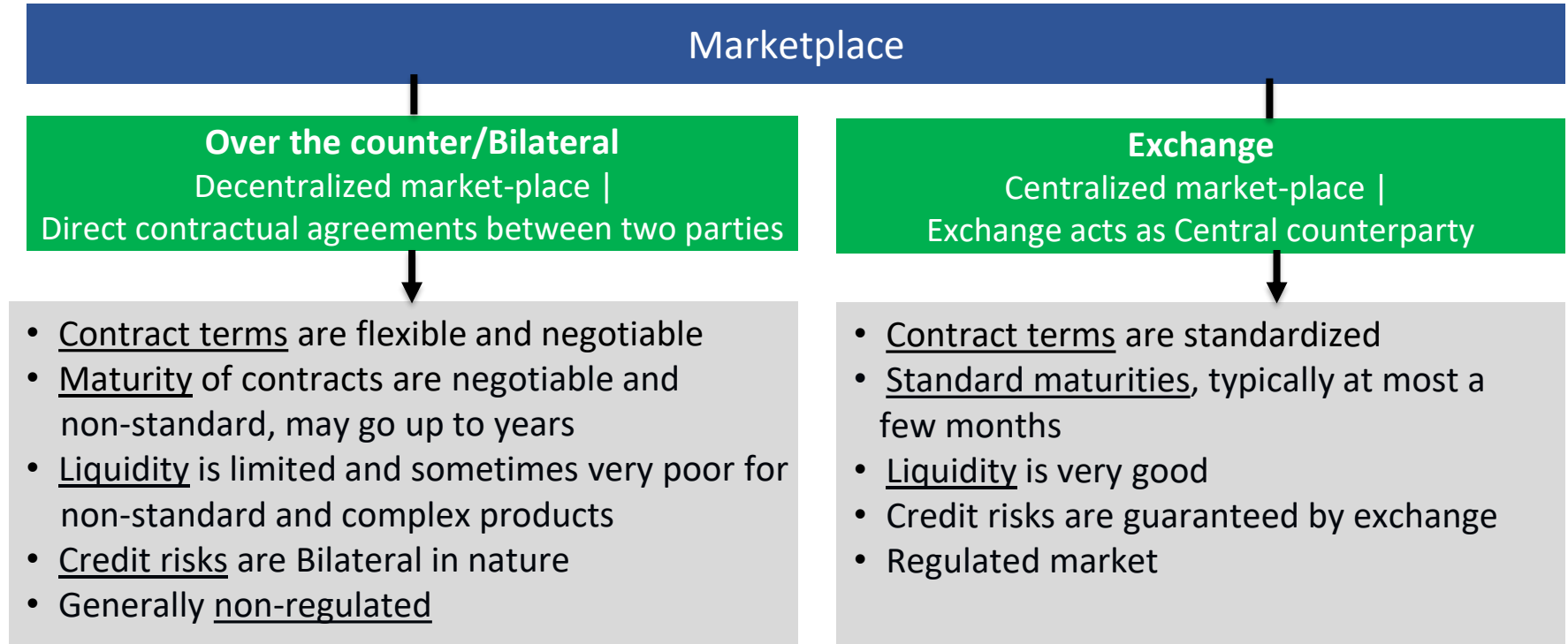
Note: Data for India till Mar'23

Source: CRISIL Study

Markets are in the range of 30-80% in developed economies.

At 7%, India has an opportunity to deepen the power market.

Marketplace: OTC and Exchange



Understanding Exchanges



Neutral Trade Platform

No influence on *price determination*



Participation in bilateral or the Power Exchanges is *purely voluntary*



Competitive and anonymous

Buy & Sell *independent of one another*



Regulated Platform

Managed under the *oversight of CERC*



Risks Management with standardised contracts

Exchange as *counterparty*



Operates on **inherent transmission margins**

Transparent & public upfront

Delivery based and Financial Exchange(s)

Delivery based Exchanges

- Physical transfer of the commodity (NTSD)
- Commodities like Electricity and Gas are traded
- Products:
 - Spot - Immediate Delivery
 - Forward - Delivery at some point in future

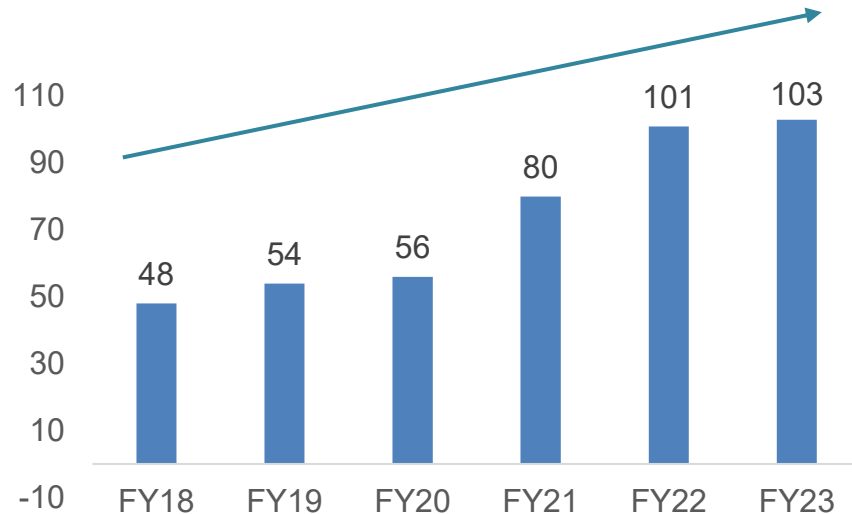
Financial Exchanges

- Contracts closed out in cash prior to delivery; delivery is optional
- Securities, derivatives, commodities and other financial instruments are traded.
- Products: Spot, Futures and Options

Exchange Markets Growth

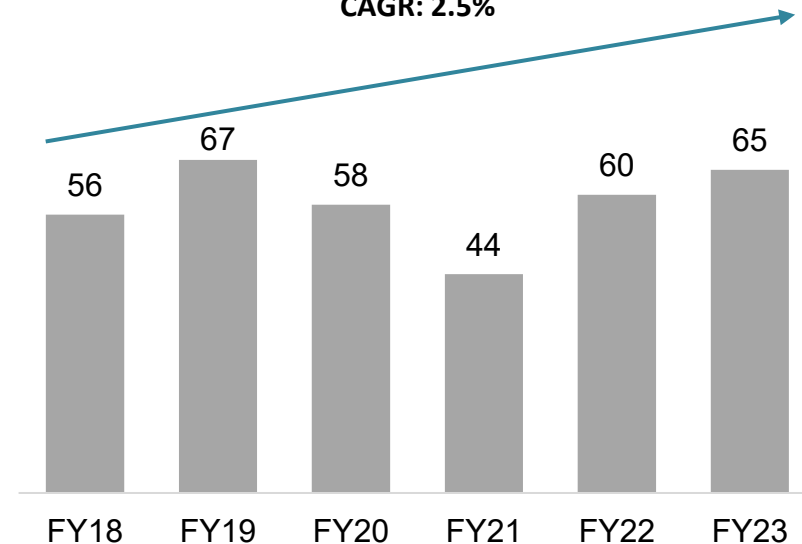
Exchanges (BU)

CAGR: 14%



Bilatéral (BU)

CAGR: 2.5%



Source: CERC, MMR Reports till Mar 23

- Driven by competition and flexible procurement, the Exchange markets constitute >50% of the ST power market.
- The country's demand has grown 5%, and procurement from Exchanges have grown 14%.

Overview to IEX

India's premier technology-led energy marketplace



- Nation wide, automated and transparent trading platform for physical delivery of electricity, renewables & certificates
- Commenced operations in 2008; CERC regulated
- Publicly listed company – 2017 (NSE and BSE)
- ISO 9001:2015, ISO 27001:2013, ISO 14001:2015
- Market Share incl DAM & RTM is ~100%
- **IEX is on the Board of Association of Power Exchanges (APEX) where 40 Global exchanges are members**
- **IEX has diversified into Gas Exchange (IGX)**
- **IEX is member of 13 State Regulatory Commission advisory committees.**

Robust Ecosystem

7000+

Registered participants

4500+

Commercial & Industries

1500+

RE Generators & Obligated Entities

600+

Generators

55+

Discoms (all)

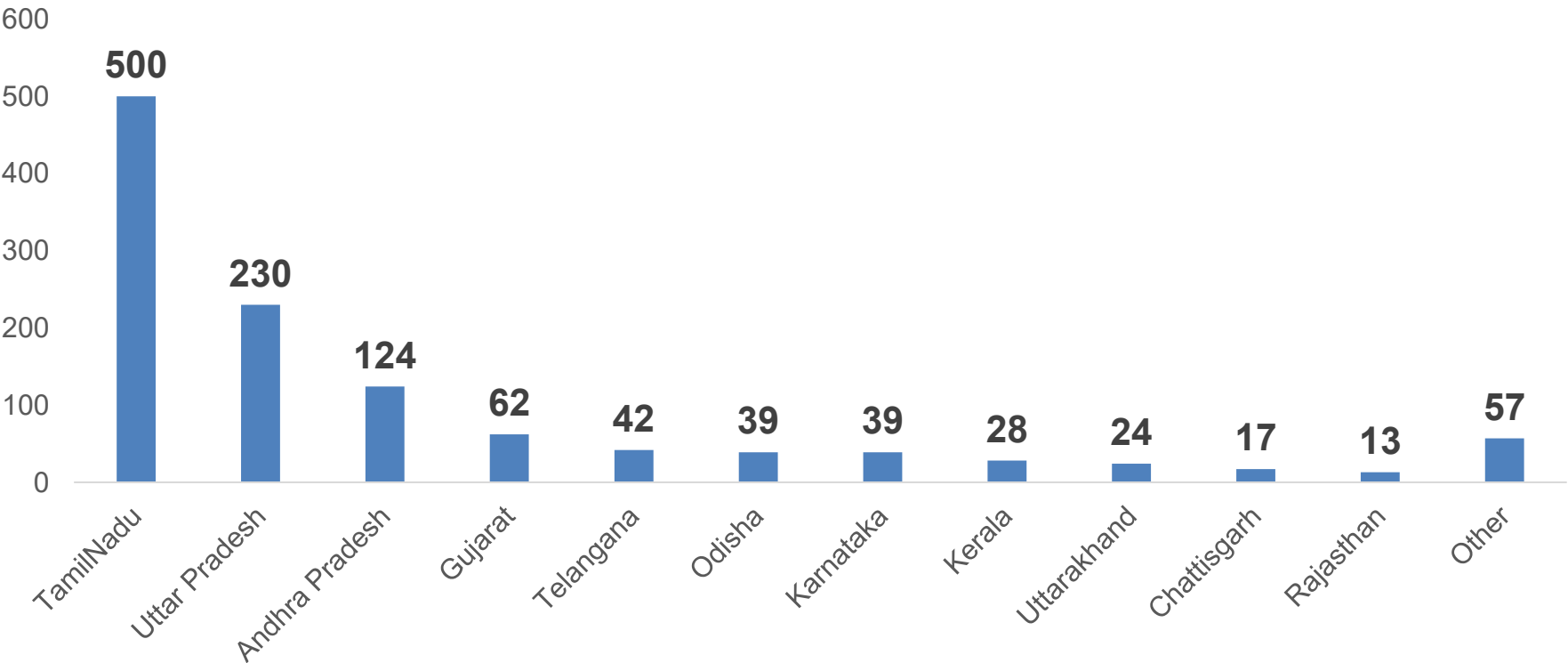
100+

ESCert Entities

Leading the future of energy with innovation and technology

Open Access Consumers: Retail Market

No. of OA Consumers



Existing Products & Auction Mechanism



- Integrated DAM - *Closed double sided auction*
 - **G-DAM**
 - DAM (includes Cross Border Trade)
 - High Price DAM
- Real-Time Market (RTM) - *Closed double sided auction*
- Intraday Market (Conv., HP ITD & **Green**) – *Continuous matching*
- Day Ahead Contingency (Conv., HP DAC & **Green**) – *Continuous matching*
- TAM, HP-TAM & **Green TAM (up to 3 Months)**
 - Daily, Weekly, Monthly – *Uniform price step auction*
 - Any Day Single-Sided Contract (Conv. & **Green**) – *Reverse auction*
- Tertiary Reserve Ancillary Services (TRAS): AS-DAM & AS-RTM
- **Certificates: RECs & ESCerts** – *Closed double sided auction*
- **IEX filed petition with CERC in Nov 23 for approval of TAM Contracts for delivery upto 11 months**
- **IEX filed petition with CERC in July-24 for approval of Green RTM market**

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IEX: Robust and Secure Platform



- **Implemented best in class Security Solutions:**
 - For Cyber security - Firewall, Data Leakage Protection, Monitoring, Threat Protection, Access Control etc.
 - Market Participants get a safe and secure experience
 - Best-in-class cyber security solutions has ensured not a single security breach incident in last 15+ years of operations.
- **High Availability:**
 - Working towards continuous design and architecture level improvements
 - Build Redundancy at Software, Database, Technology Hardware, and Network Connectivity level
 - Achieved 99.97% availability even for RTM that requires 48 bidding sessions in a day
 - Achieved 100% availability for all other product segments
- **Business Continuity:**
 - Implemented seamless and automated process for over from our Data Center (DC) based in Delhi to our Disaster Recovery (DR) based in Mumbai to ensure un-interrupted Bidding experience.

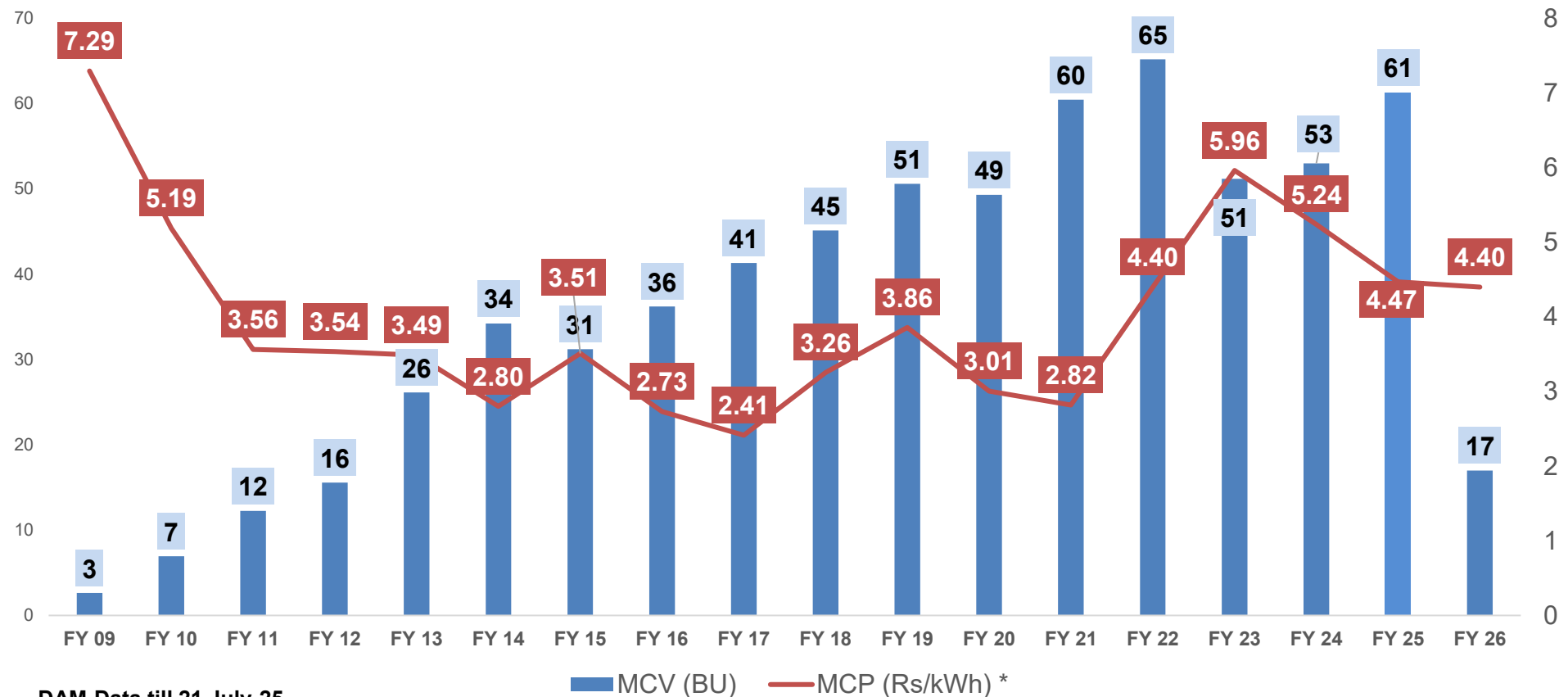
IEX: Key Customer Centric Activities



- **Web-Portal “EnergX”:** Web-portal provides following Anytime, Anywhere, Easy, and Secure features to our Customers
 - Web-based Bidding across all Electricity market segments – 60 out of 70 Members are already using
 - Digital On-boarding of Clients
 - Easy Financial Reconciliation
 - **Deep Data Insights** – market volume/ price trends, demand & generation trends, weather etc
- **Automated Bidding through Application Programming Interface (API)**
 - More than 10 Members (including 5 large Discoms) have done integration with IEX API
 - Other API’s for I-DAM, REC, ESCerts, and TRAS will also be Live by 31st December 2023
- **Online Financial Settlement:** We have achieved this through Integration with systems of Clearing Banks and Internal Process Automation

Short Term Power Market Trends

Yearly DAM Snapshot

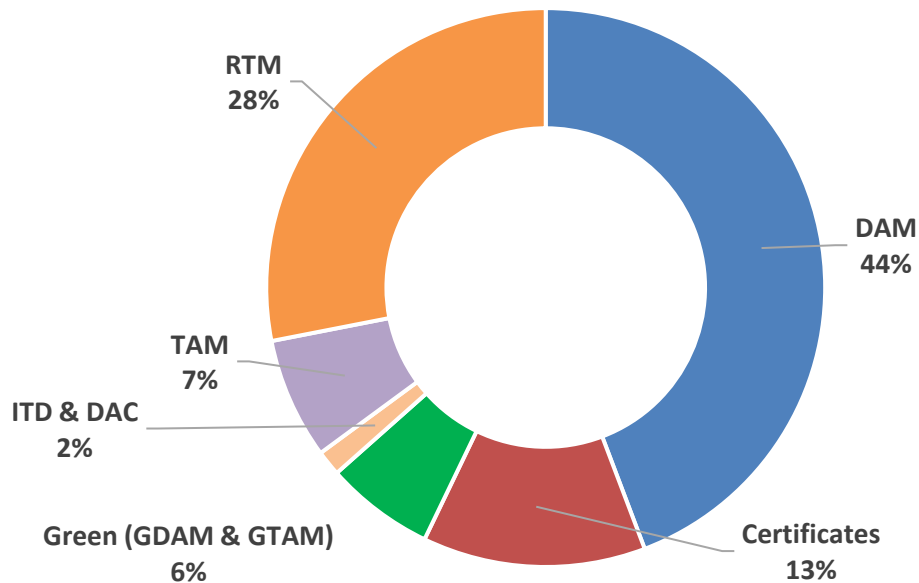


DAM Data till 21 July-25

IEX Product Mix

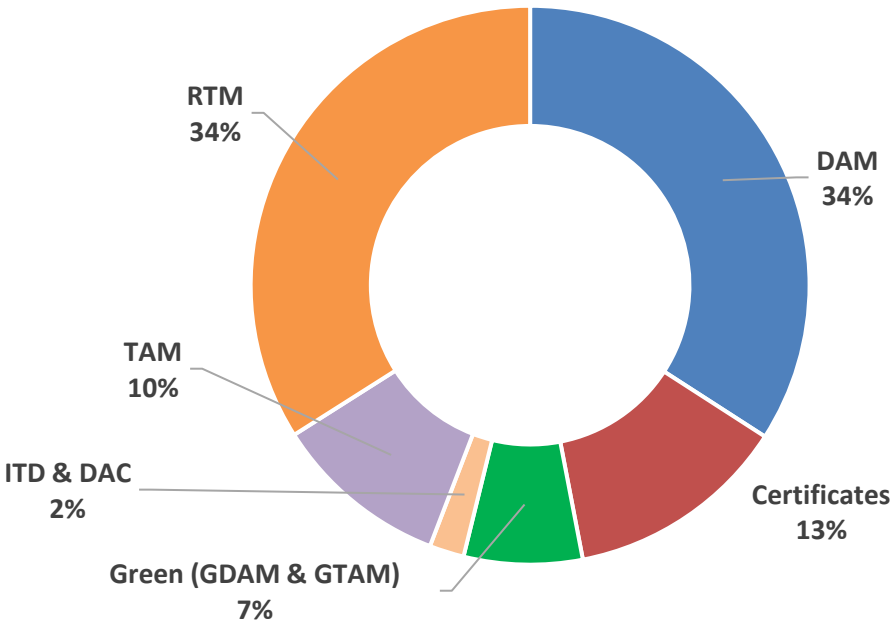


FY 25



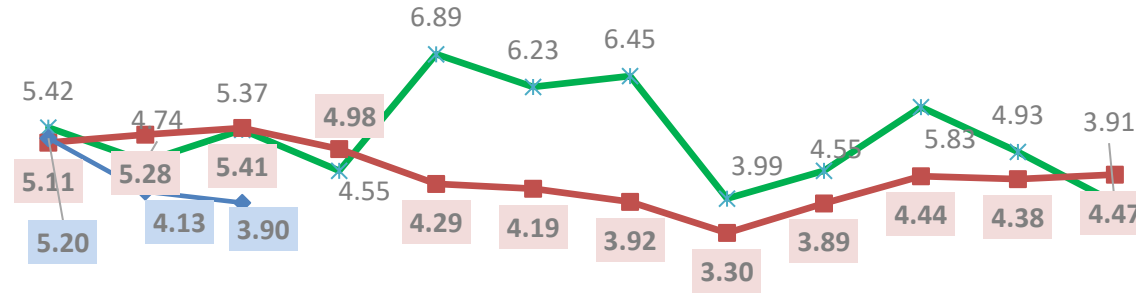
Total Volume: 139 BU

FY 26

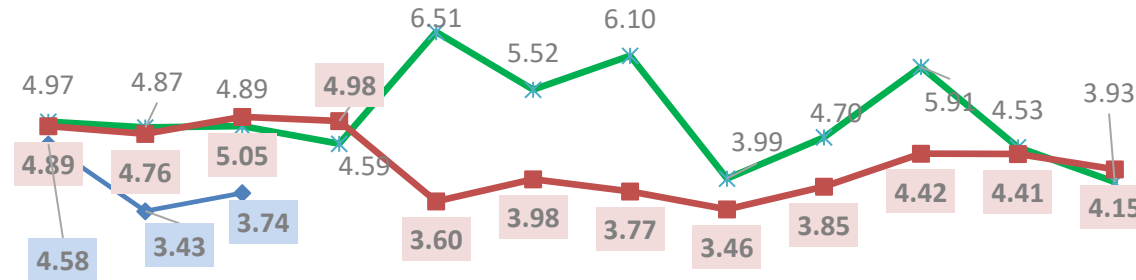


Total Volume: 48 BU

Price Trends (Rs./kWh) in DAM & RTM



DAM : FY-24: 5.24 | FY-25: 4.47 | FY-26: 4.41



RTM : FY-24: 5.04 | FY-25: 4.28 | FY-26: 3.92

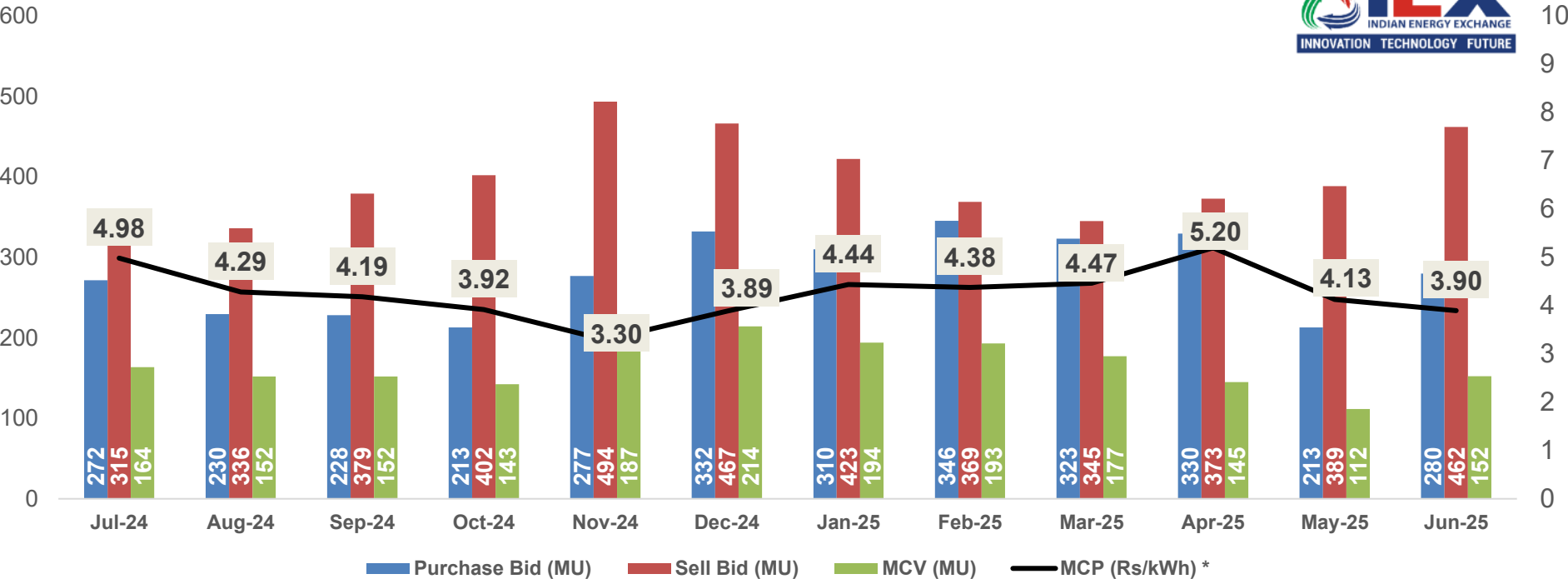
DAM:

- Sell bids ↑ 36% YoY
- Cleared volumes ↑ 15%
- Market Clearing Price ↓ 15%
- Higher supply led to price correction

RTM:

- Sell bids ↑ 56%
- Cleared volumes ↑ 29%
- Despite 2% dip in purchase bids, MCP ↓ 15%
- Strong supply-side liquidity and price efficiency

Monthly DAM Market Snapshot



- Significant sell-side volume was available in most months, indicating robust supply participation and a consistently liquid market environment.
- Market Volume varied through the year — highest at 214 MUs in Dec 2024, lowest at 112 MUs in May 2025 — reflecting month-to-month shifts in demand-supply balance.
- DAM Price ranged from ₹3.30/kWh (Nov 2024) to ₹5.20/kWh (Apr 2025), driven by seasonal demand and supply shifts..

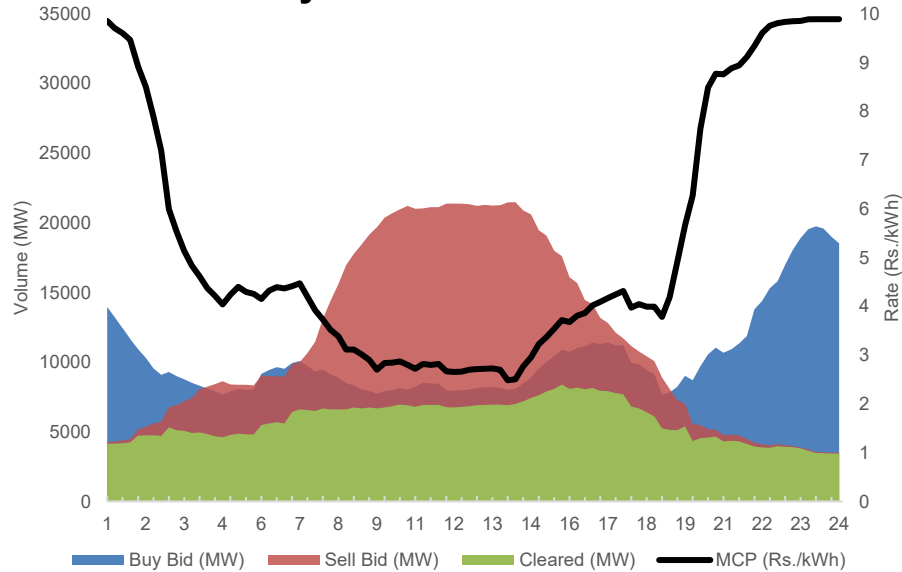
Supply-Side Trends & Market Movements (FY'24–FY'26)



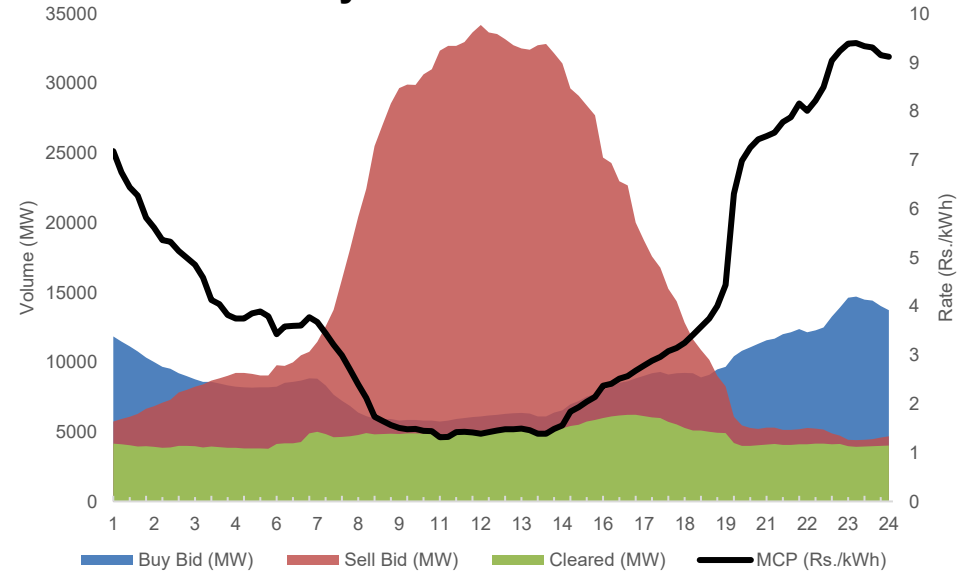
- **Renewable Surge:**
 - Installed capacity addition of 28 GW (24 GW Solar + 4 GW Wind) in FY 25 led to surplus sell availability, boosting market liquidity and price competitiveness
- **Government Initiative:**
 - Generators mandated to sell URS power on power exchanges, **URS power in the DAM & RTM market ~100 MU/Day**
 - During critical summer “**Crunch Days**,” government mandated imported coal and gas-based plants to sell power on exchanges under Section 11, with gas plants specifically utilized to meet peak hour demand.
- **Fuel & Operational Efficiency:**
 - India’s coal stock at 23 days in May 2025, with total production rising 2.83% YoY to 86.34 MT, driven by strong growth from Captive/Others (23.15%) and SCCL (1.62%)
- **Falling Market Prices:**
 - Weather impact → lower DAM & RTM prices
 - RTM fell < ₹1/kWh (morning/day hours) → cost-saving for Discoms

DAM Snapshot for Month of May

May-24 MCP Rs. 5.28/kWh



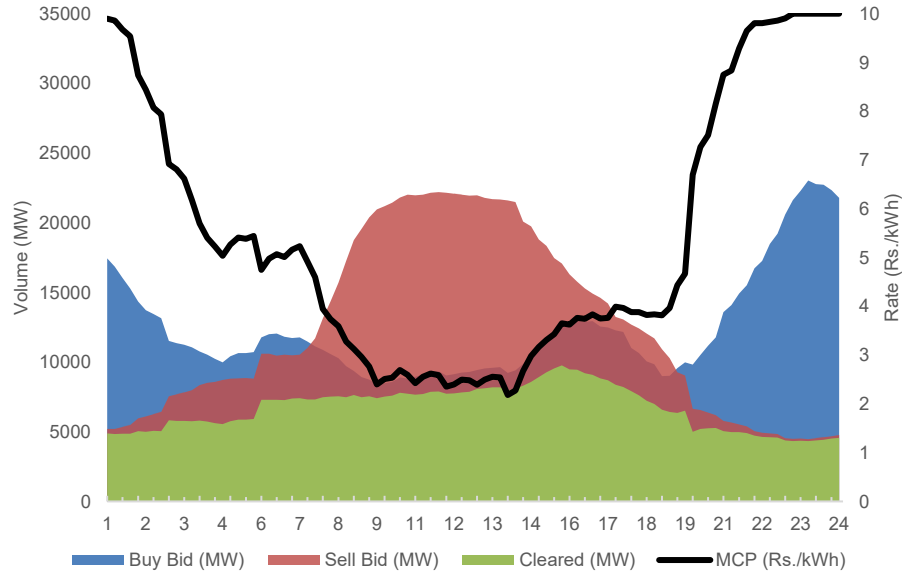
May-25 MCP Rs. 4.13/kWh



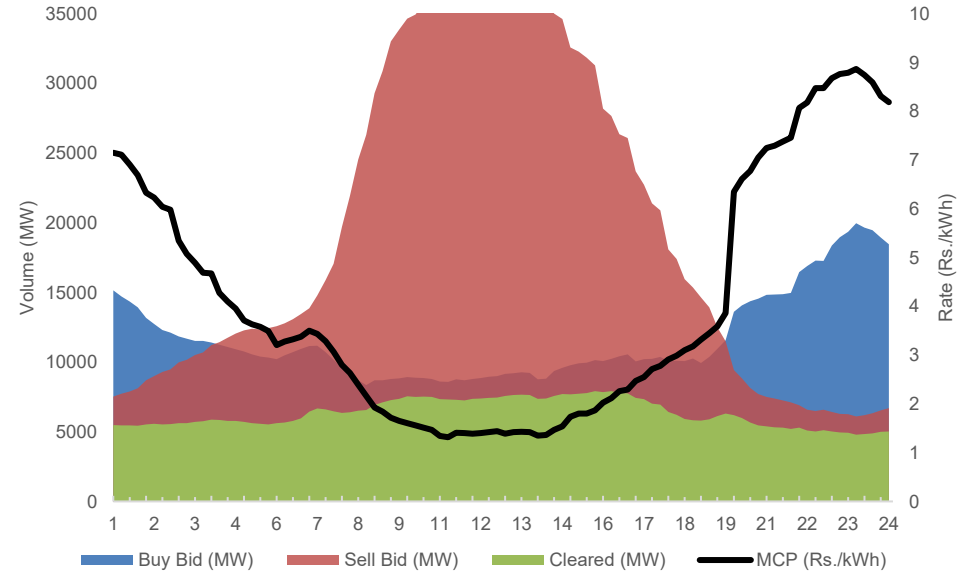
- DAM prices decreased from Rs. 5.28/kWh to Rs.4.13/kWh for the month of May, due to weather disturbance and high wind
- Sell Bid increased by 40% YoY for the month of May

DAM Snapshot for Month of June

June-24 MCP Rs. 5.41/kWh

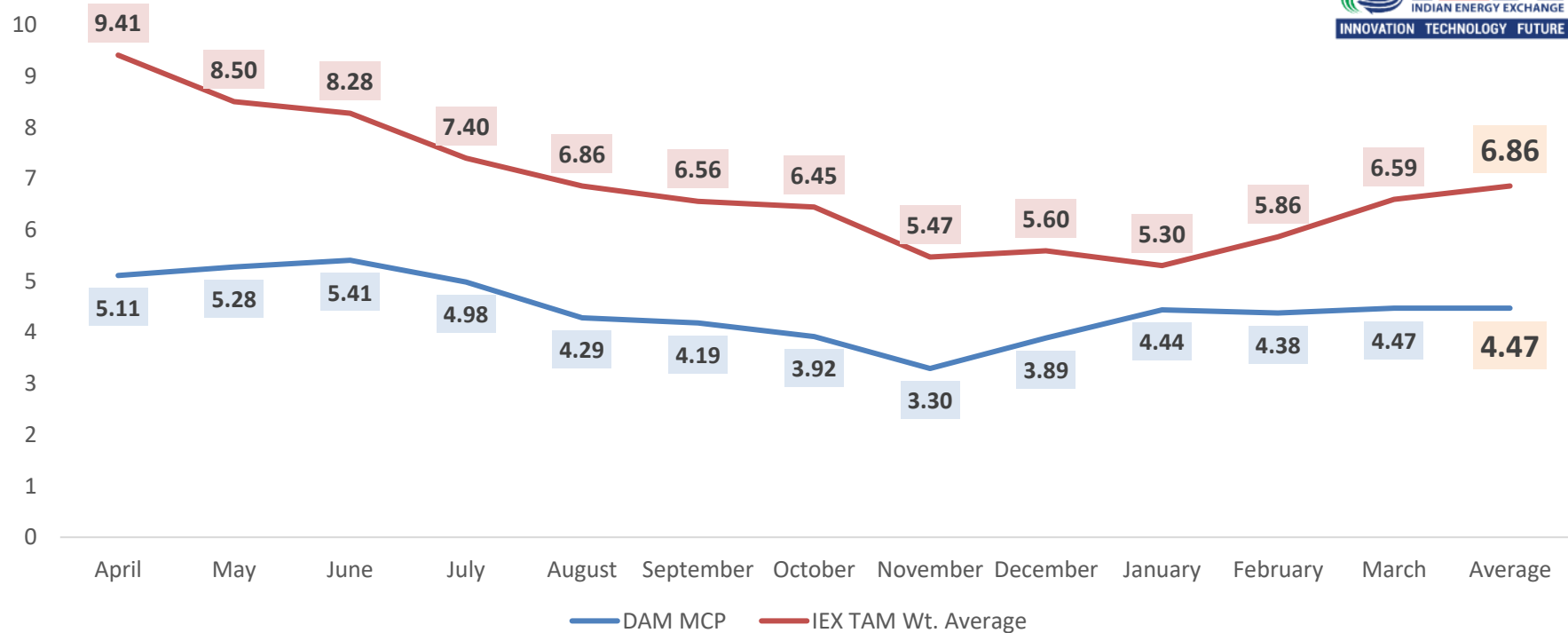


June-25 MCP Rs. 3.90/kWh



- DAM prices decreased from Rs. 5.41/kWh to Rs.3.90/kWh for the month of June, due to weather disturbance and high wind
- Sell Bid increased by 62% YoY for the month of June

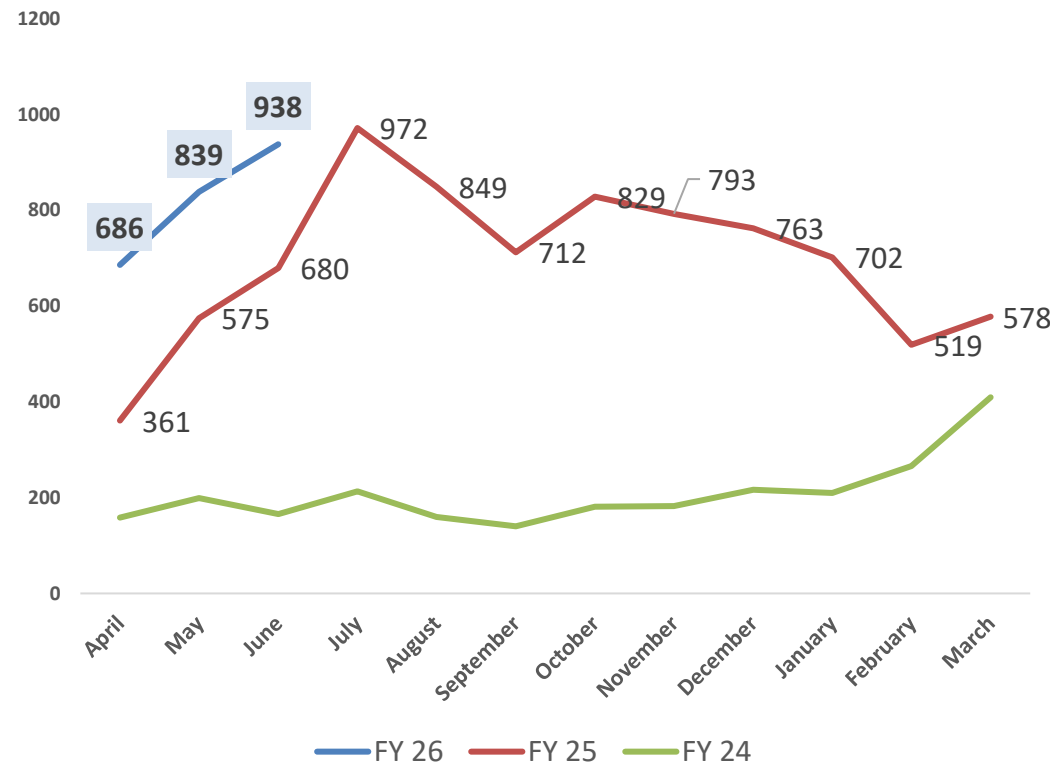
Price Differential Analysis: TAM vs DAM



- DAM Prices are approximately 34% lower than prices in TAM Market segment, indicating a cost premium for bilateral procurement.
- Non-collective volume of 35 BU have consistently higher prices as against Collective (DAM+RTM) Volume of ~110 BU

Green Market Momentum: GDAM Liquidity on the Rise

GDAM Volume Increased by 233% YoY in FY 25



- **Cumulative Impact:**
GDAM volume soared to 8.3 BU in FY25 from 2.5 BU in FY24. Early FY26 momentum remains strong, with 2.5 BU traded in Q1 alone.
- **Record RE Addition:**
28 GW of RE addition in FY 25 is expected to lead higher volume in monsoon months, following last year's trend.
- GDAM volumes have increased by 56% in FY26 Q1 to 2.5 BU from 1.6 BU in FY25 Q1.
- GDAM volumes surged, signaling accelerated green market adoption driven by supportive policies and increased stakeholder participation.

Thank you



@IndianEnergy
ExchangeLtdIEX



@IEX_India_



@indian-energy
-exchange-limited



0120-4648100



Email: contact@iexindia.com



Website: www.iexindia.com