



**Dated: August 28, 2019**

**The Manager  
BSE Limited  
Corporate Relationship Department  
Phiroze Jeejeebhoy Towers  
Dalal Street  
Mumbai- 400001**

**The Manager  
National Stock Exchange of India Ltd  
Listing Department  
Exchange Plaza, 5<sup>th</sup> Floor, Plot no C/1  
G Block, Bandra Kurla Complex  
Bandra (E), Mumbai-400 051**

**Scrip Code: BSE- 540750; NSE- IEX**

**Subject: Investors Presentation Q1 FY 2020**

Dear Sir / Madam,

Pursuant to Regulation 30 of the SEBI (LODR) Regulations, 2015, please find attached Investor Presentation Q1 FY 2020.

This is for your information and records.

Thanking You

Yours faithfully,

For **Indian Energy Exchange Limited**

**Vineet Harlalka  
Company Secretary & Compliance Officer**



Encl: as above

# Investor Presentation

## Q1 FY 2020

- 1 India's economic roadmap
- 2 Electricity will drive Indian economic growth
- 3 Power shift
- 4 Power markets – imperative to realize GOI vision
  - Current power market structure
  - About IEX
  - Way forward
  - Financial Performance
- 5 Summary



**Economic Roadmap**

The background features a collage of financial and economic symbols. On the left, there are several tall stacks of silver coins. In the center and right, there are glowing blue bar charts and line graphs overlaid on a blurred cityscape at night. The overall color palette is dominated by blues and greys, with a white rounded rectangle containing the title text.

- India's GDP is projected at 6.9% for FY'20
- Government envisions India as a \$5tn economy by FY'25
- India to surpass Japan to become the third largest economy by 2025
- Education, Healthcare, Agriculture to the key growth pillars
- 17 of 20 world's fastest growing cities in India





**Electricity will drive Indian economic growth**

- India is:
  - 3rd largest consumer of electricity
  - 3rd largest producer of electricity; and
  - 5th largest in the world in RE capacity<sup>1</sup>
- Make in India targets manufacturing to contribute 25% to GDP
- Industries consume 42% of total electricity
- Agriculture and domestic consume 18% and 24% respectively<sup>2</sup>

Contribution to GDP % <sup>2</sup>	FY'19 (%)
Agriculture, forestry & fishing	16.1
Mining & quarrying	2.4
Manufacturing	16.4
Construction	8.0
Services	57.1

Sectors	Power and fuel costs as a % revenues <sup>3</sup>
Utilities	44%
Communication Services	38%
Materials	17%
Industrials	14%
Consumer Discretionary	11%

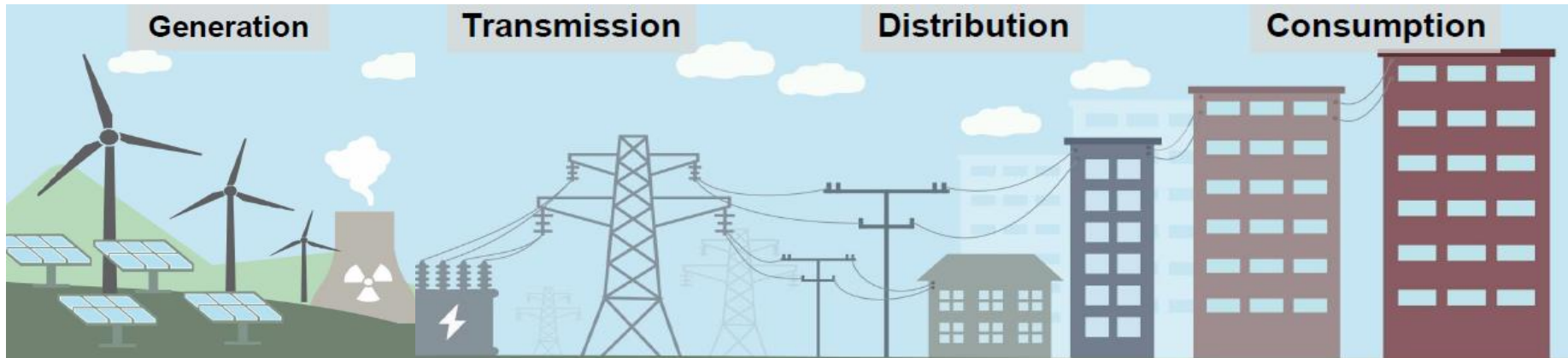
1. MoP – 5 year vision document for power sector; 2. MOSPI; CEIC; 3. Company reports; CMIE; defined as per GICS classification



**Power sector shift**



# Electricity value chain



## Generation De-licensed

Private sector accounts for 46% of the installed capacity

## Transmission is licensed

Single largest integrated network in the world

Pvt sector account for 8% of network

## Distribution is licensed

Financial losses of state DISCOMs at 1.6bn pounds (FY'18)

Persistent AT&C Losses

Distribution and supply business is combined

Energy deficit decreased from 10% to 0.7% over the last decade

# Government envisions power for all



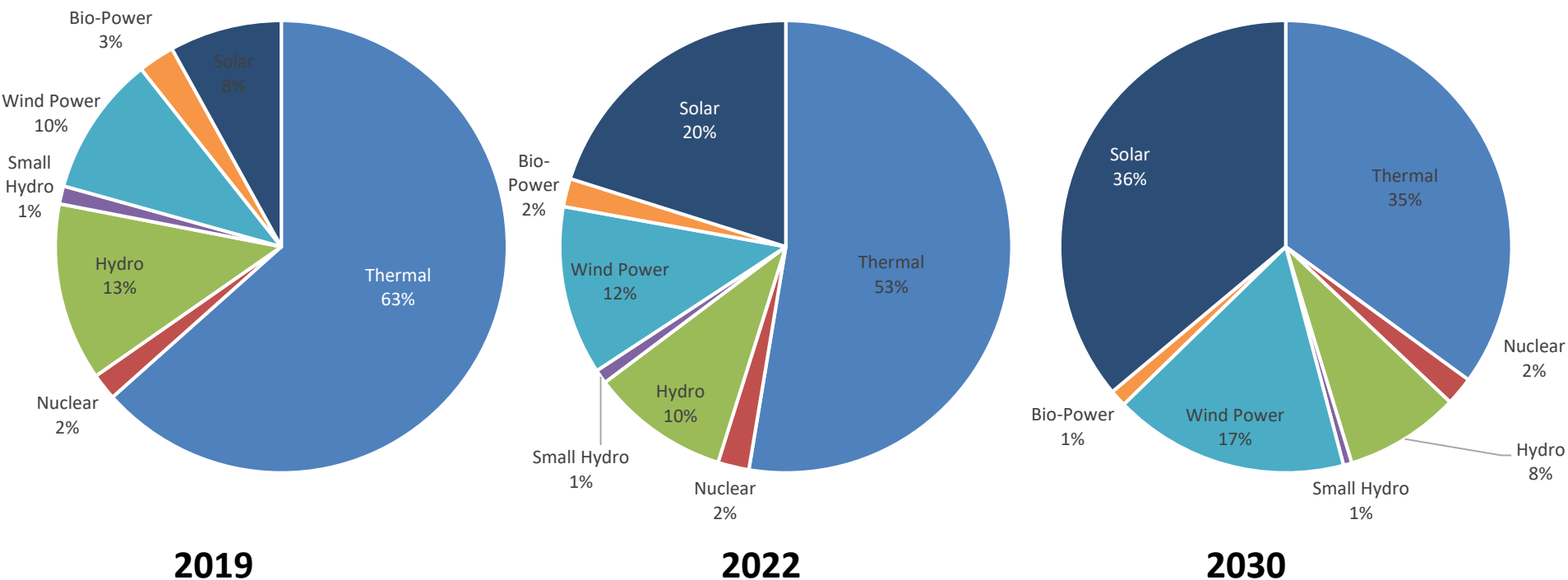
Availability

Accessibility

Affordability

# Shift towards renewable energy

**Paris Climate Agreement – Renewable energy to constitute 40% of total installed capacity base of 1250 GW**



Changing Installed Capacity Mix – Increasing reliance on RE

## Decarbonization



- The rapid deployment of low-carbon technologies such as wind and solar.
- **Outlook:**
  - Renewables will become leading energy sources
  - New technologies like hybrid would emerge in future depending on local characteristics and specific financial incentives.

## Decentralization



- The distribution of small-scale generation throughout the T&D network.
- **Outlook:**
  - RE in general will pose a threat to centralized energy production paradigm.
  - Need for local solutions will increase

## Digitization



- The addition of intelligent control systems and internet-enabled software to optimize plants and the grid.
- **Outlook:**
  - Aggregation (DR, VPP) would emerge with the adoption of new digital technologies.

## Democratization

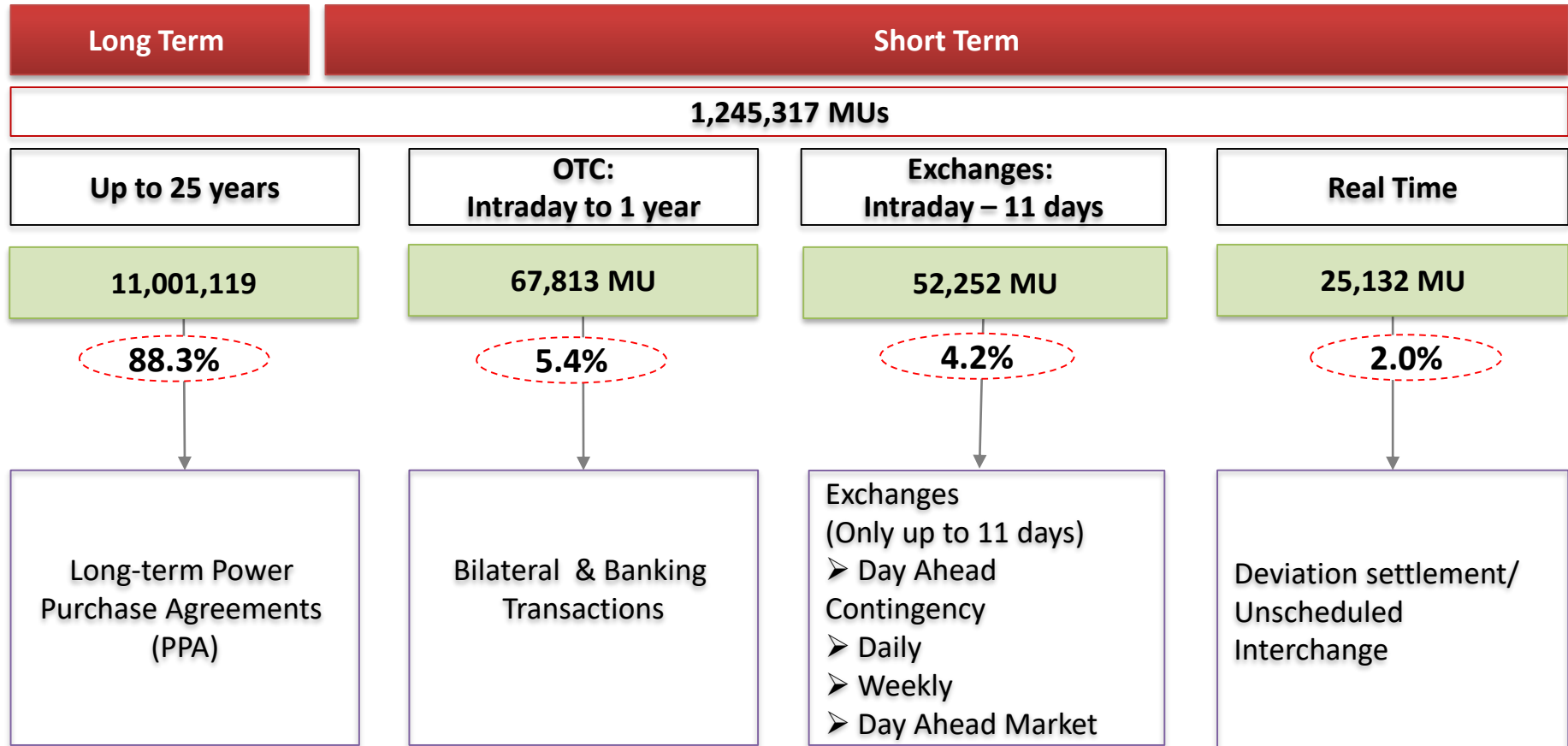


- The empowerment of consumers by putting of economic power in the hands of individuals and taking some political power away from large corporations.
- **Outlook:**
  - Energy trading between consumers



**Power markets – imperative to realize GOI vision**

# Power market structure





## Growing demand for electricity

- Vision to provide electricity to all (Availability, Accessibility, Affordability)
- Power on 24x7 basis
- Economy growth - \$ 2.7tn to \$ 5tn by FY 2025
- Rapid Urbanization and
- Smart Cities
- Electric Mobility
- Sustainability - Paris Climate Agreement

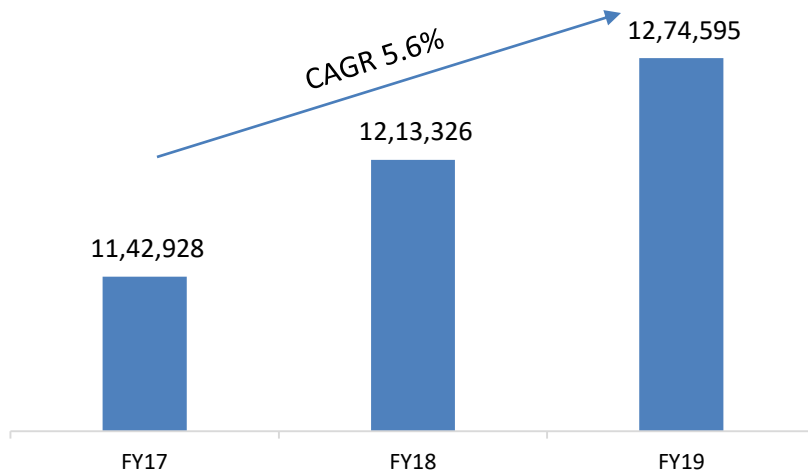
## Enabling Policy and Regulatory framework

- MoP 5 year vision document emphasizes on deepening the power market
- Emerging framework
  - Real Time Electricity Market and National Open Access Registry
  - Domestic Coal Allocation
  - Phasing out of Old plants
  - Cross Border Trade
  - Long Duration Contracts
  - Green Market
- Uday 2.0 - DISCOM financial repair
- Barriers to open access to be addressed through tariff policy amendments

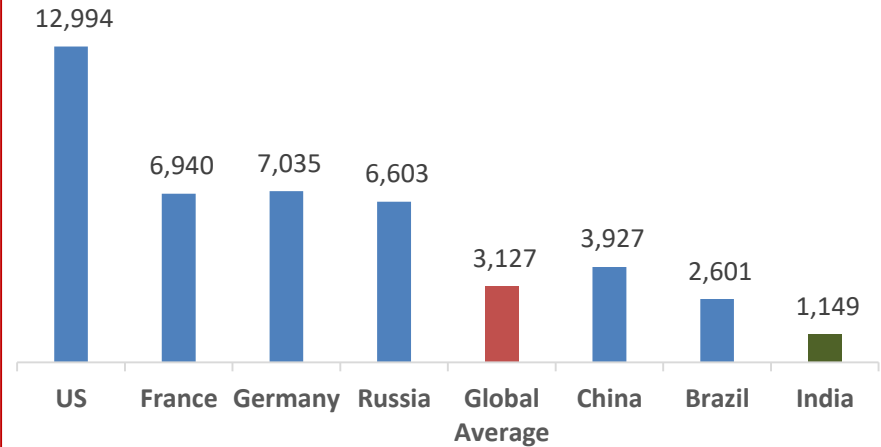


# Markets have immense potential

## Total Electricity Demand (MU)<sup>1</sup>



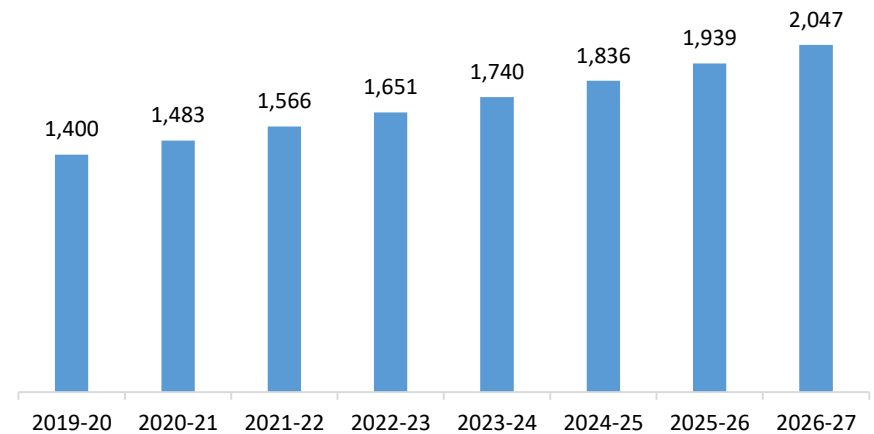
## Per Capita Electricity Consumption (KWh)<sup>2</sup>



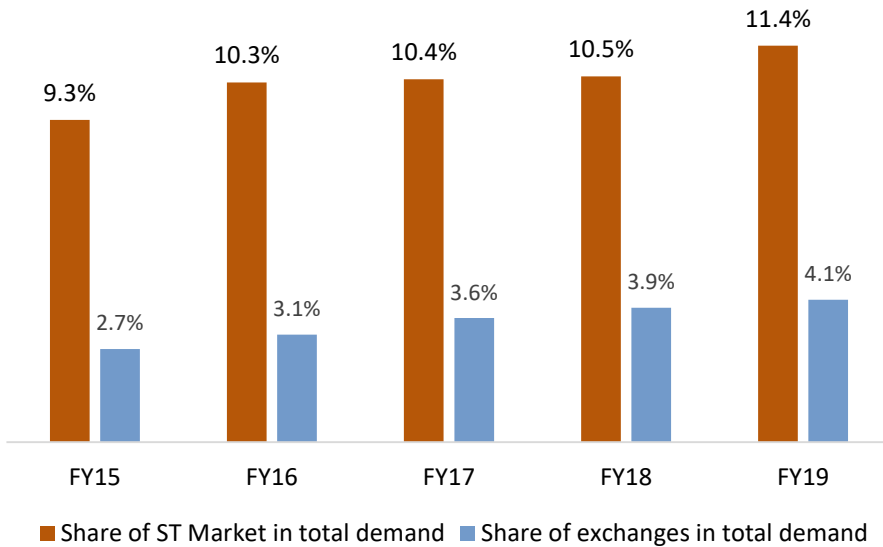
- India's per capita electricity demand is 1/3<sup>rd</sup> global average
- ~ 45 GW of PPA's retiring in the next 8 years
- ~4.3 GW of PPA's (LT and MT) expiring in the next 8 years

Source: 1. CERC; 2. World Bank; 3. CEA

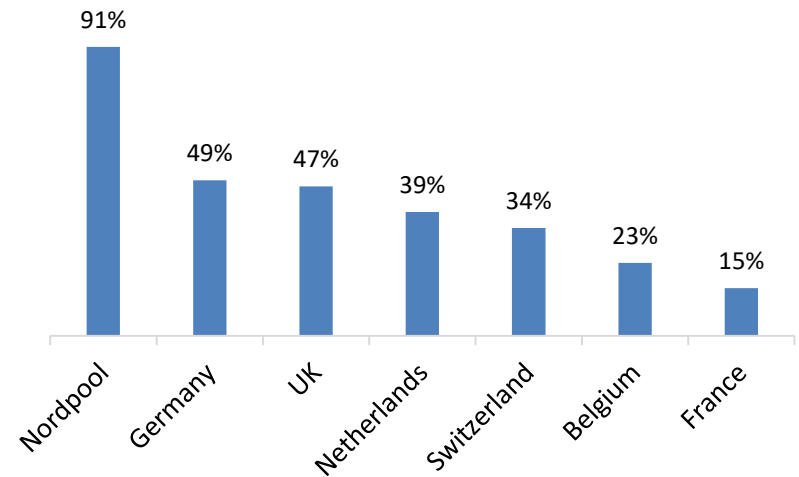
## Expected Electrical Energy Requirement (BU)<sup>3</sup>



Exchange market and ST market a % of total demand – India<sup>1</sup>



Exchange market as a % of total demand – Global<sup>2</sup>



Power markets in developed economies are in the range of 30-80% of total power demand vis a vis 4% in India

# IEX has seeded & developed a robust power market



2003

- Market framework for Exchange operations put in place

2008

- IEX commenced operations

2009

- Introduced Term-Ahead Contracts

2011

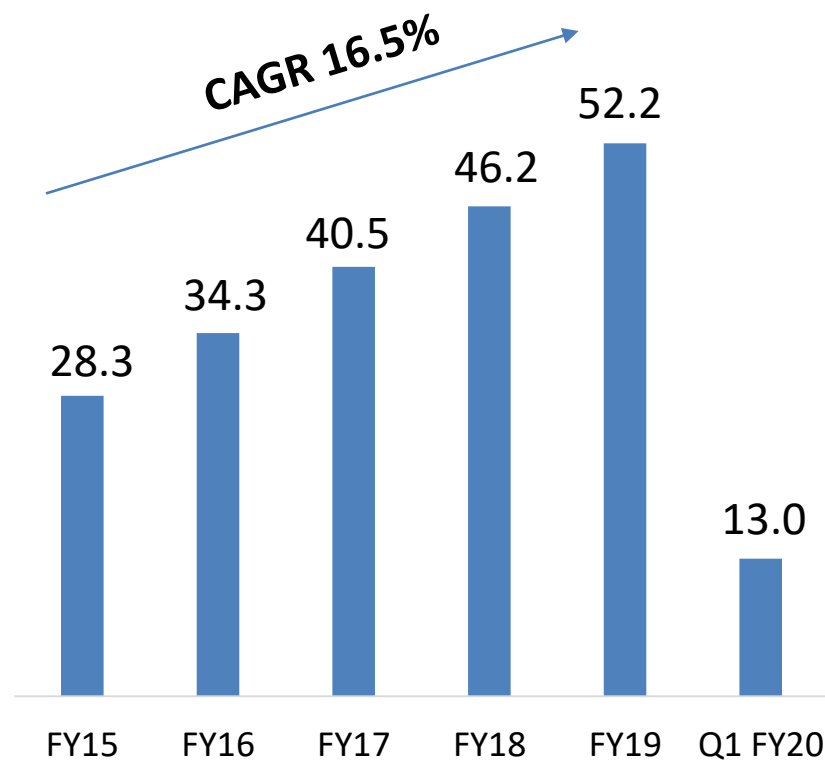
- Introduced Renewable Energy Certificates

2017

- Introduced Energy Saving Certificates
- Technology Buy out
- Initial Public Offering

- High Participation: 6500+
  - 4000+ Industries
  - 56 Discoms (all)
  - 500+ Generators
  - 1600+ RE Generators & Obligated entities
  - 100+ ESCert Entities
- Average daily trade: 142.8 MU (Q1FY20)
- Exchange Market Share: >97%
- Highly scalable business model and proven technology
- Qualified and experienced team

## Electricity Cleared Volume (BU)



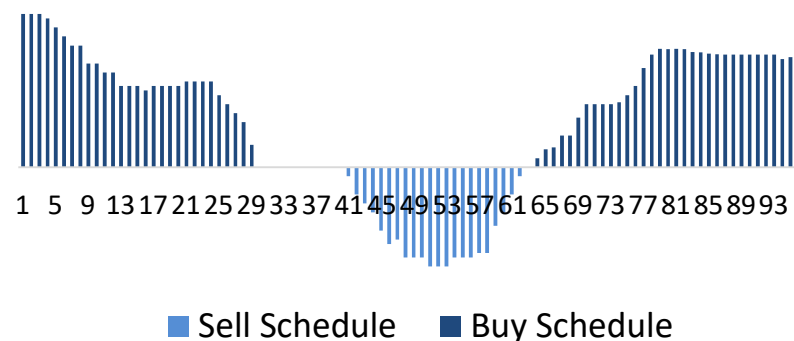
<b>Day-Ahead Market</b>	<ul style="list-style-type: none"><li>• <i>Delivery <u>for next day</u></i></li><li>• <i>Price discovery: Closed , Double-sided Auction</i></li></ul>	
<b>Term-Ahead Market</b>	<ul style="list-style-type: none"><li>• <i>Intraday: For Delivery within the same day</i></li><li>• <i>Day Ahead Contingency: Another window for next day</i></li><li>• <i>Daily and weekly contracts</i></li></ul>	
<b>Renewable Energy Certificates</b>	<ul style="list-style-type: none"><li>• <i>Green Attributes as Certificates</i></li><li>• <i>Sellers : RE generators not under feed in tariffs</i></li><li>• <i>Buyers: Obligated entities; 1MWh equivalent to 1 REC</i></li></ul>	
<b>Energy Saving Certificates</b>	<ul style="list-style-type: none"><li>• <i>1 ESCert = 1 mtoe (metric Tonne of Oil Equivalent)</i></li><li>• <i>Trading Session on every Tuesday of the Week</i></li><li>• <i>Trading time 1300 hrs to 1500 hrs</i></li></ul>	



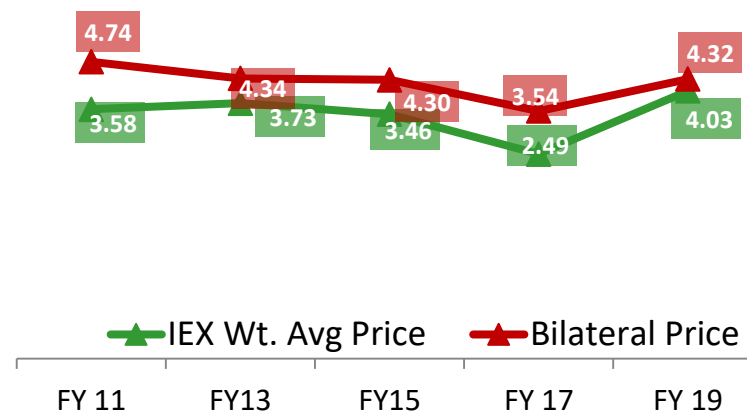
# We deliver the national vision

- Working in line with government's vision to deliver:
  - Power for all
  - On 24\*7 basis
  - Reducing cost of doing business
  - Increasing ease of doing business
- High liquidity on exchange
- Most competitive price discovery
- Flexibility to market participants, any quantum anytime

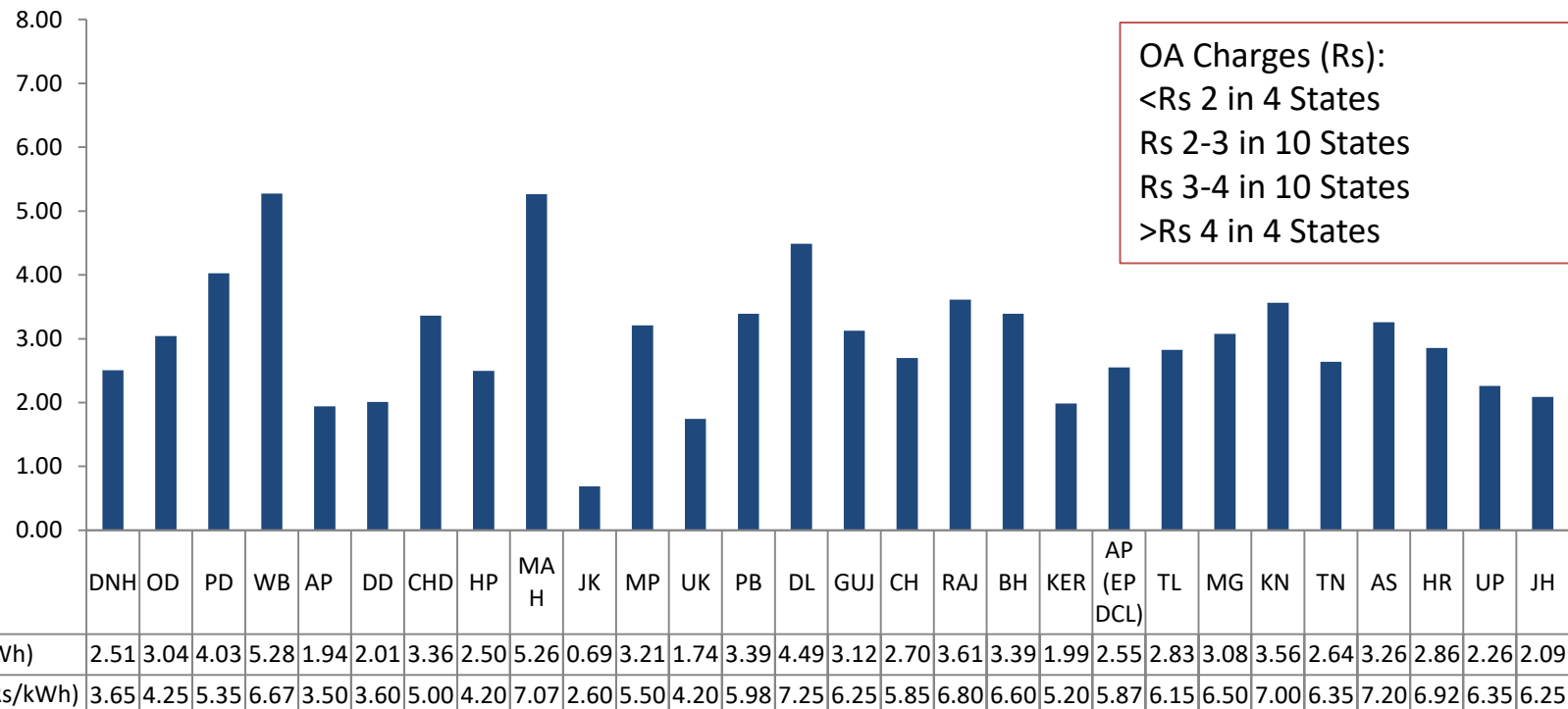
Telangana Buy Sell Volume on 15<sup>th</sup> May, 2019



IEX vs Bilateral Price<sup>1</sup>



# High charges deterring open access



These charges are added on price discovered at IEX (Rs 3.3 in Q1'20) making open access uncompetitive.

## Deepen Power Market

Maximize DISCOM and Open Access volume

Introduce long duration contracts from 1 day to 365 days

Cross Border Trade - Nepal, Bhutan, Bangladesh and Myanmar

Real time markets and National Open Access Registry – 48 half hourly auctions over the day to enable delivery within one-hour after close of trading window

New bid order types for Day Ahead Market

G-TAM – exclusive market for trading green power and RPO

Ancillary Market



# New Opportunities – tech based

Smart Power Procurement

Analytics

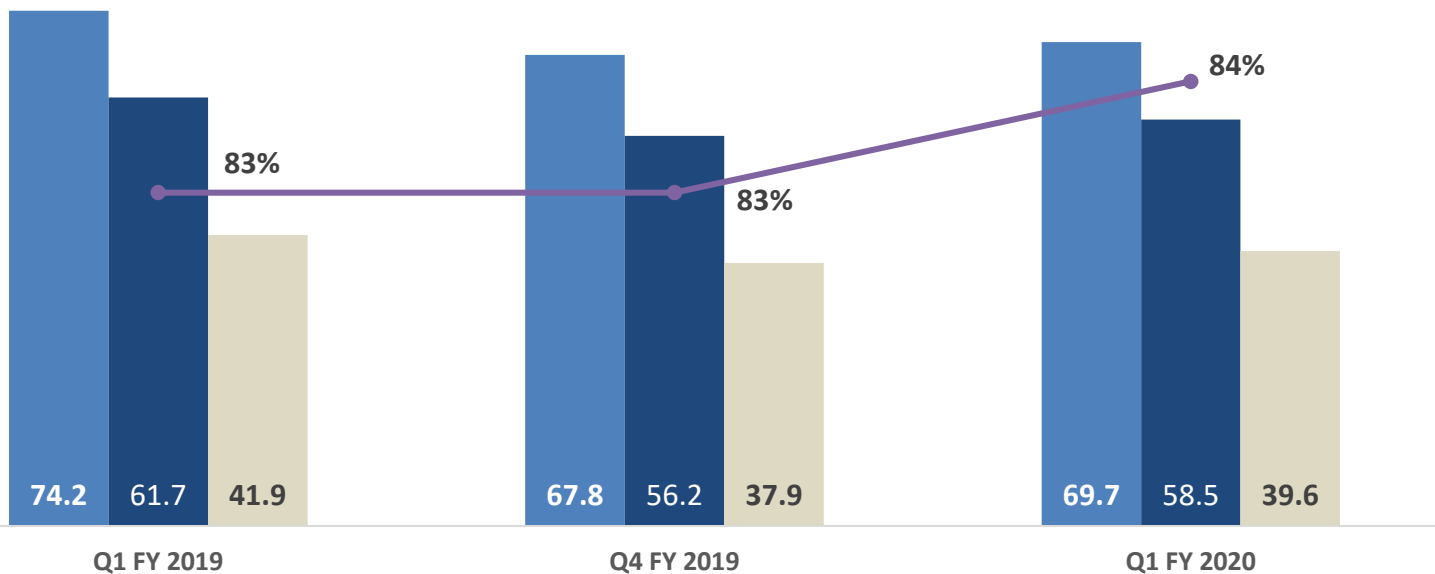
New product development

Demand forecasting

Use of block chain and AI

**To leverage technology & enable next level of optimization and efficiency**

Focus on operational excellence and cost management



Rs. Cr    ■ Revenues    ■ EBITDA    ■ PAT    ● EBITDA Margin

Breakup of revenues	Q1 FY 2019	Q4 FY 2019	Q1 FY 2020
Transaction Fees	83%	77%	81%
Admission and Annual Fees	7%	6%	6%
Other Income	10%	17%	13%

# Summary



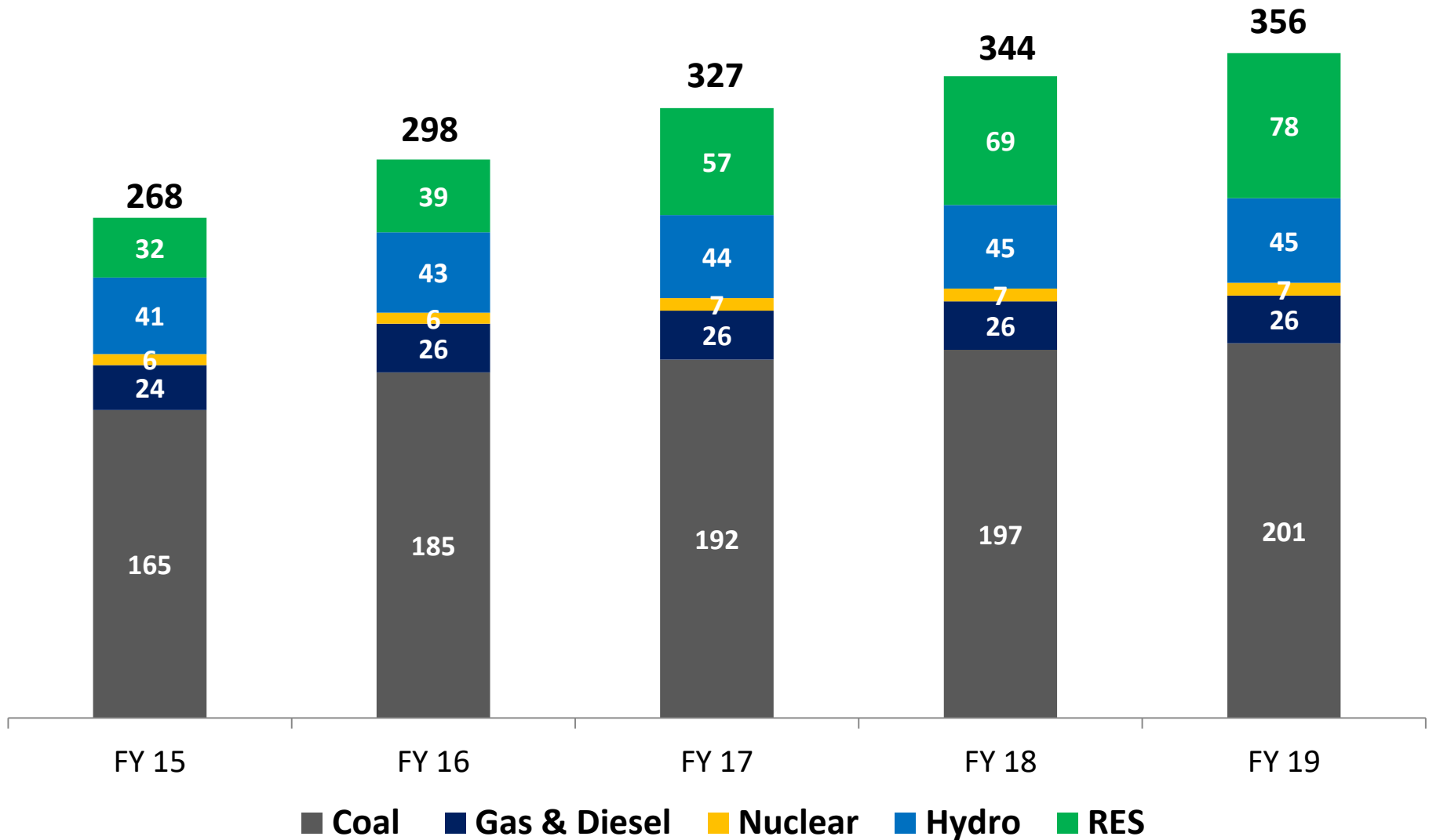
- India to continue being the fastest growing economy
- Electricity is a critical input into economic growth
- We are on the cusp of shift in the energy mix
- Power markets are at nascent stage; potential for growth is immense
- Growing demand for power & conducive policy/regulatory framework to accelerate power market growth
- IEX is uniquely positioned to deliver the government's vision

Thank You

# ANNEXURES

- Improve transmission capacity utilization by introducing physical capacity trading and financial transmission trading
- Improve distribution sector through developing mechanism for unbundling distribution companies into wires and supply business & implementation of analytical tools for power purchase & cost optimization.
- Improve liquidity in short term by enabling increased participation of Discoms and Gencos.
- Stronger regulations and stringent penalties for discouraging use of DSM to meet energy requirement
- Review of gate closure norms and 'Right to Recall'
- Allowing state and central Gencos to sell surplus power
- Introduce financial products such as derivatives, contracts for differences and Real Time Market.
- Move from regulated to market based mechanism for Ancillary Services
- Introduce products in Balancing market for trading of balancing services from fast response plants such as Hydro
- Enhance cross border trade through market products

# Installed Generation Capacity of India (GW)



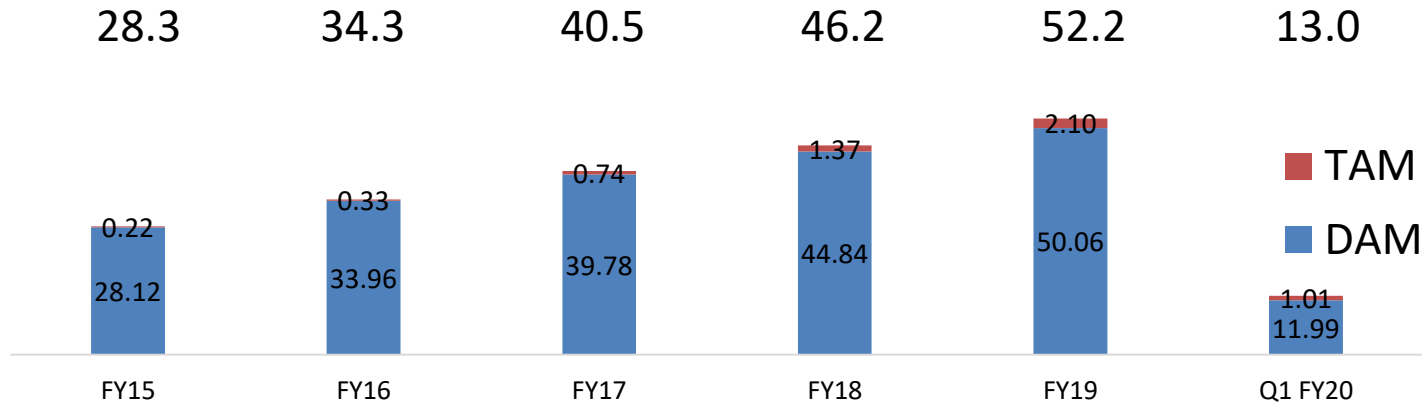


# Total Generation in India (GW) FY 2019

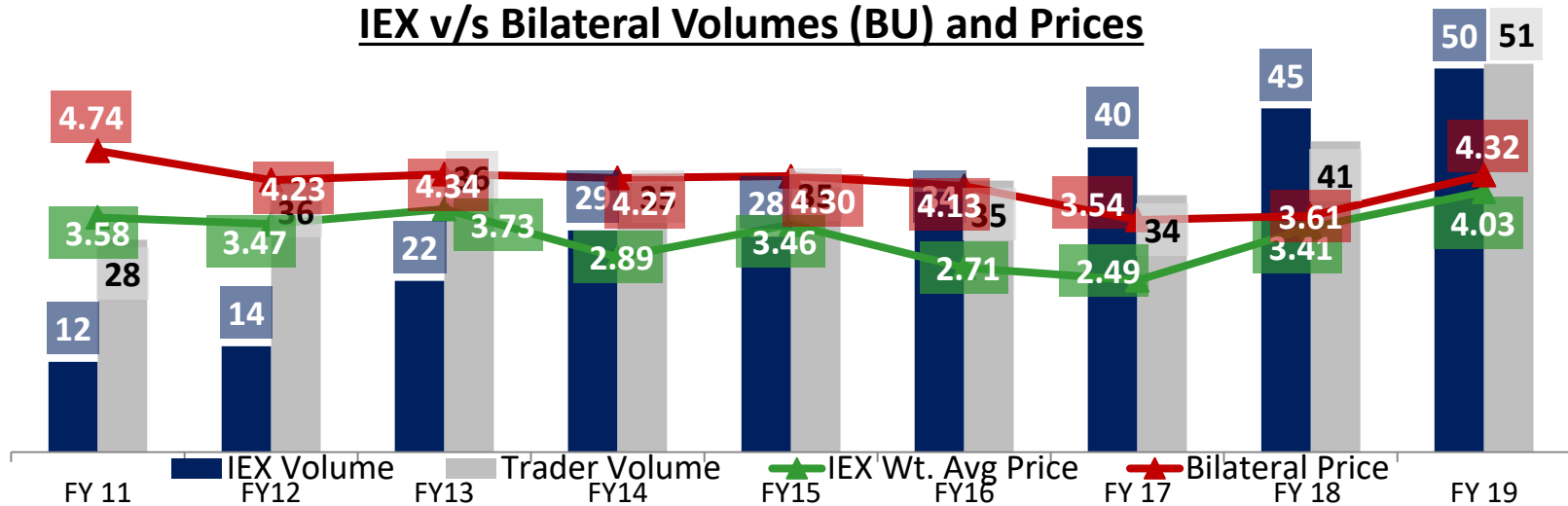
Category	Installed Capacity (MW)	PLF(%)	Generation (BUs)	Feasible PLF(%)	Possible Generation (BUs)
Coal	200,705	61	1,022.3	80	1407
Gas	24,937	23	49.8	25	55
Diesel	638	2	0.1	0	0
Hydro	45,399	34	134.9	40	159
Nuclear	6,780	64	37.8	80	48
RE	77,642	19	126.0	20	136
<b>Total</b>	<b>356,100</b>		<b>1371</b>		<b>1,804</b>

# IEX v/s Bilateral comparison

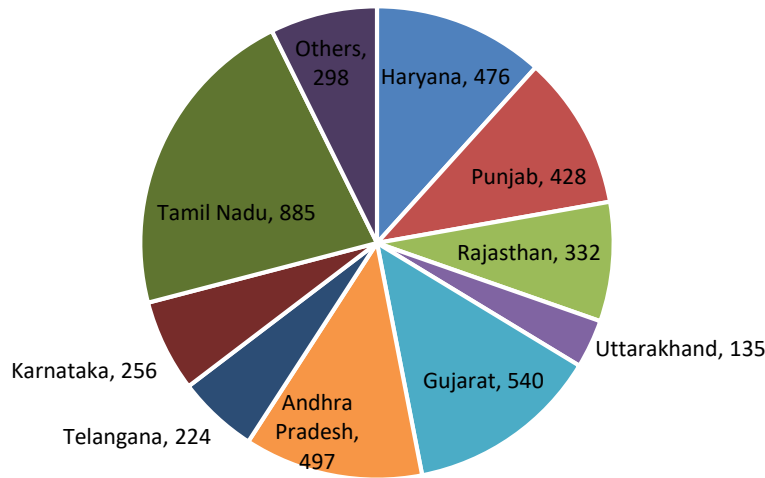
## IEX Cleared Volumes (BU)



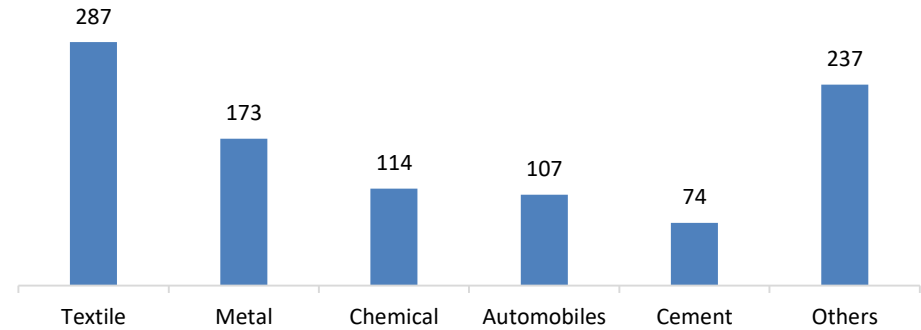
## IEX v/s Bilateral Volumes (BU) and Prices



## Registered open Access Consumers - By States (As on 30th June,19)



## Open Access consumers spread across industries<sup>1</sup> (As on 30th June,19)



1. Active consumers

# Cost optimization - Punjab DISCOM

**Sell**

**Sold 1430 Mus during Sep/Oct' 18 @ Rs.5.74/u.  
Additional revenue of Rs.350 Cr.**

**Buy**

**Purchased 385 Mus from exchange at average  
rate of Rs.3.09 per unit resulting into savings of  
Rs.19 Cr.**

**Replace**

**Back down/reduced the power drawn from private  
thermal plants and replaced it with a very low cost  
power available at exchange during night in the month  
of Nov/Dec 2018.**

- PSPCL case of optimization used to mobilize states currently not doing optimization through market

NAME OF PUBLICATION	PLACE OF PUBLICATION	DATE OF PUBLICATION
DNA	NEW DELHI	JANUARY 15, 2019

## PSPCL announces results

Er Baldev Singh Srani, CMD PSPCL stated that power demand pattern of the Punjab is very peculiar, from June to September the demand shoots up to around 12500 MW whereas from October to May demand falls to 5500-6000 MW during daytime and during night hours it hovers around 3000-3500 MW. Power rates in Indian Power exchange are higher in summer and lesser in winters. The only option to deal with such huge variations in demand is to encourage power consumption in the state and find ways and means to sell the surplus power to other states during winter. In this regard Er.B.S.Srani lauded the initiative of the Punjab Government to introduce industry friendly policies including offering a retail tariff of Rs. 5 per unit to industry and Rs. 1.25 per unit rebate on consumption from 10 pm to 06 am (next day) during October 1 to March 31. Such measures have yielded good result and 10 % increase in Industrial consumption has been recorded during 2018-19 so far. The CMD said that during September /October power rates in exchange remain high at Rs. 5-8 per unit due to demand outside Punjab and PSPCL saved Rs. 2.42 to Rs. 2.49 per unit by selling 1430 MUs during September/ October 2018 at an average rate of Rs. 5.74 resulting into saving totalling Rs. 350 crore in these two months. During winter, due to surplus power throughout the country, the power rates in Power Exchange come down drastically and morning/ evening peak time rate is Rs. 4-5 per unit and Rs. 2-3 per unit during night time. As per the Power Purchase Agreements (PPAs) signed with IPPs (Private Thermals), NTPC and other Generators, PSPCL is bound to pay fixed charges ranging from Rs 1.00 to Rs. 2.00 per unit during winter/night due to low demand scenario even when no power is drawn from them but energy charges ranging from Rs. 3.10 to Rs. 3.85 per unit are paid for energy actually drawn. PSPCL came up with an idea to reduce variable cost of power by stopping/reducing the power drawn from private thermals to the extent possible and substituting it with a very low cost power available in the exchange particularly during night at Rs. 2.50 to Rs.2.85 per unit to bring down the basket price of its power purchase. Power from state thermals costing at Rs.3.85 per unit was also replaced with power from exchange at Rs. 3.30 to Rs. 3.70 per unit. During November/December 2018, PSPCL purchased 358 MUs from exchange costing Rs. 111 crore at average rate of Rs. 3.09 per unit resulting into saving of Rs. 19 crore. At the same time 165 MU power worth Rs. 70 crore was sold at average cost of Rs. 4.25 per unit during morning/ evening peak hours. Selling power during peak period and purchasing during lean demand period in a highly surplus scenario was unthinkable till recent past but shrewdness in managing resources and scrapping out available margins helped PSPCL achieve this feat and will translate into lower tariff during coming years by the same amount.

The CMD also highlighted the fact that to avoid purchasing high cost energy during summer/paddy season, surplus power during winter is banked to get it back during paddy season. During this winter season, banking of 1500 MW has already been done till December, 2018 and similar arrangements will be carried till May, 2019 with approximate banked energy around 6000 MUs to MP, J&K, Andhra Pradesh, Chhattisgarh and Himachal Pradesh. This banked power will be returned by these states to Punjab during the next paddy and summer season and approximately 2000 MW would be available next year from June to September from banking. Punjab Government has introduced a special tariff for use of electricity exclusively during night i.e. from 10 pm to 06.00 am (next day) for FY 2018-19 the energy charges are Rs. 4.28/kVAh and fixed charges are 50% of the normal rates of Fixed Charges applicable to the respective category. PSPCL has recommended that eight hours be extended to 12 hours as per the demand of the industry.

## Case: Maharashtra

Month	Duration	Quantum (MW)	L1 Rate discovered (Rs./kWh)	Predicted prices based on IEX Price of FY 18-19 @ Mh Periphery (Rs./kWh)	Savings Based on Predicted Prices (Rs. In Crore)	Actual IEX Prices FY 19-20 @ Goa Periphery (Rs./kWh)	Savings Based on Actual Prices (Rs. In Crore)
Mar'18	RTC	500	4.94	4.48	17.11	3.51	53.20
Apr'19	RTC	500	5.00	4.43	20.52	3.74	45.36
May'19	RTC	500	5.00	5.03	-1.12	3.88	41.66
1 <sup>st</sup> to 15 <sup>th</sup> June'19	RTC	500	5.00	4.00	18.00	3.73	22.86
Total					54.52		163.08

# DEEP v/s IEX

- ✓ Telangana discoms Tender for 1000 MW RTC power for period 1<sup>st</sup> Jul, 2019 to 31<sup>st</sup> Mar, 2020.
- ✓ The prices discovered at DEEP- portal are ranging from Rs. 5.48 - Rs. 5.80 per unit, much higher in comparison to IEX prices.

Period	Energy as per Tender (MUs)	L1 Price discovered in DEEP Portal	Power Purchase cost (Rs.Cr)	IEX Avg Price FY 2018-19 (Delivered)	10% increase in IEX Prices (Delivered)	Cost if purchased at IEX (Rs Cr) (without escalation)	Cost if purchased at IEX (Rs Cr) (with escalation)	Savings – IEX price as last year (Rs.Cr)	Savings - IEX last year price with 10% escalation (Rs.Cr)
Jul-19	744	5.48	408	3.72	4.09	277	304	131	103
Aug-19	744	5.48	408	3.62	3.98	269	296	138	111
Sep-19	720	5.48	395	4.97	5.47	358	394	37	1
Oct-19	744	5.48	408	7.06	7.77	525	578	-118	-170
Nov-19	720	5.48	395	3.90	4.29	281	309	114	86
Dec-19	744	5.48	408	3.60	3.96	268	295	140	113
Jan-20	744	5.48	408	3.61	3.97	269	295	139	112
Feb-20	696	5.48	381	3.49	3.84	243	267	139	114
Mar-20	744	5.48	408	3.77	4.15	280	309	127	99
<b>Total</b>	<b>6600</b>	<b>5.48</b>	<b>3617</b>	<b>4.19</b>	<b>4.61</b>	<b>2770</b>	<b>3047</b>	<b>847</b>	<b>570</b>

\*Above price comparison is at Telangana state periphery