

Indian Power Sector and Stressed Assets

By

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INDIAN POWER SYSTEM

- An Overview

Structure of Indian Electricity Sector

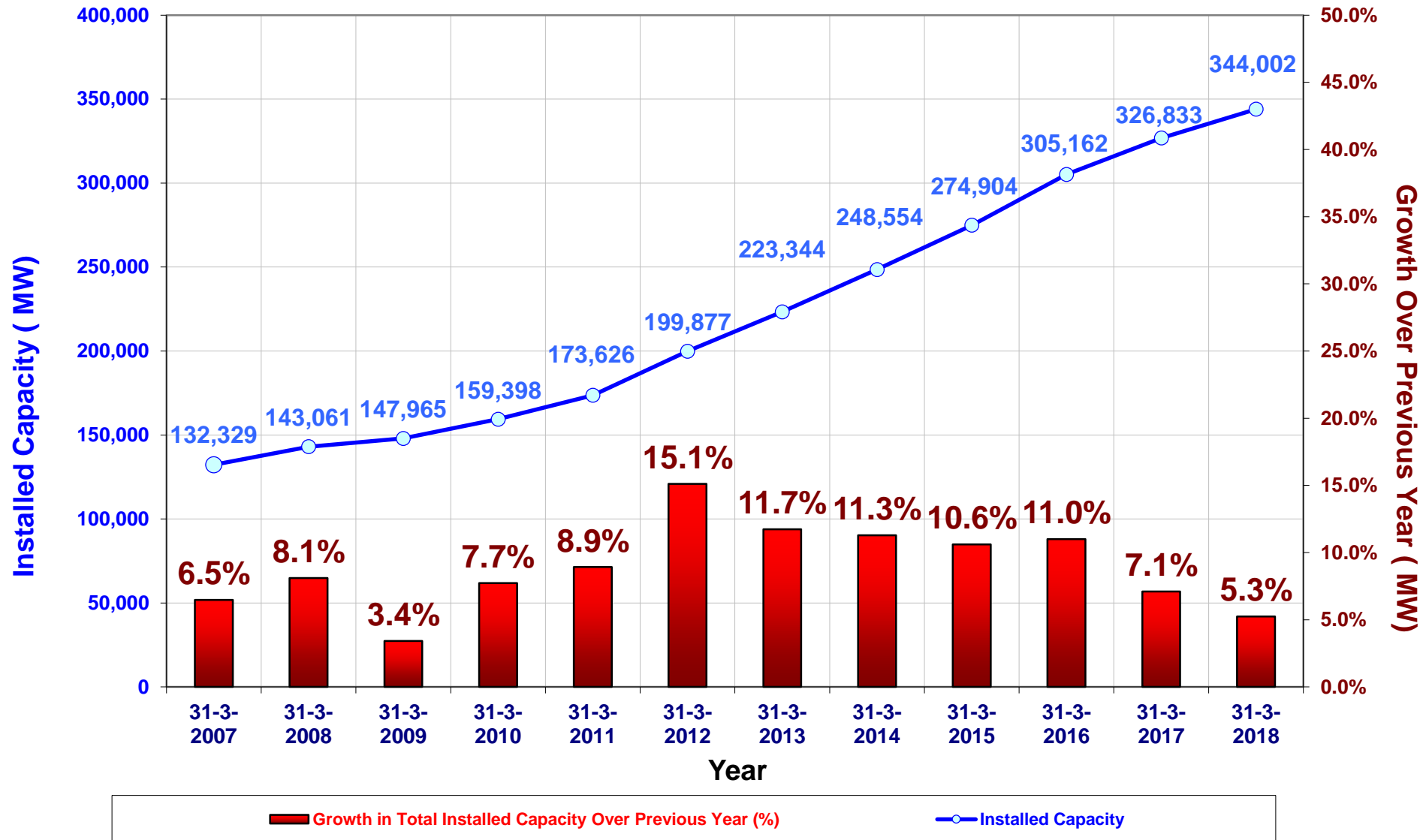
Policy Making	Central Government	CEA	State Government
Regulators	Central Electricity Regulatory Commission	State Electricity Regulatory Commission	
System Operators	National Load Despatch Centre	Regional Load Despatch Centres	State Load Despatch Centres
Generation	Central Generating Stations	State Generating Stations	Private Sector Players
Transmission	Central Transmission Utility	State Transmission Utilities	Private Sector Players
Distribution	State Sector Distribution Licensee	Private Sector Distribution Licensee	
Markets	Trading Licensee	Power Exchanges	Bilateral Markets

Indian Power Sector since Independence

Installed Capacity (in GW)	1.36 (1947)	344.0 (31.3.2018)
Gross Electricity Generation (in BU)	4.07 (1947)	1307 (2017-18)
Per capita consumption (in kWh)	16.3 (1947)	1122 (2016-17)
Peak Demand Met (in GW)	-	160.75 (2017-18)

Present Power Scenario

Installed Capacity in India over the years



Fuelwise Generation Installed Capacity in India

(As on 31st March, 2018)

Fuel	Installed Capacity (MW)	% Share in Total
THERMAL	222,907	64.8%
Coal	197,172	57.3%
Gas	24,897	7.2%
Diesel	838	0.2%
HYDRO	45,293	13.2%
NUCLEAR	6,780	2.0%
RES	69,022	20.1%
TOTAL	344,002	

Non Fossil Fuel Installed Capacity : 1,21,095 MW (35.3 %)

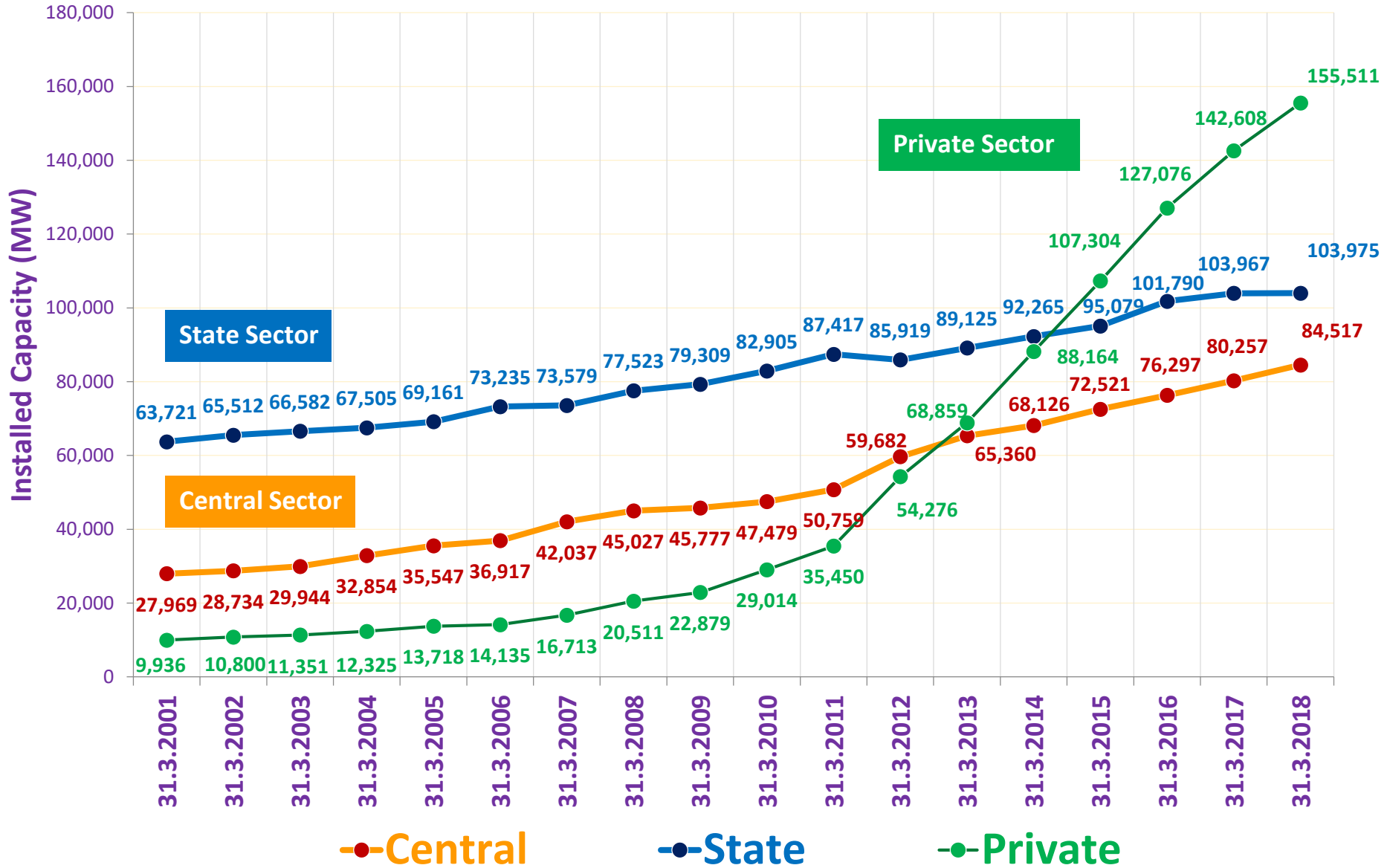
Target to be achieved by 2030: 40 %

Sector-wise Generation Installed Capacity in India

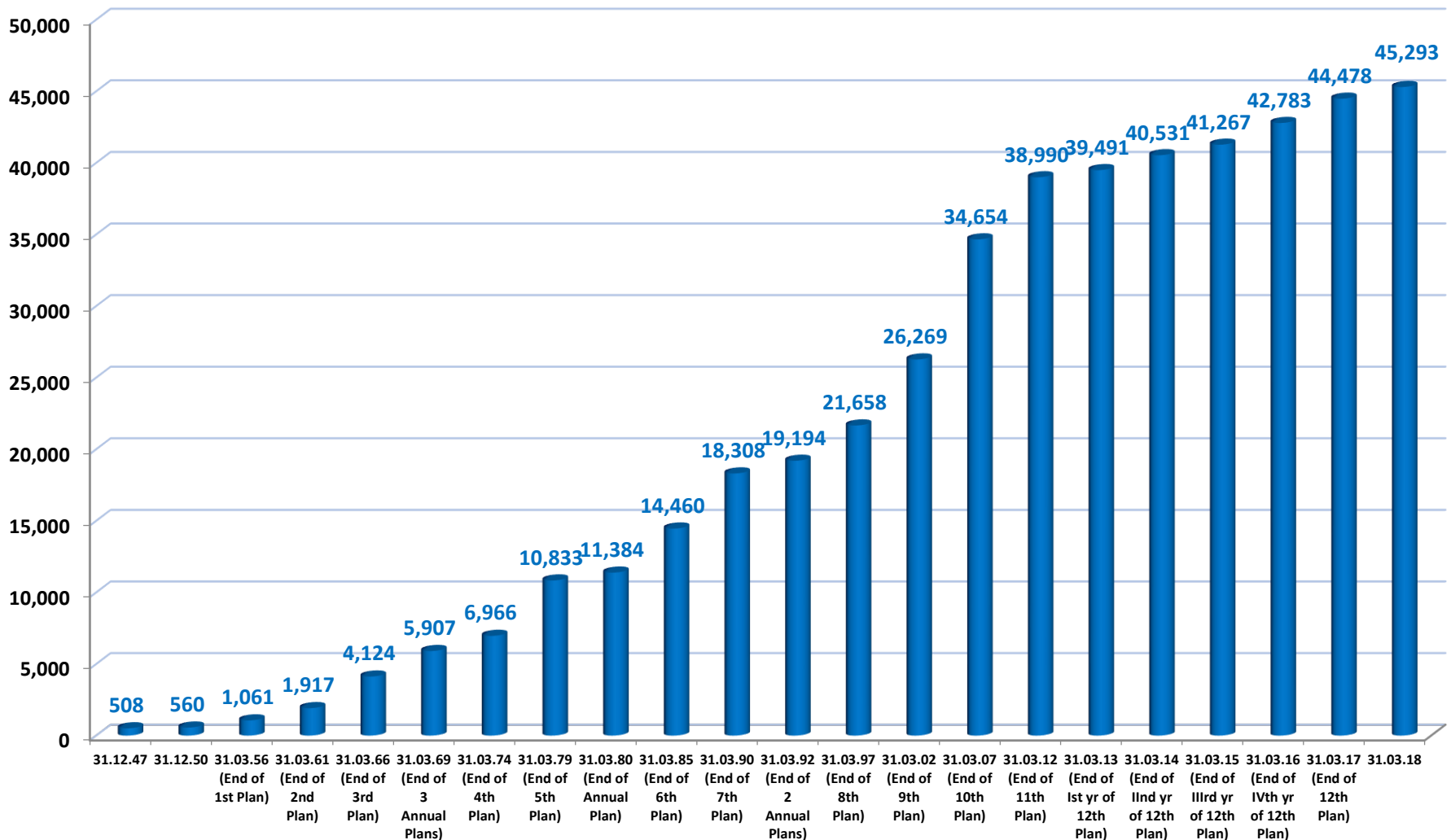
(As on 31st March, 2018)

Sector	Installed Capacity (MW)	% Share in Total
Central Sector	84,517	24.6%
State	103,974	30.2%
Private Sector	155,511	45.2%
TOTAL	344,002	

Growth in Installed Capacity (MW) - Sectorwise



Growth of All India Installed Capacity Of Hydro



■ Hydro

GROWTH OF INSTALLED CAPACITY(CATEGORY WISE)

PLAN/YEAR	THERMAL				NUCLEAR	HYDRO	RES (MNRE)	TOTAL
	COAL	GAS	DIESEL	TOTAL				
End of 9 th Plan	62130.88	11163.1	1134.83	74,428.81	2720	26268.76	1628.39	1,05,045.96
End of 10 th Plan	71121.38	13691.71	1201.75	86,014.84	3900	34653.77	7760.6	1,32,329.21
End of 11 th Plan	112022.38	18381.05	1199.75	1,31,603.18	4780	38990.4	24,503.45	1,99,877.03
End of 12 th Plan	192162.88	25329.38	837.63	2,18,329.88	6780	44,478.42	57,260.23	3,26,848.53
31.3.2018	197,171.50	24,897.46	837.63	222,906.59	6,780.00	45,293.42	69,022.39	344,002.40

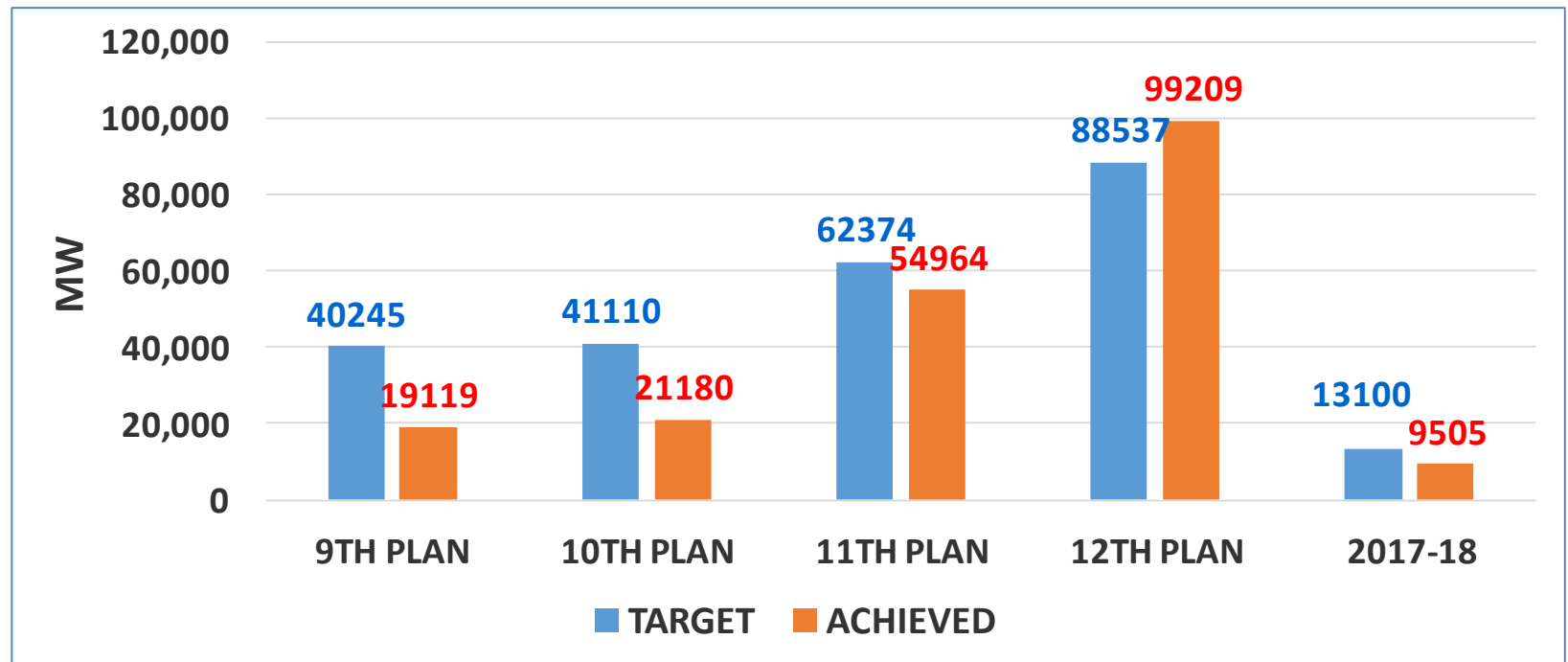
(FIGURES IN MW)

Growth is mainly in Renewable and Coal. But Growth in coal has started reducing

Growth to only some extent is expected in Hydro and Nuclear

PLANWISE ALL INDIA CONVENTIONAL CAPACITY ADDITION TARGET VS ACHIEVEMENT

(FIGURES IN MW)

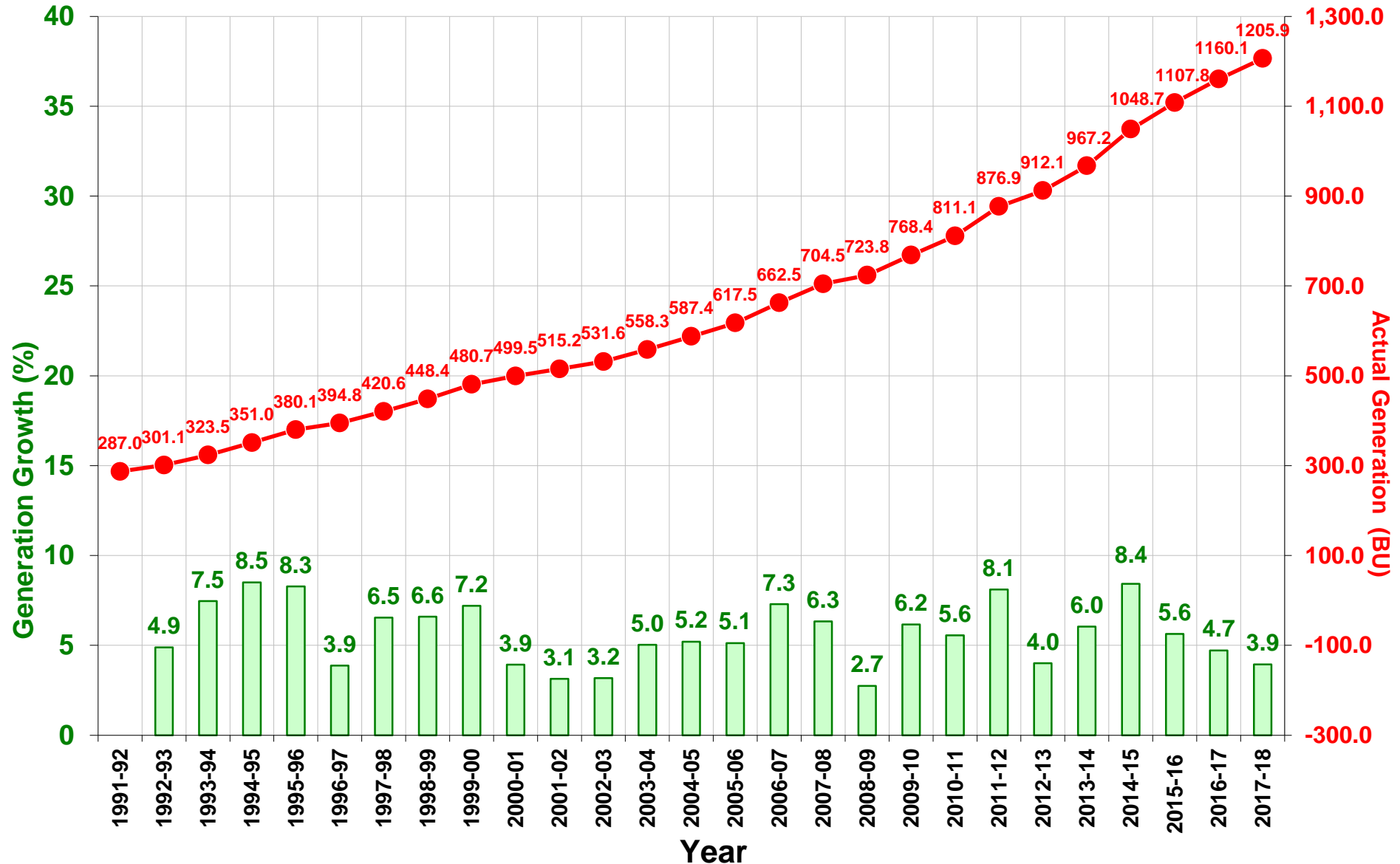


1st time, achievement exceeded target (by 10,672 MW) in 12th Plan
In other plan period it was always much less (except 11th Plan)

Capacity Addition During 12th Plan (2012-17)

Conventional Sources :		
Coal	84,850	65.9%
Gas	6,880	5.3%
Total Thermal	91,730	71.3%
Hydro	5,479	4.3%
Nuclear	2,000	1.6%
Total Conventional :	99,209	77.1%
Renewable Sources :		
Wind Power	15,016	11.7%
Small Hydro	984	0.8%
Bio Power	2,173	1.7%
Waste to Power	30	0.0%
Solar Power	11,259	8.8%
Total Renewable :	29,462	22.9%
Total Capacity Addition :	128,671	100.0%

Electricity Generation & Growth over the years

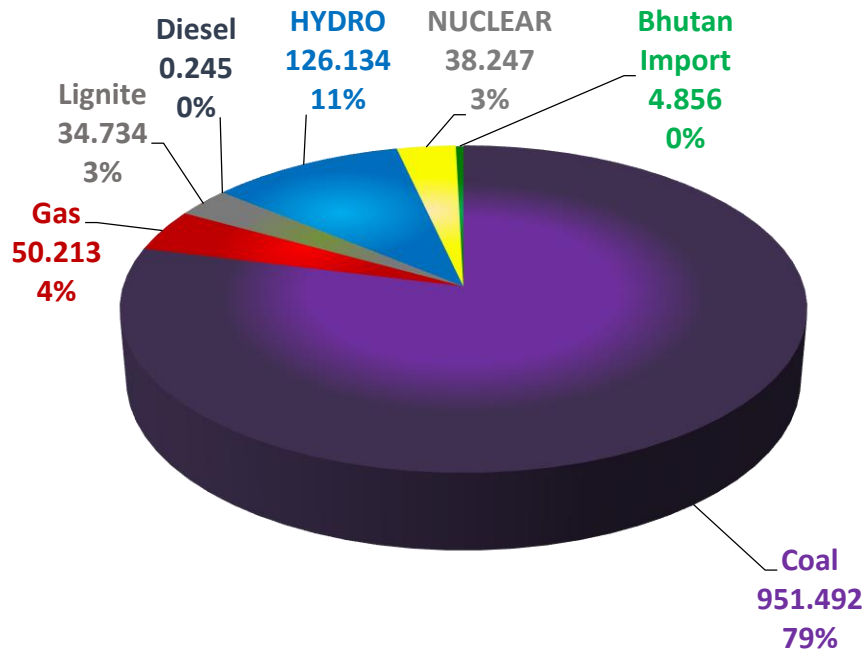


Generation Performance

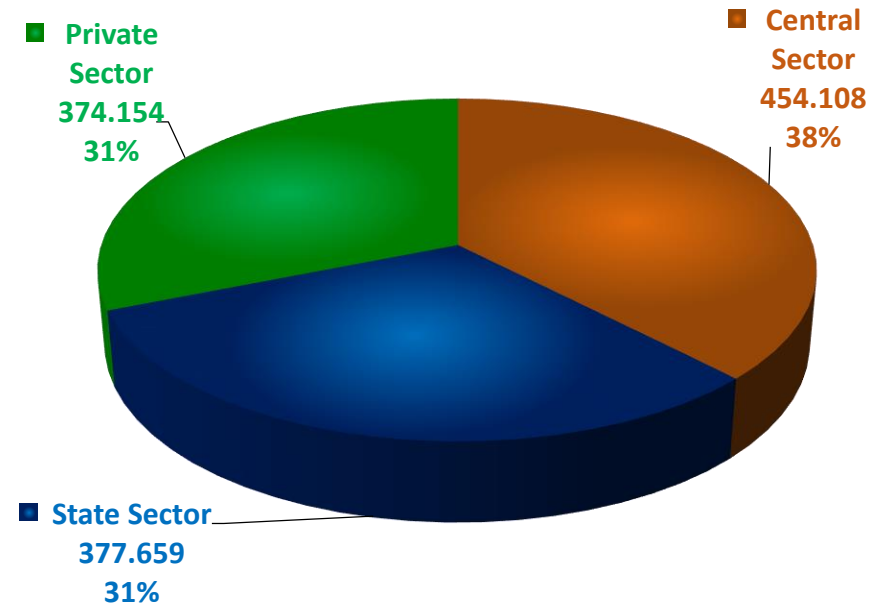
From 2014-15 to 2017-18 vis-à-vis From 2010-11 to 2013-14

Year	Generation from Conventional Sources				Generation from Renewable Sources		Total Generation (Conv. + RE)			Share of RE in Total Generation
	Target	Actual Generation	Ach.	Growth (Conv.)	Actual Generation	Growth (RE)	Total Generation	Growth in Total Generation	CAGR (Total Generation)	
	(BU)	(BU)	(%)	(%)	(BU)	(%)	(BU)	(%)	(%)	
2009-10	789.512	768.429	97.3		36.947		805.376			4.6
2010-11	830.757	811.143	97.6	5.6	39.245	6.2	850.387	5.6	6.1	4.6
2011-12	855.000	876.887	102.6	8.1	51.226	30.5	928.113	9.1		5.5
2012-13	930.000	912.057	98.1	4.0	57.449	12.1	969.506	4.5		5.9
2013-14	975.000	967.150	99.2	6.0	53.050	-7.7	1020.200	5.2		5.2
2014-15	1023.000	1048.673	102.5	8.4	61.785	16.5	1110.458	8.8	6.4	5.6
2015-16	1137.500	1107.822	97.4	5.6	65.781	6.5	1173.603	5.7		5.6
2016-17	1178.000	1160.141	98.5	4.7	81.548	24.0	1241.689	5.8		6.6
2017-18	1229.400	1205.921	98.1	3.9	100.693	23.5	1306.614	5.2		7.7

Electricity Generation : Fuelwise During current year 2017-18



Fuel wise



Sector wise

In terms of Energy coal based generation is 79 %

Total Generation (Billion Units) : 1205.9 BU
Target : 1229.4 BU
Achievement : 98.1%

ALL INDIA POWER SUPPLY POSITION

PERIOD	ANTICIPATED PEAK DEMAND (MW)	PEAK DEMAND MET (MW)	PEAK DEMAND DEFICIT/SURPLUS		ENERGY REQUIREMENT (MU)	ENERGY AVAILABILITY (MU)	ENERGY DEFICIT/SURPLUS	
			(MW) (- / +)	(%) (- / +)			(MU) (- / +)	(%) (- / +)
2012-13	135,453	123,294	-12,159	-9.0	998,114	911,209	-86,905	-8.7
2013-14	135,918	129,815	-6,103	-4.5	1,002,257	959,829	-42,428	-4.2
2014-15	148,166	141,160	-7,006	-4.7	1,068,943	1,030,800	-38,143	-3.6
2015-16	153,366	148,463	-4,903	-3.2	1,114,408	1,090,850	-23,558	-2.1
2016-17	159,542	156,934	-2,608	-1.6	1,142,929	1,135,334	-7,595	-0.7
2017-18	164,066	160,752	-3,314	-2.0	1,212,134	1,203,567	-8,567	-0.7

Net impact of huge capacity addition was reduction in Peak demand deficit (from 9% to 2%) and Energy deficit (from 8.7 % to 0.7%)

Transmission Scenario

Sectorwise : Total Transmission Lines (cKm) & Transformation Capacity (MVA)

(As on 31-March-2018)

Transmission Lines (cKm)

Sector	Total Transmission Lines (cKm)	% Share in Total
Central Sector	150,243	38.4%
State Sector	213,799	54.7%
Private Sector	26,928	6.9%
Total	390,970	

Transformation Capacity (MVA)

Sector	Total Transformation Capacity (MVA)	% Share in Total
Central Sector	312,411	37.8%
State Sector	481,590	58.2%
Private Sector	32,957	4.0%
Total	826,958	

Voltagewise : Total Transmission Lines (cKm) & Transformation Capacity (MVA)

(As on 31-March-2018)

Transmission Lines (cKm)

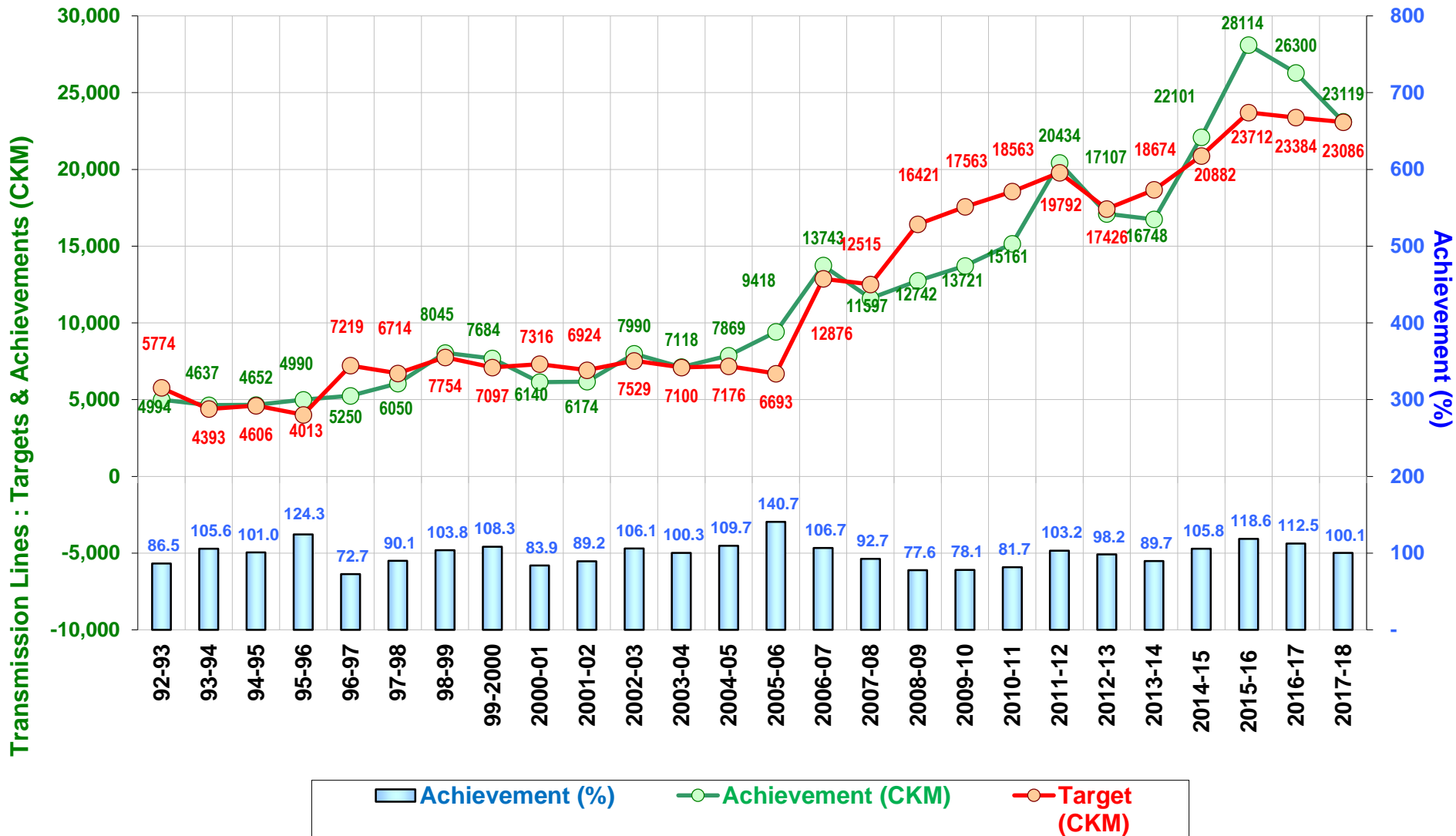
Voltage	Total Transmission Lines (cKm)	% Share in Total
765 kV	35,059	9.0%
400 kV	171,534	43.9%
220 kV	168,821	43.2%
HVDC	15,556	4.0%
Total	390,970	

Transformation Capacity (MVA)

Voltage	Total Transformation Capacity (MVA)	% Share in Total
765 kV	190,500	23.0%
400 kV	281,287	34.0%
220 kV	332,671	40.2%
HVDC	22,500	2.7%
Total	826,958	

Transmission Lines Commissioned (cKm)

Transmission Lines : Targets & Achievements (cKm)

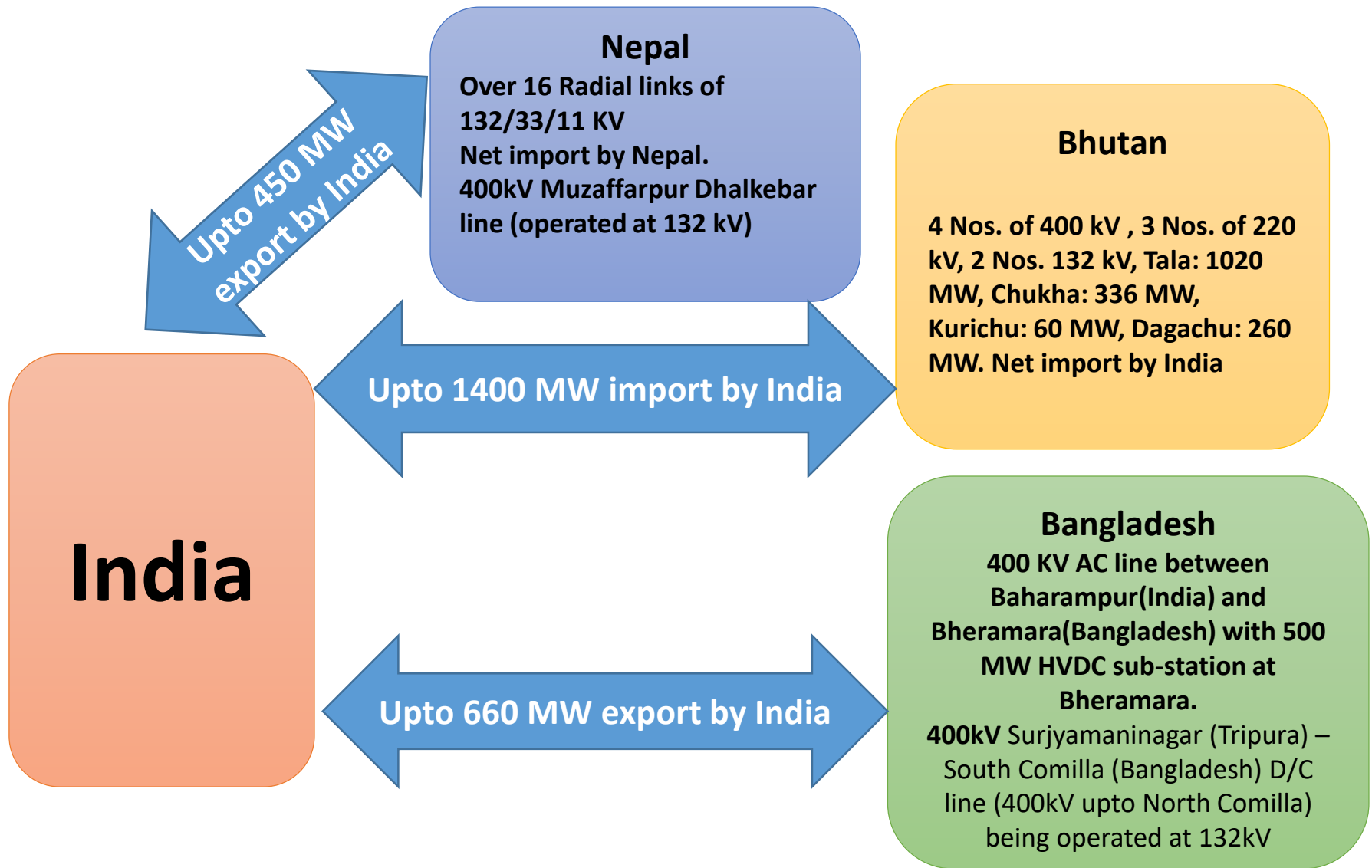


Transmission Adequacy

- ❑ One of the reason for stress earlier was transmission evacuation system and congestion in the grid
- ❑ Focus was to achieve adequacy in transmission
 - Private sector participation
 - Presently all ISTS is to be built through Tariff Based competitive Bidding (TBCB) Route
 - Guidelines on ROW issued
 - High capacity corridors were created
 - One Nation One Grid One frequency was achieved in December 2013 and now One Price due to congestion free transmission grid
 - A lot of Inter regional capacity got developed. Power can be taken from anywhere to anywhere in the country.
 - Further strengthening are in progress. Majority of the transmission lines expected to be commissioned progressively by 2020.
 - Focus also on cross border transmission lines with Bangladesh, Nepal, Bhutan and Myanmar

Inter-National Interconnections

International Interconnections



Export / Import with Nepal, Bangladesh, Myanmar & Bhutan

(Figures in MU)

Period	Export Details				Import from Bhutan	Net of Export-Import
	Export to Nepal	Export to Bangladesh	Export to Myanmar	Total Export		
2011-12					5,284.5	-5,284.5
2012-13					4,794.5	-4,794.5
2013-14	702.0	1,448.2		2,150.2	5,597.9	-3,447.7
2014-15	997.2	3,271.9		4,269.1	5,007.7	-738.7
2015-16	1,468.8	3,655.4		5,124.2	5,244.2	-120.1
2016-17	2,021.2	4,419.4	3.2	6,443.9	5,617.3	826.6
2017-18	2,389.0	4,808.8	5.1	7,202.9	4,856	2,346.9

- Export to Myanmar during 2017-18 is around **5.1 Million units**
- Export to Nepal and Bangladesh **increased 3.4 and 3.3 times** respectively in last four years.
- India **1st time becomes net exporter** of Electricity during 2016-17

International market

- ❑ **Increase cross border exchange of electricity**
 - **New cross border interconnections are being planned with Bhutan, Nepal and Bangladesh.**
 - **Long term perspective transmission plan prepared with Bhutan and Nepal.**
 - **Need to explore further opportunity to export power. It will relieve some of the stressed power plant as the overall demand would increase.**

Future Challenges

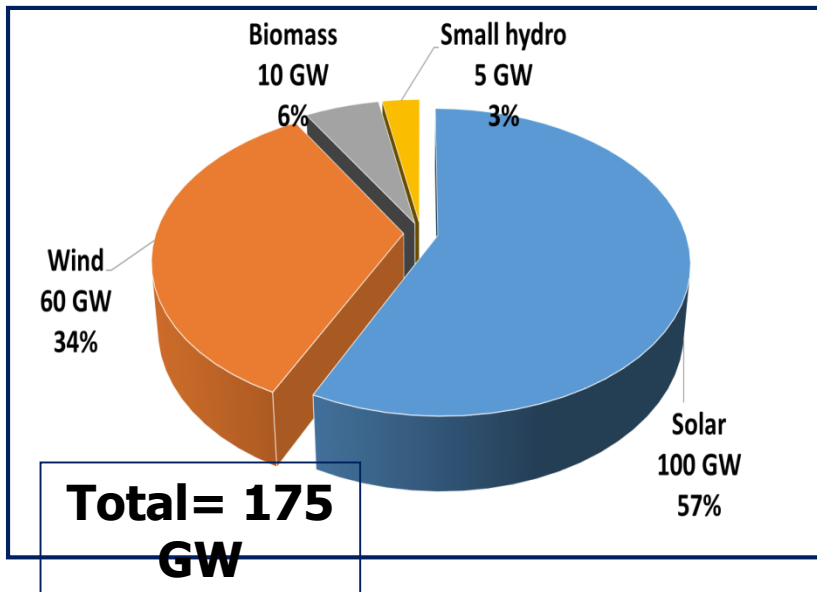
DEMAND

Year	Peak Demand (GW)	Energy Requirement (BU)
2021-22	225.7	1,566
2026-27	298.8	2,047

DEMAND REDUCTION DUE TO DSM

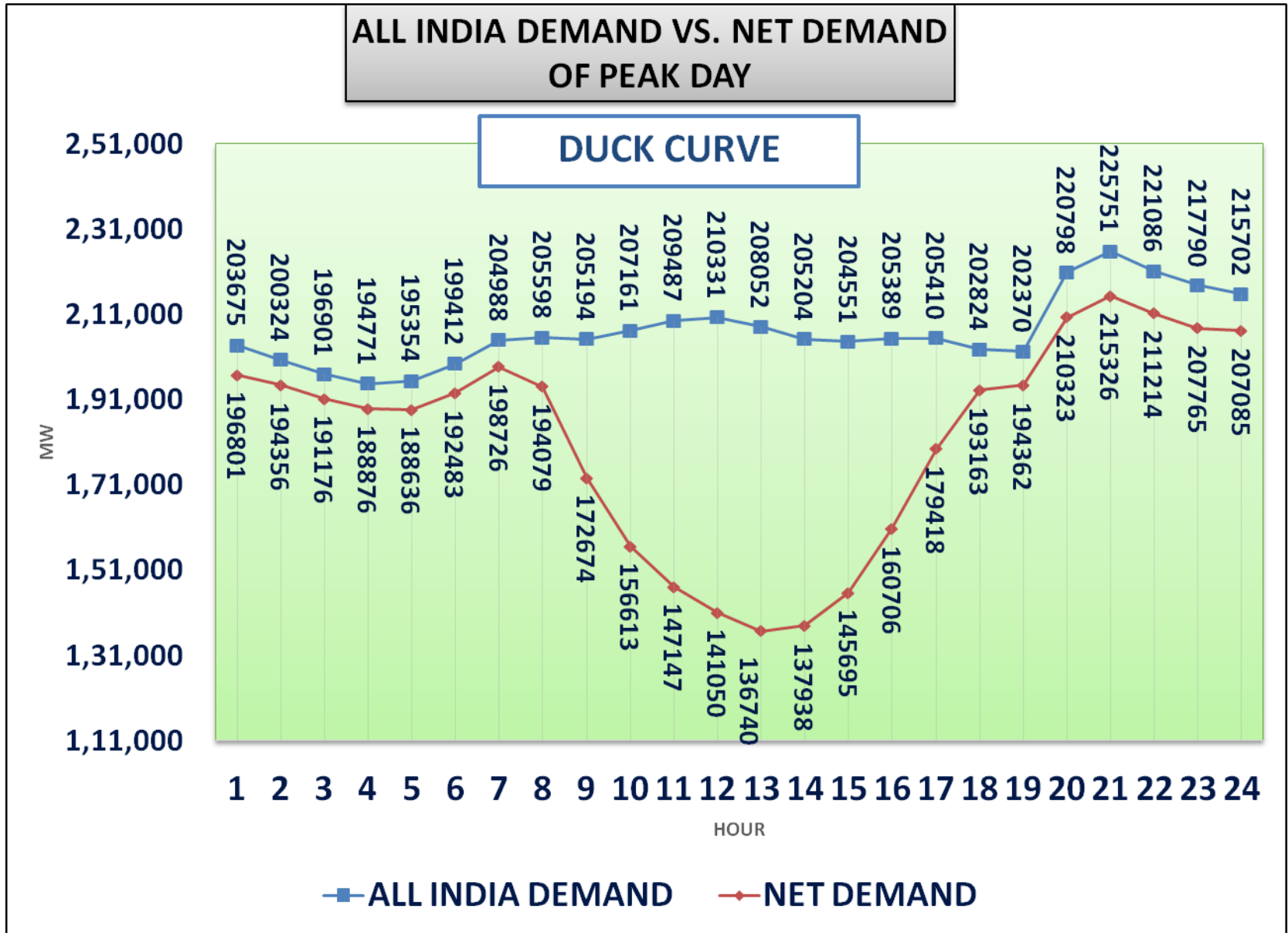
Year	Energy Requirement (BU)	Peak Requirement (GW)
2021-22	206	9
2026-27	273	12

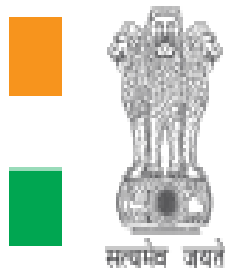
RES CONTRIBUTION IN TOTAL ENERGY REQUIREMENT DURING 2017-22



Scenario	RES IC by 2022 (GW)	RES Energy Contribution (BU) in Total Energy requirement*
I	175	327 (20.19%)
II	150	286 (17.66%)
III	125	245 (15.13%)

TYPICAL ALL INDIA DEMAND & NET LOAD CURVE (2021-22)





GOVERNMENT OF INDIA
MINISTRY OF POWER



DEEP e-Bidding Portal

(Discovery of Efficient Electricity Price)

DEEP Portal - Operational

Short Term more than 1 day to 1 year,

- ❖ Guidelines issued on March 30, 2016 with e-Reverse Auction

- ❖ Portal effective from **April 12, 2016**

- ❖ 124 events hosted for 216238 MW by 17 States, 2 SEZ , 4 Pvt. Distribution Licensee and NDMC.

- ❖ Lol issued for 107217 MW

Medium Term up to 5 years

- ❖ Guidelines issued on January 16, 2017 with e-Reverse Auction

- ❖ Portal effective from **August 17, 2016**

- ❖ 5 events hosted for 1110 MW by BEST (750 MW), BSPHCL (300 MW), IPCL (60 MW)

- ❖ Bidding under progress

Coal Flexibility up to 1 year

- ❖ Guidelines issued on February 20, 2017 with e-Reverse Auction

- ❖ Portal effective from **July 5, 2017**

- ❖ 2 events hosted for 1400 MW by MSPGCL (400 MW), GUVNL (1000 MW)

- ❖ Lol issued for 900 MW

DEEP Portal - Under Development

Long Term more than 7 years

- ❖ **Guidelines under re notification with proposed No Reverse Auction**
- ❖ **Portal is under development**

Banking Mechanism up to 1 year

- ❖ **Guidelines under discussion with stakeholders**
- ❖ **Portal development after finalisation of Guidelines**

DEEP Portal - Provisions

Short Term more than 1 day to 1 year

- ❖ Process completes in 15 days
- ❖ Guidelines itself is the Standard Bidding Document and is available
- ❖ Tender Document is uploaded
- ❖ Notification sent to qualified bidders after opening Initial Price Offer
- ❖ e-Reverse Auction with auto extension of 10 mins
- ❖ Allocation of Power including Bucket Filling
- ❖ Information on concluded bidding process including Tariff is available

Medium Term up to 5 years

- ❖ Process completes in 45 days
- ❖ Guidelines and Standard Bidding Document available with 10 options (8 types of Fuel Source, Hydro and Lump sum)
- ❖ Tender Document is uploaded
- ❖ Provision for online Pre-Bid meeting
- ❖ Notification sent to qualified bidders after opening Initial Price Offer
- ❖ e-Reverse Auction with auto extension of 10 mins
- ❖ Allocation of Power including Bucket Filling

Coal Flexibility up to 1 year

- ❖ Process completes in 15 days
- ❖ Guidelines itself is the Standard Bidding Document and is available
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- ❖ Information on concluded bidding process including Tariff is available

Power Market – Energy Exchanges

Evolution of Electricity Market in India

Future...

- Capacity Market
- Financial Products
- Demand Response

2017: Cross border, AGC

2016: Ancillary Services

2015: 24 x 7 Market

2015: RE Framework

2014: Deviation Settlement

2012: Sub-Hourly Market

2011: Transmission Pricing (POC)

2010: Power Market, REC

2009: Connectivity, LTA, MTOA

2009: Trading License

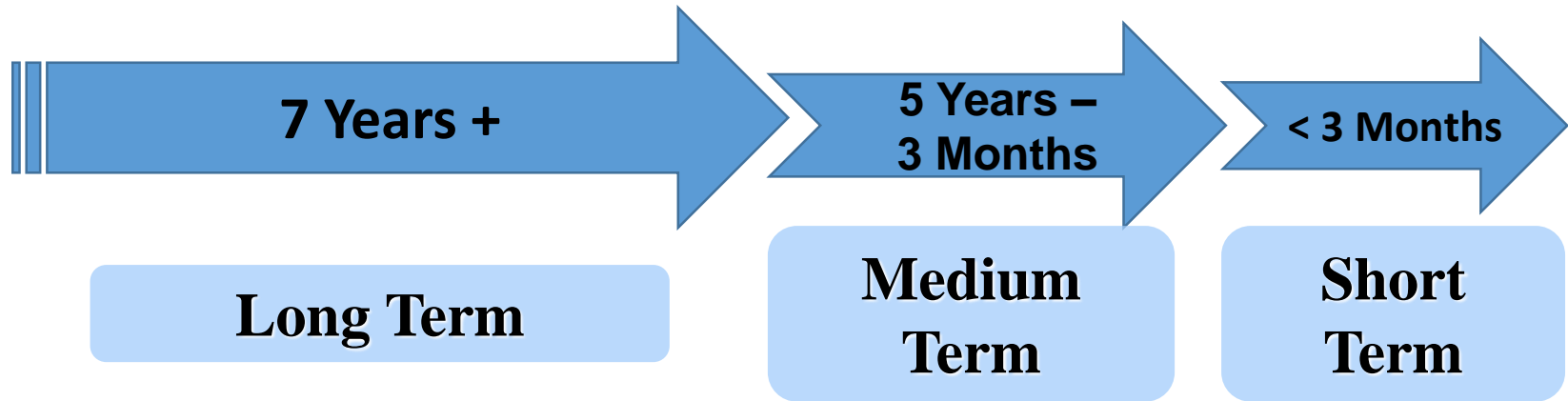
2009: Congestion Management

2009: Imbalance (UI)

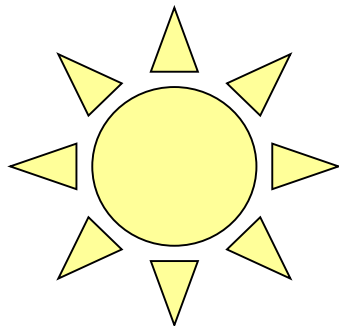
2008: Power Exchange

2004: Open Access

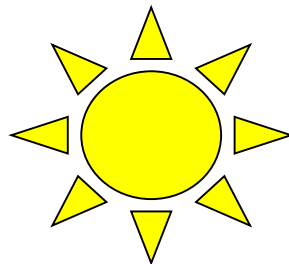
Products in Different Time Frames



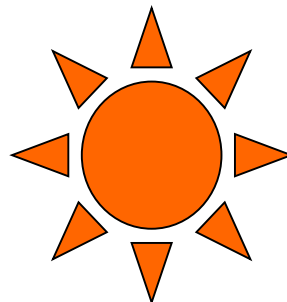
Products in the Short Term Market



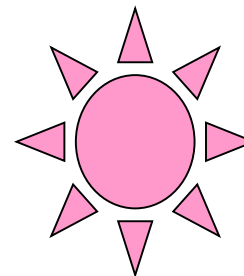
**Bilateral
-
Advance**



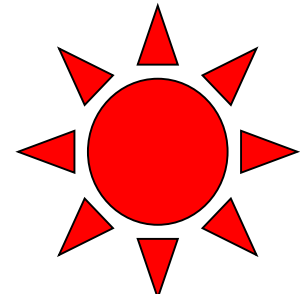
**Bilateral
- FCFS**



PX



**Day -
Ahead**

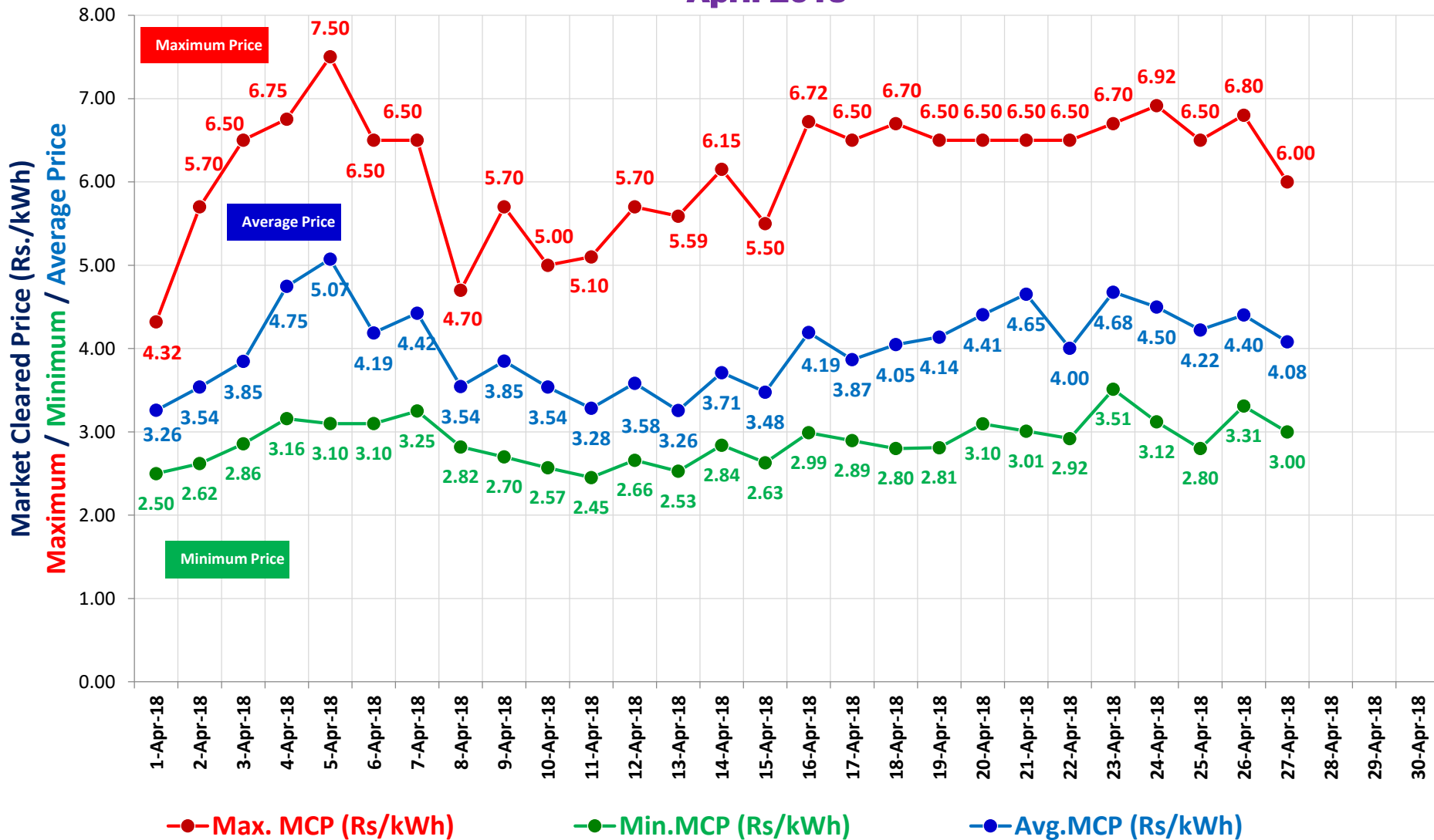


**Contingenc
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Indian Energy Exchange :

Market Cleared Price (Rs./kWh) : Maximum / Minimum / Average

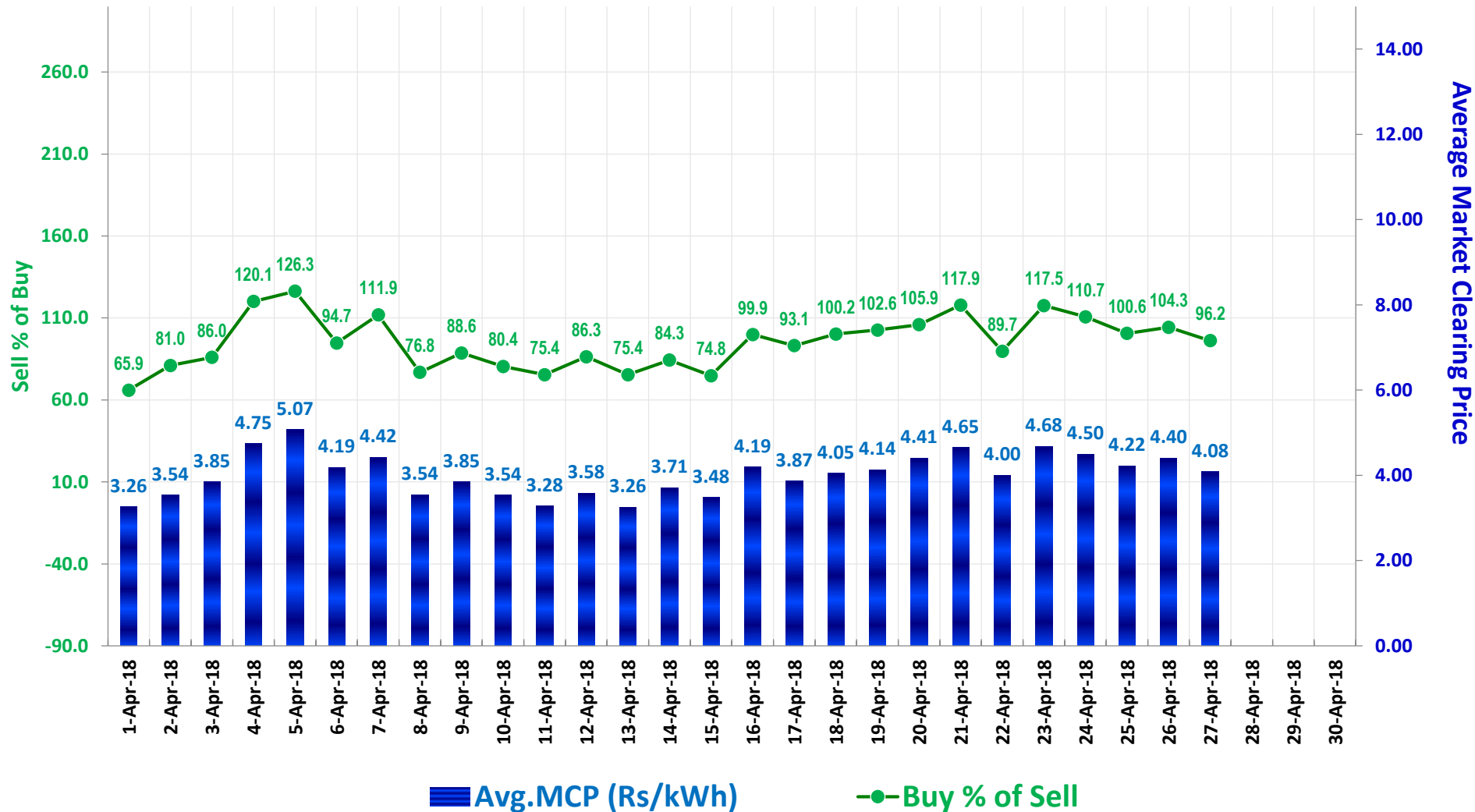
April 2018



Indian Energy Exchange : *Day Ahead Market Snapshot*

Buy / Sell Ratio and Market Clearing Price - *On Average Basis*

April 2018



Indian Energy Exchange : Day Ahead - *Market Snapshot*

2017-18

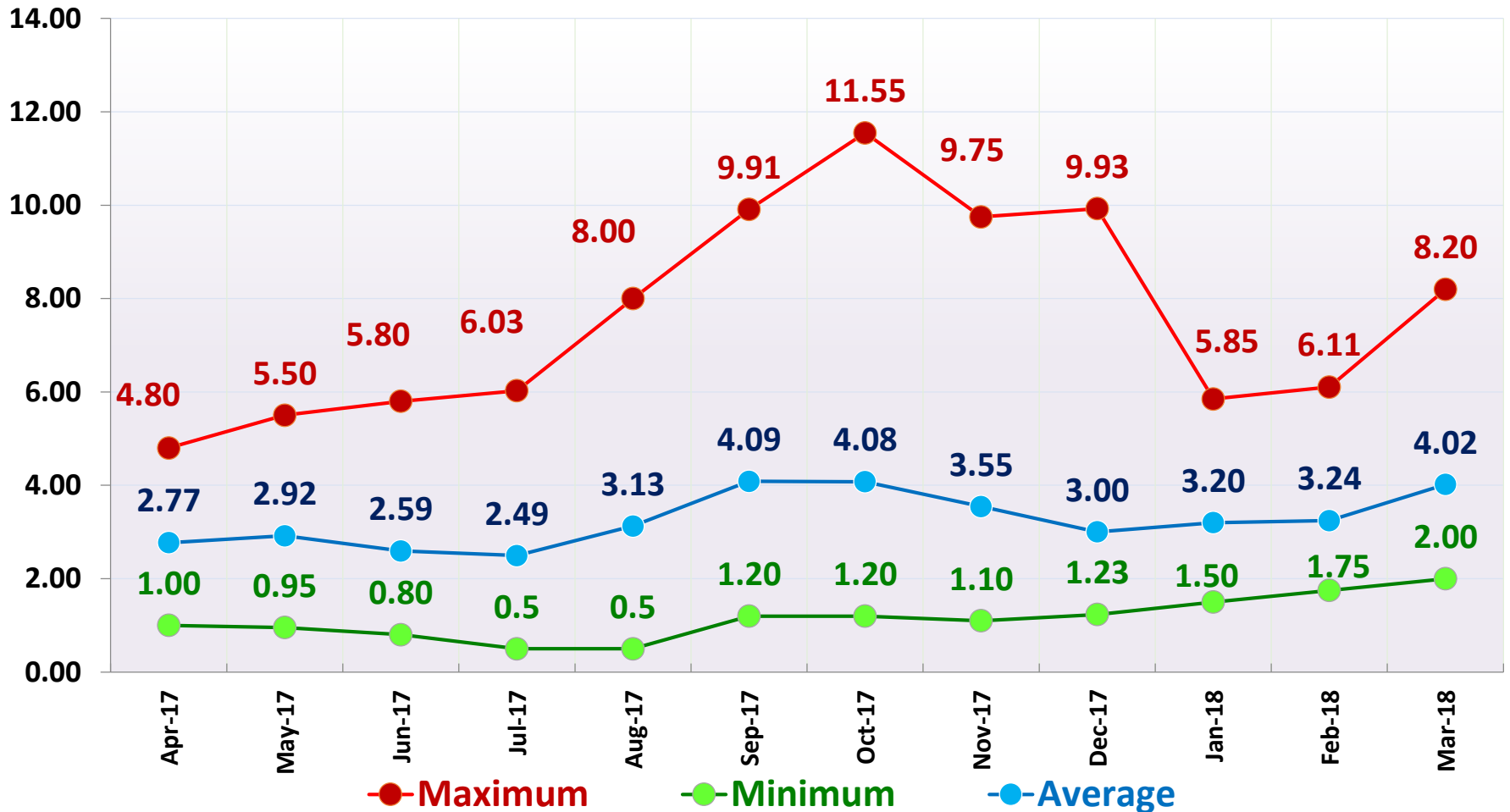
Month	Purchase Bid (MW)			Sell Bid (MW)			Cleared Volume (MW)			MCP (Rs/kWh)		
	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average	Maximum	Minimum	Average
Apr-17	10,484	3,176	6,308	12,024	4,003	8,098	8,538	2,783	5,164	4.80	1.00	2.77
May-17	11,797	3,053	6,833	14,836	4,682	8,351	7,795	3,008	5,518	5.50	0.95	2.92
Jun-17	10,313	2,839	6,149	15,213	6,085	10,207	8,142	2,738	5,445	5.80	0.80	2.59
Jul-17	11,794	2,533	5,773	14,308	4,812	8,989	8,653	2,462	4,943	6.03	0.50	2.49
Aug-17	11,305	2,946	6,784	13,080	4,489	8,276	9,417	2,748	5,431	8.00	0.50	3.13
Sep-17	13,176	3,813	7,969	11,679	4,300	7,085	9,064	3,297	5,676	9.91	1.20	4.09
Oct-17	14,041	2,755	7,440	11,996	4,319	7,054	8,892	2,609	5,488	11.55	1.20	4.08
Nov-17	11,759	2,805	6,285	13,360	3,702	7,760	8,865	2,339	4,899	9.75	1.10	3.55
Dec-17	10,800	2,267	5,142	16,005	4,216	8,704	8,496	1,814	4,177	9.93	1.23	3.00
Jan-18	11,667	2,710	5,982	18,304	3,836	8,928	7,725	2,211	4,540	5.85	1.50	3.20
Feb-18	11,404	3,463	6,415	16,240	4,576	9,257	7,706	2,746	4,920	6.11	1.75	3.24
Mar-18	10,503	2,795	7,175	12,528	3,623	7,250	8,622	2,610	5,316	8.20	2.00	4.02
2017-18 April-March	14,041	2,267	6,521	18,304	3,623	8,330	9,417	1,814	5,126	11.55	0.50	3.26

Indian Energy Exchange :

Market Cleared Price (Rs./kWh) : **Maximum** / **Minimum** / **Average**

Year : 2017 -18

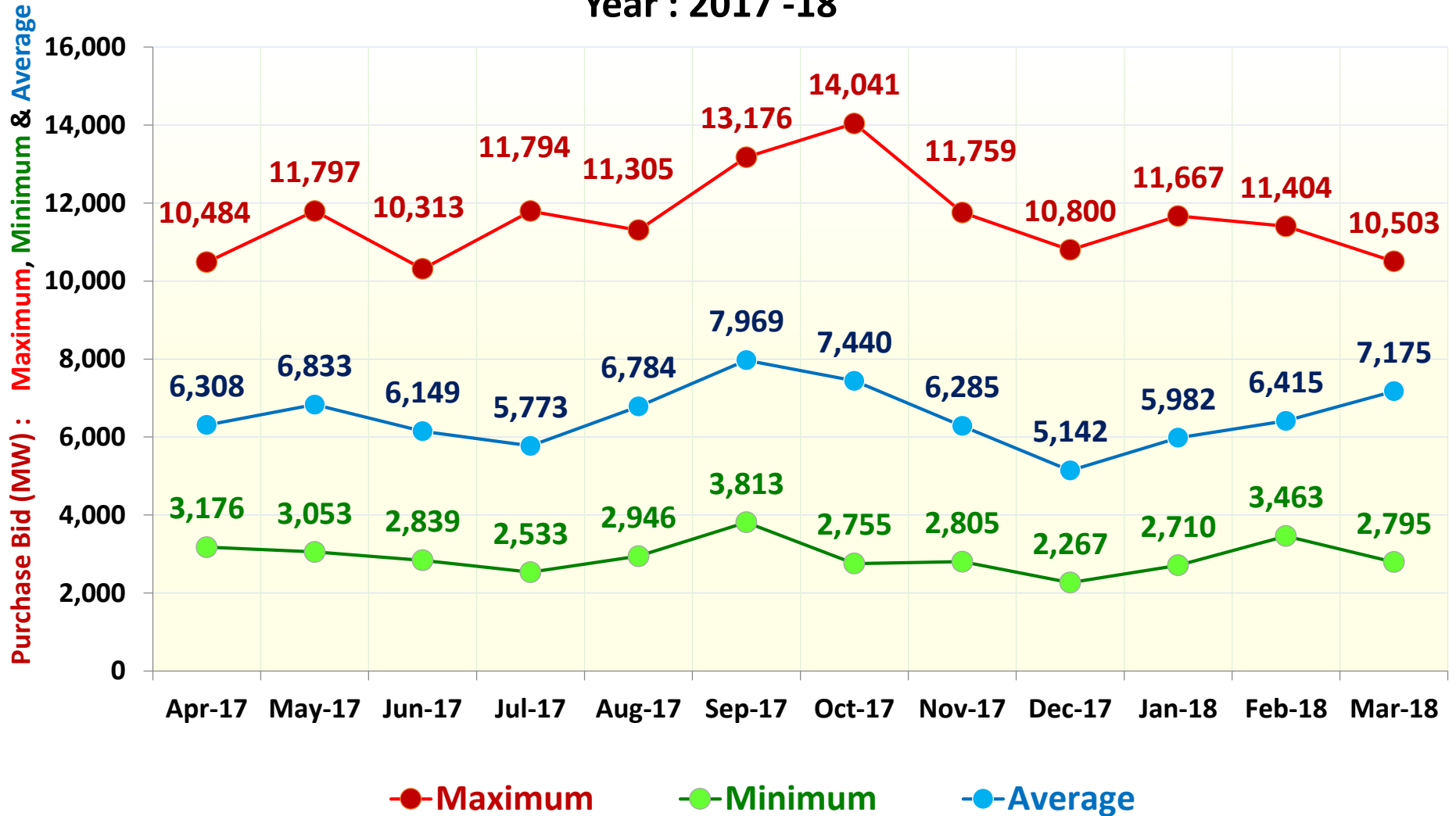
Market Cleared Price (Rs./kWh) : **Maximum**, **Minimum** & **Average**



Indian Energy Exchange :

Purchase Bid (MW) : **Maximum** / **Minimum** / **Average**

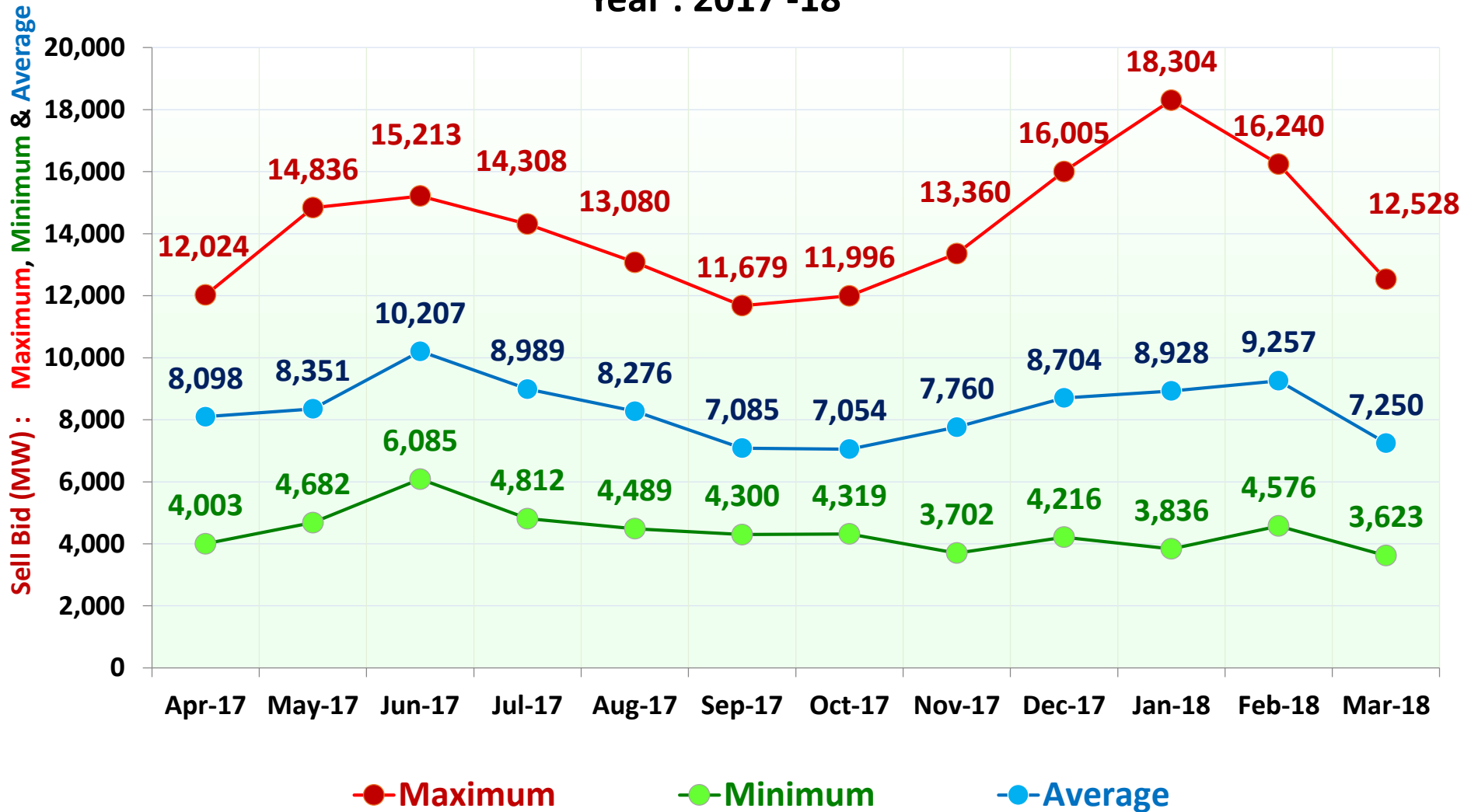
Year : 2017 -18



Indian Energy Exchange :

Sell Bid (MW) : Maximum / Minimum / Average

Year : 2017 -18

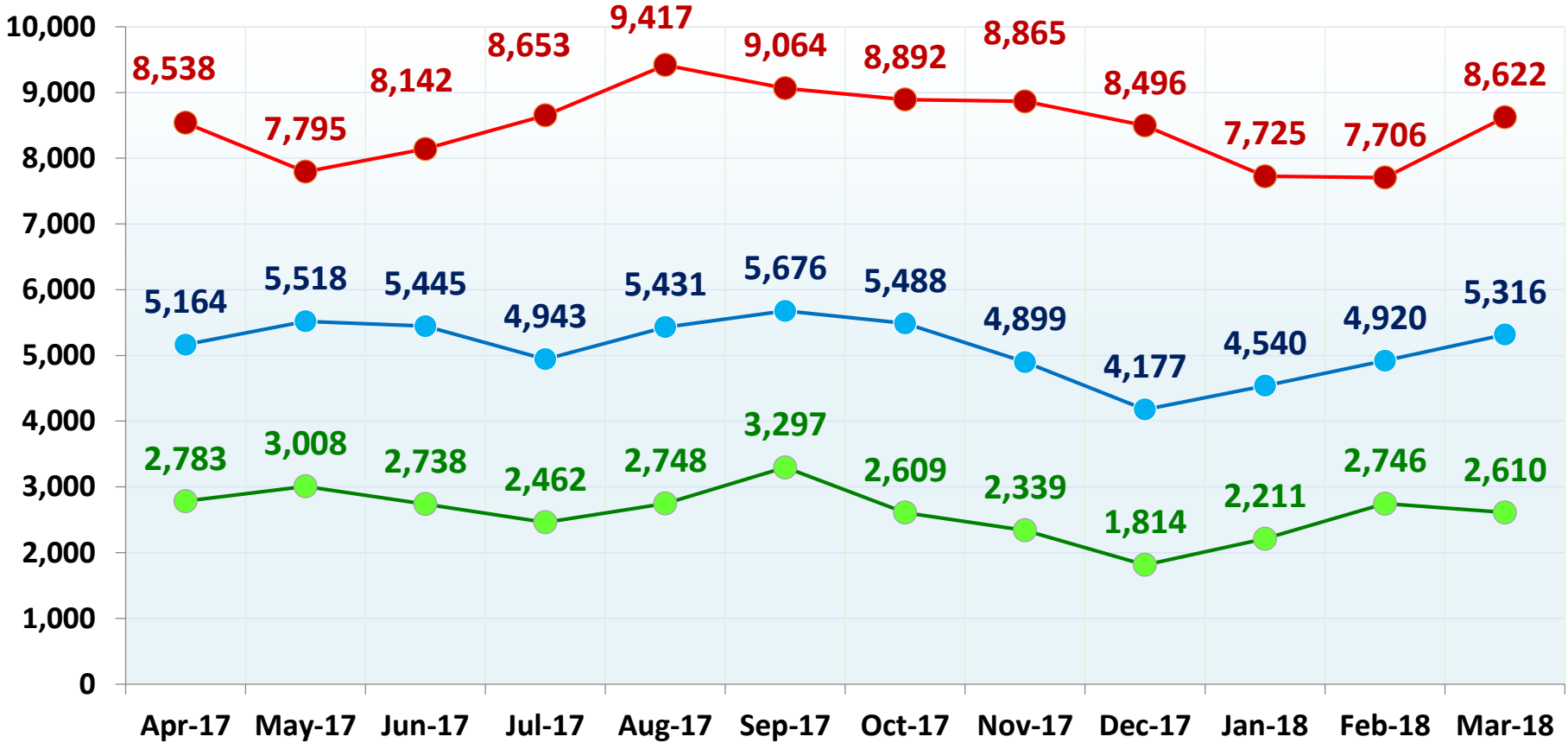


Indian Energy Exchange :

Cleared Volume (MW) : **Maximum** / **Minimum** / **Average**

Year : 2017 -18

Cleared Volume (MW) : **Maximum**, **Minimum** & **Average**



●-Maximum

●-Minimum

●-Average

Stressed Assets

Generation – Stressed Assets

- ❑ Is there a definition of the stressed asset
- ❑ How Much is the stressed assets in generation
 - **No Official figure**
 - **As per APP, 75 GW is Stressed- 52 GW operational and 23 GW Under construction**
- ❑ Reasons (As per APP discussion in ministry of power on 27.4.18)
 - Projects without PPA (19.72 GW Commissioned and 20.69 GW under construction)
 - Stressed projects with Imported Coal (9.8 GW Commissioned)
 - Stressed Gas based projects (10.58 GW commissioned and 2.4 GW under construction)
 - Due to under recovery (11.7 GW commissioned) (Pending Receivables of Rs 8,300 Cr)

Generation – Stressed Assets

- ❑ **Three basics of generation business**
 - **Input** - Fuel supply (coal , Gas), Water (shortage of water is being faced by some power plants say Chandrapur in Maharashtra), EMCO, APML Tiroda, Nasik etc
 - **Transportation of fuel to power plant-** Railway rakes/ MGR/ conveyor belt/ Road. There are power plants without proper coal sidings. **Proper evacuation system- Plants got commissioned without any LTOA**
 - **Output-** sale of power through PPA

- ❑ **How can a decision be taken to build a power plant without proper due diligence- without tie up of coal supply, PPA and transport arrangement.**

Generation – Stressed Assets

- ❑ Shift from Drought (power deficit) to flood (power surplus) – Both are not desirable for the power sector.
- ❑ Is it a government policy fault. – an easy target (a General comment is government does not do anything. Government should do something. What and How is not known?).
- Should Government be blamed for a decision taken by individuals
- Easy to blame but a very difficult task as the policy is futuristic and is based on a lot assumptions which was available at that instant of time.

Generation – Stressed Assets

❑ Is it a Planning fault-

- Pre electricity act 2003- CEA was able to do due diligence – techno-economic clearance was done by CEA. Banks used to finance based on CEA clearance. (Is there any project which have been cleared by CEA and has been declared NPA? Probably None.)
- Demand of generation Industry was complete freedom
- Post Electricity Act 2003- Generation was delicensed. No techno-economic clearance is required by CEA (Freedom Granted)
- Free for all situation probably led to Silo planning at project level instead of optimum national planning
- Can we go back to the earlier system ? – may be debated
- Whose responsibility is to do due diligence- at present - is it not of the Developer alone and banks / financier?

Generation – Stressed Assets

❑ PPA (Blame it to third party i.e Discoms)

- Discoms already have surplus PPAs
- Growth in electricity energy was around 6.4 % in last four years
- Demand is likely to increase due to Village electrification and Access to house hold electrification (through DDUGJY, IPDS and SAUBHAGYA)

❑ Gas based projects

- **No gas is available.**
- **RLNG is not viable**

❑ Retirement of old and inefficient plants

❑ Coal issues

- Shakti Policy- Coal offered to around 9000 MW coal based power plants.

Generation – Stressed Assets

❑ Reasons – Coal

- **Should huge capacity addition in last 5 years be blamed.**
- **CAGR in coal based generation capacity addition alone was around 13 %.**
- **Matching coal supply could not be achieved**
- **Focus on imported coal reduction for blending (reduced from max of 48 MT to 17 MT) –requirement to be met by Domestic coal.**
- **Most of the allotted captive coal blocks are still non-functional (Support is only around 31.6 MT)**
- **Can we blame our domestic coal companies i.e CIL , SCCL for the supply of coal to power sector (supply of coal from CIL was 454 MT, 8 %)**
- **Should we blame price rise of imported coal.**
- **Coal companies and railways have supported us. There are certain operational issues, which are being shorted out.**
- **Future plans :**
- **Long term plan of coal submitted to Railways and coal companies.**
- **Infrastructure constraint of railways have been identified and are being taken up with railways and is being monitored to the highest level.**

Generation – Stressed Assets

❑ Customer orientation in business –

- In physical product business or even in service industry, Customer is supreme, everyone care for customer satisfaction
- What is the status of a customer / consumer in electricity sector. Probably no one care for his need and therefore his satisfaction is out of syllabus.
- But the actual cash flow/ revenue comes from the consumer
- Change in the mindset of all stakeholders in the value chain is required- Generator, Transmission and distribution companies must change their mindset and ultimately reorient towards the need of the customer and his satisfaction.
- Customer too need to pay in time for the services he has availed.

❑ Solving the Puzzle – a session in a workshop in delhi

- Some of the quick suggestions are
 - No Regulator in electricity sector
 - No government Control
 - Everything is to be market driven i.e through competition
 - Should it be done? I feel it is not right to shift own weaknesses to others.
 - All Stakeholders in the value chain is important but the most important is the consumer.

Generation – Stressed Assets

❑ Long term Re- assessment required

- No new power plant is being planned. (Private sector investment is affected)
- With coal based capacity of 197 GW, at times during the year 2017-18, we barely met the demand of around 164 GW. What will happen when the peak demand touches 225 GW by 2022 and 299 GW by 2027 and there is no coal based capacity to support the baseload.
- What if there is failure of monsoon and less generation from wind even during the windy season. Windy season is mostly for 4-5 months only. Major critical period for coal based generation is November to April.
- Renewables has its own problems - a careful balancing capacity needs to be created.
- Gestation period of coal based power stations is around 6 years.
- Is it not a right time to wakeup or be ready to face the shortage situation again
- Technology is changing – may be there is a breakthrough in the storage technology and the solar and wind power coupled with storage is almost like a base load stable plant.
- Should the role of CEA be redefined for doing due diligence at the initial stage only so that only feasible/ viable projects are build.

Initiatives Taken

- ❑ **Introduction of e-Bidding and e-Reverse Auction for short term and Medium Term procurement of Power**
 - **“DEEP (Discovery of Efficient Electricity Price) e-Bidding Portal” launched on 12th April, 2016 in order to bring uniformity and transparency in short term power procurement by the DISCOMs and also to promote competition in electricity sector**
 - **Electronic bidding and e-Reverse Auction process resulted in discovery of most optimal price of power**
 - **Scope of DEEP portal further extended for procurement of power for medium term**
 - **e-bidding portal for medium term launched and guidelines and bidding documents issued by Ministry of Power**
- ❑ **Biding through DEEP Portal:**
 - **During the year 2017-18, total 30 Electricity Distribution utilities have invited bids for 2,22,084 MW of electricity using DEEP portal for meeting Short term power requirements.**

Initiatives Taken

- ❑ **Flexibility in Generation and Scheduling of Thermal Stations to reduce Emissions**
 - **Encouraging Renewable Energy capacity addition**
 - **Issued a mechanism for providing flexibility in generation & scheduling of Thermal Power Stations on 05.04.2018**
 - **Flexibility to the generating companies to use its thermal power or renewable power to meet its scheduled generation from the thermal generating stations**
- ❑ **Waiver of ISTS Transmission charges and losses**
 - **To encourage capacity addition of Solar and Wind based power projects, waiver of ISTS Transmission charges and losses for Solar and Wind based Projects allowed till March 2022.**

Initiatives Taken

- ❑ **Coal allocation through Shakti policy**
- ❑ **Flexibility in utilization of domestic coal for reducing the cost of power generation**
 - **Cabinet approved the proposal of Ministry of Power on 4th May, 2016 for Flexibility in utilization of domestic coal for reducing the cost of power generation.**
 - **Central & State Generating Companies can use their coal and take equivalent power from any other efficient generating stations at a cheaper cost.**
 - **Detail methodology for flexibility in utilization of domestic coal for reducing the cost of power generation issued on 8th June 2016.**

Initiatives Taken

❑ Model Pilot Bidding Documents

- **Model Pilot Bidding Documents and guidelines for procurement of aggregated power of 2500 MW for three years under Medium term through PFC as Nodal Agency under Pilot Scheme issued 6th April 2018 and 10th April 2018 respectively.**

❑ Role of Exchanges in mitigating the stress

- **Some more products are needed to facilitate power purchase**
- **Capacity building of Discoms**
- **State Specific plan for optimisation in power purchase-traders / exchanges may take lead**

Team Effort

- ❑ All stakeholders need to work together for stress free power sector.
- ❑ Today it is generation, tomorrow it may be transmission or distribution.
- ❑ Though there are different power entities with individual goal but for survival in Power sector every one is interdependent.
- ❑ Let us jointly work to achieve a stress free power sector

Thank You