



# Addressing New Environment Norms for TPS

Progress & Perspective

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# New Environment Norms

Emission parameter	TPPs (units) installed before 31.12.2003	TPPs (units) installed after 01.01.2004 and up to 31.12.2016	TPPs (units) to be installed from 01.01.2017
Particulate Matter	100 mg/Nm <sup>3</sup>	50 mg/Nm <sup>3</sup>	30 mg/Nm <sup>3</sup>
Sulphur Dioxide (SO <sub>2</sub> )	600 mg/Nm <sup>3</sup> for units less than 500MW capacity	600 mg/Nm <sup>3</sup> for units less than 500MW capacity	100 mg/Nm <sup>3</sup>
	200 mg/Nm <sup>3</sup> for units 500MW and above	200 mg/Nm <sup>3</sup> for units 500MW and above	
Oxides of Nitrogen (NO <sub>x</sub> )	600 mg/Nm <sup>3</sup>	300 mg/Nm <sup>3</sup>	100 mg/Nm <sup>3</sup>
Mercury	0.03 mg/Nm <sup>3</sup>	0.03 mg/Nm <sup>3</sup>	0.03 mg/Nm <sup>3</sup>
<b>WATER NORMS**</b>	I. All plants with Once Through Cooling (OTC) shall install Cooling Tower (CT) and achieve specific water consumption of 3.5 m <sup>3</sup> /MWh within 2 years of notification. II. All existing CT based plants shall reduce specific water consumption up-to maximum of 3.5 m <sup>3</sup> /MWh within a period of 2 years. III. New plants to be installed after 1.1.2017 shall have to meet specific water consumption of 2.5* m <sup>3</sup> / MWh & achieve zero water discharge.		

→ Revised to 450 mg/Nm<sup>3</sup>



# Issues Resolved

- MoP / CEA had taken up with MoEF&CC, some of very difficult stipulations of the new norms particularly meeting new water norms by coastal plants and additional water requirements for FGD.
- The matter of installing a shorter chimney to facilitate construction and reduce shut down time was also taken up by CEA.
- Defining emission norms at particular standard conditions i.e. at 6% O<sub>2</sub> level was also taken up by CEA.



# Issues Resolved

## 1. Water consumption for Thermal Power Plants:

“Specific water consumption shall not exceed 3.0 m<sup>3</sup>/MWh for new plants installed after 1st January 2017 and these plants shall also achieve zero water discharge consumption”

Water consumption norms shall not be applicable to the Thermal Power Plants using Sea water.

## 2. Chimney Height: Thermal Power Plants with FGD

100 MW and above,  $H = 6.902 (Q \times 0.277)^{0.555}$  or 100 m which ever is more

Less than 100 MW,  $H = 6.902 (Q \times 0.277)^{0.555}$  or 30 m which ever is more

Q= Emission rate of SO<sub>2</sub> in kg/hr

H= Physical stack height in meters

- Notification dated 28.6.2018 has been issued by MoEF&CC in this regard.

➤ Equipment/Technology required for retrofitting/up-gradation in plants:

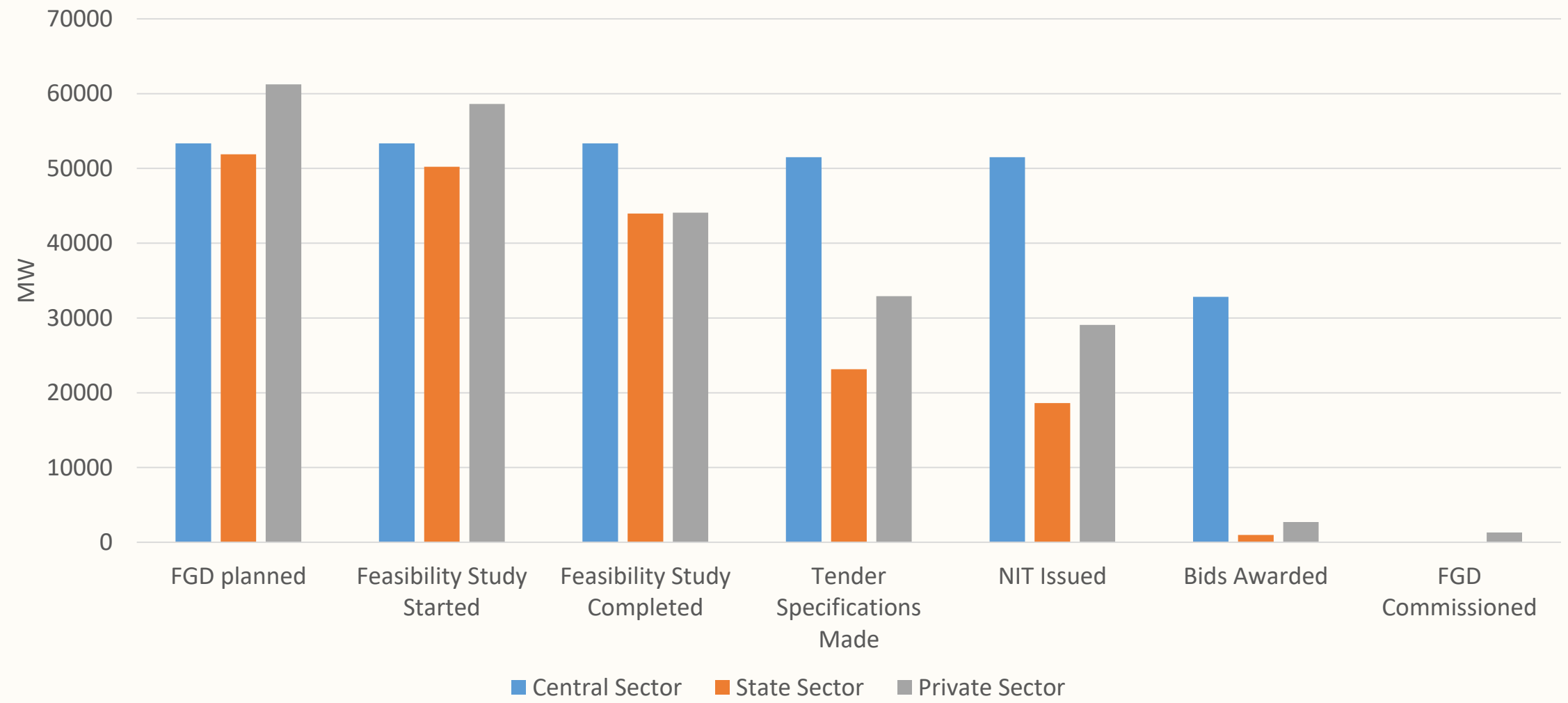
Emissions	Equipment/Technology
SPM (Suspended Particulate Matter )	ESP (Electrostatic Precipitator)
SOx (Sulphur Oxides)	FGD (Flue Gas De-Sulphurisation)
NOx (Nitrogen Oxides)	CM (Combustion Modification) SCR (Selective Catalytic Reduction) SNCR (Selective Non-Catalytic Reduction)

➤ Phase wise Installation of FGD (Capacity in MW (Units)):

Year	Central	Private	State	Total
<b>2019</b>	3320 (9)	5220 (8)	7870 (22)	16410 (39)
<b>2020</b>	3650 (9)	11700 (23)	6960 (15)	22310 (47)
<b>2021</b>	15510 (40)	21123 (45)	25665 (85)	62298 (170)
<b>2022</b>	30870 (85)	23195 (57)	11390 (42)	65455 (184)
				<b>166473 (440)</b>



# All India status of FGD





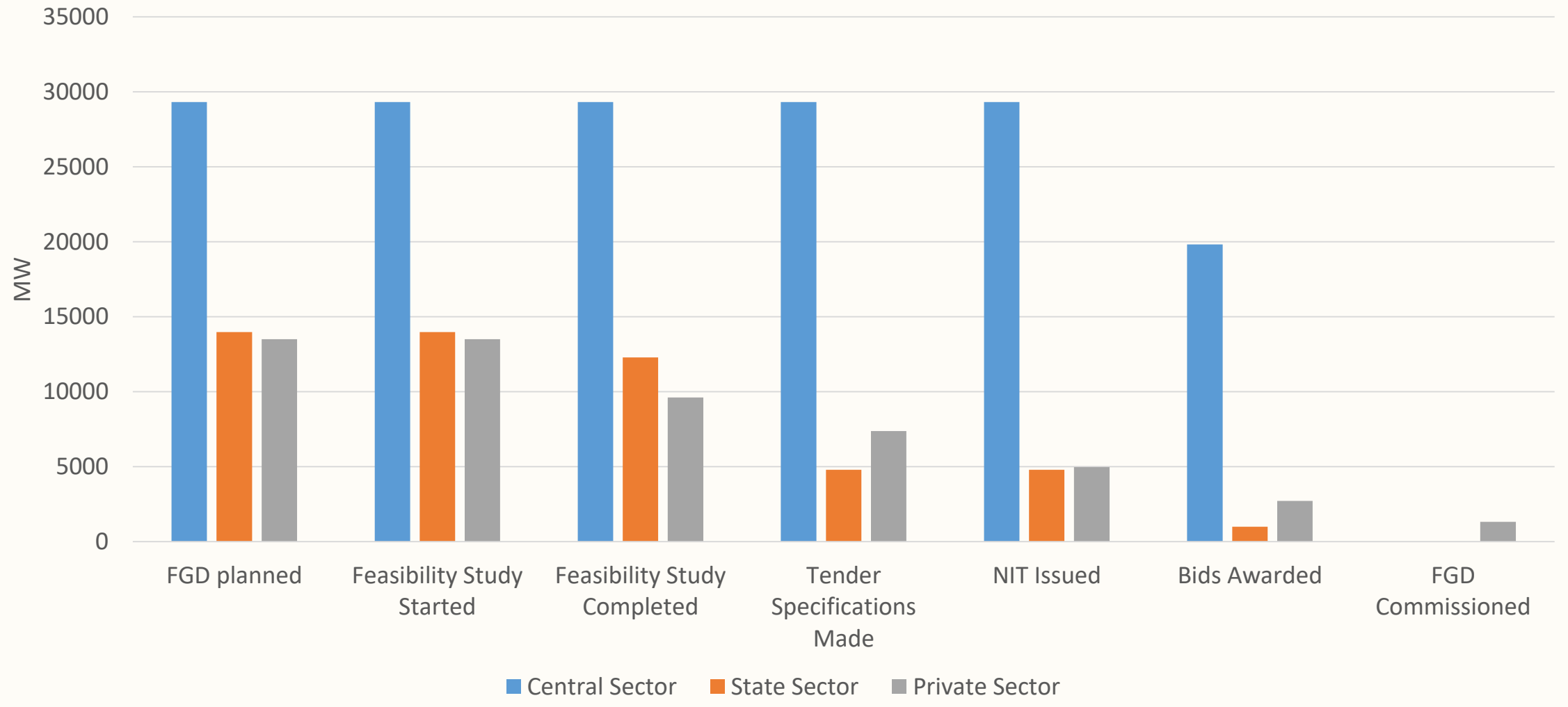
# All India status of FGD

General Summary								Table A
S.No.	Sector (Capacity in MW)	FGD planned	Feasibility Study Started	Feasibility Study Completed	Tender Specifications Made	NIT Issued	Bids Awarded	FGD Commission ed
1	Central Sector	53350	53350	53350	51510	51510	32840	0
2	State Sector	51885	50235	43965	23145	18625	1000	0
3	Private Sector	61237	58607	44080	32930	29060	2720	1320
	Total	166472	162192	141395	107585	99195	36560	1320

S.No.	Sector (No. of units)	FGD planned	Feasibility Study Started	Feasibility Study Completed	Tender Specifications Made	NIT Issued	Bids Awarded	FGD Commission ed
1	Central Sector	143	143	143	135	135	73	0
2	State Sector	164	158	144	80	62	2	0
3	Private Sector	133	127	88	60	52	4	2
	Total	440	428	375	275	249	79	2

# Critical units



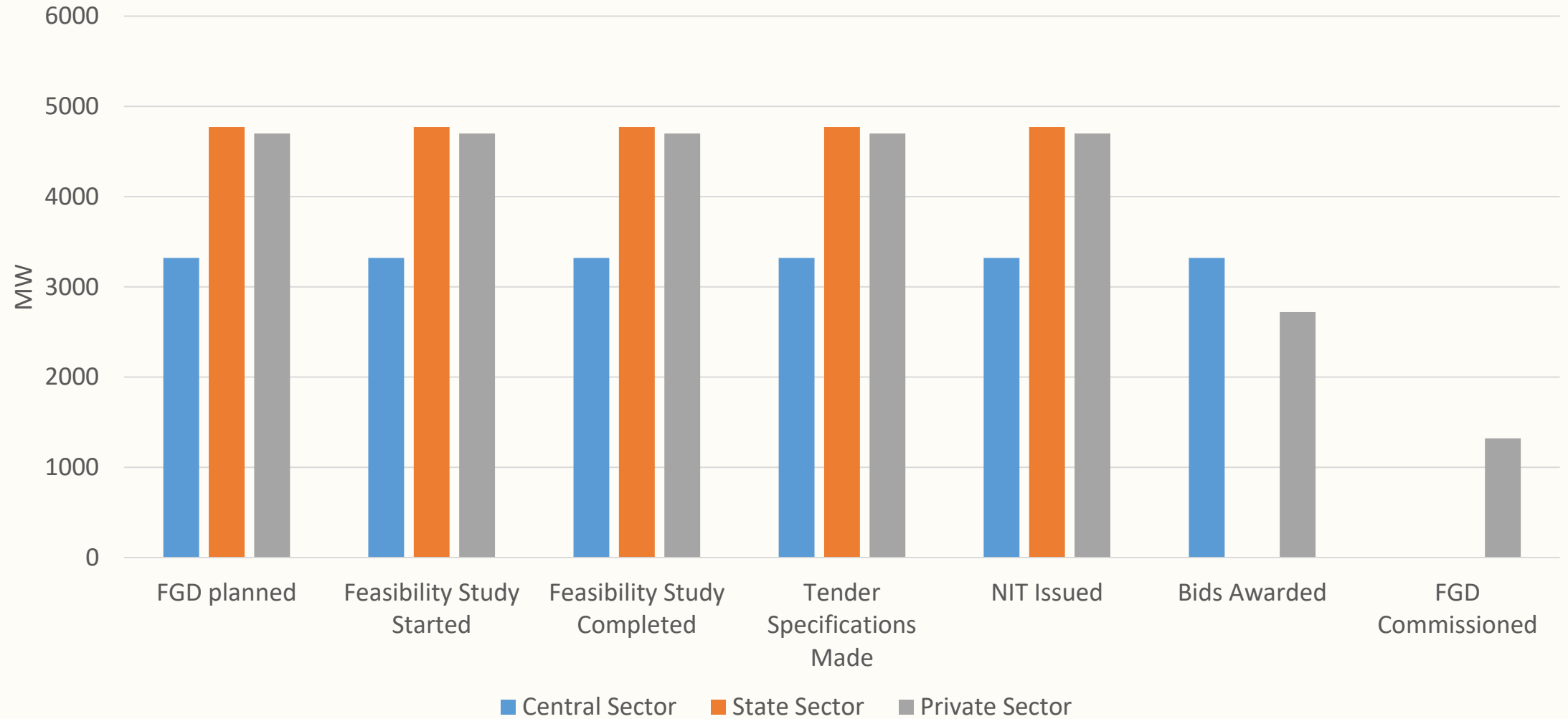


# Critical units

500 MW Critical Units								Table B
Units > 500 MW & located in areas either critically polluted or having population density > 400/km <sup>2</sup>								
S.No.	Sector (Capacity in MW)	FGD planned	Feasibility Study Started	Feasibility Study Completed	Tender Specifications Made	NIT Issued	Bids Awarded	FGD Commissio ned
1	Central Sector	29320	29320	29320	29320	29320	19820	0
2	State Sector	13980	13980	12280	4800	4800	1000	0
3	Private Sector	13510	13510	9610	7370	4970	2720	1320
	Total	56810	56810	51210	41490	39090	23540	1320
S.No.	Sector (No. of units)	FGD planned	Feasibility Study Started	Feasibility Study Completed	Tender Specifications Made	NIT Issued	Bids Awarded	FGD Commissio ned
1	Central Sector	57	57	57	57	57	38	0
2	State Sector	25	25	22	8	8	2	0
3	Private Sector	22	22	16	12	8	4	2
	Total	104	104	95	77	73	44	2



# NCR Units





# NCR Units

S.No.	Sector (Capacity in MW)	FGD planned	Feasibility Study Started	Feasibility Study Completed	Tender Specifications Made	NIT Issued	Bids Awarded	FGD Commissioned
1	Central Sector	3320	3320	3320	3320	3320	3320	0
2	State Sector	4770	4770	4770	4770	4770	0	0
3	Private Sector	4700	4700	4700	4700	4700	2720	1320
	Total	12790	12790	12790	12790	12790	6040	1320

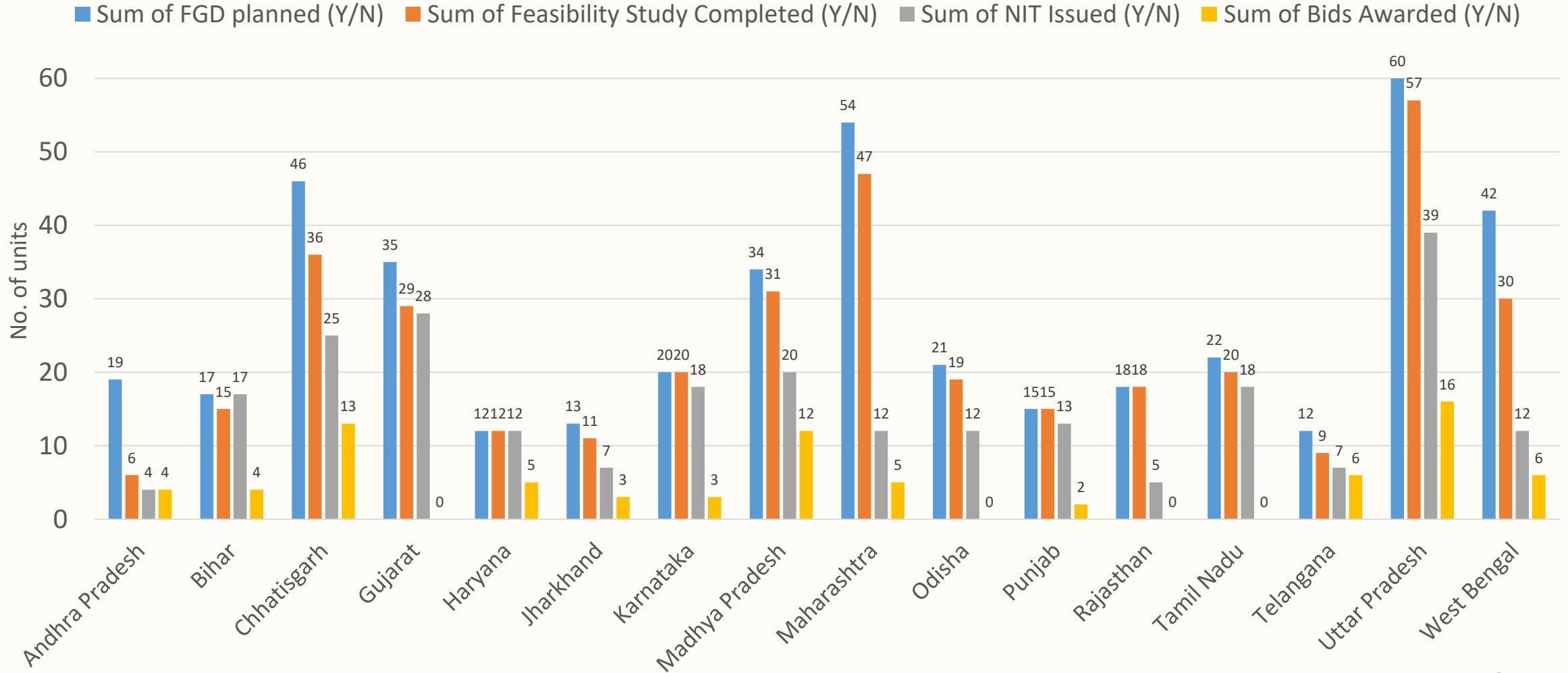
S.No.	Sector (No. of units)	FGD planned	Feasibility Study Started	Feasibility Study Completed	Tender Specifications Made	NIT Issued	Bids Awarded	FGD Commissioned
1	Central Sector	9	9	9	9	9	9	0
2	State Sector	17	17	17	17	17	0	0
3	Private Sector	7	7	7	7	7	4	2
	Total	33	33	33	33	33	13	2



# NCR – Detailed Status

Sector	Developer	Name of Project	FGD Status	Sum of Unit Capacity	Count of Unit No
Central Sector	NTPC	Dadri (NCTPP)	Bid Awarded	1820	6
		Indira Gandhi STPP	Bid Awarded	1500	3
Private Sector	China Light Power	Mahatma Gandhi TPS	FGD operational. Meeting new norms	1320	2
	L&T Power Ltd	Nabha TPP (Rajpura TPP)	NIT issued	1400	2
	Talwandi Sabo Power Ltd	Talwandi Sabo TPS	NIT issued	1980	3
State Sector	HPGC	Panipat TPS	Bid opened	710	3
		Rajiv Gandhi TPS	Bid opened	1200	2
		Yamuna Nagar TPS	NIT issued	600	2
	PSEB	GH TPS (Leh.Moh.)	NIT issued	920	4
		GGs TPS (Ropar)	NIT issued	840	4
	UPRVUNL	Harduaganj TPS	NIT issued	500	2
Grand Total				12790	33

# State-wise Status of FGD installation





Thank You