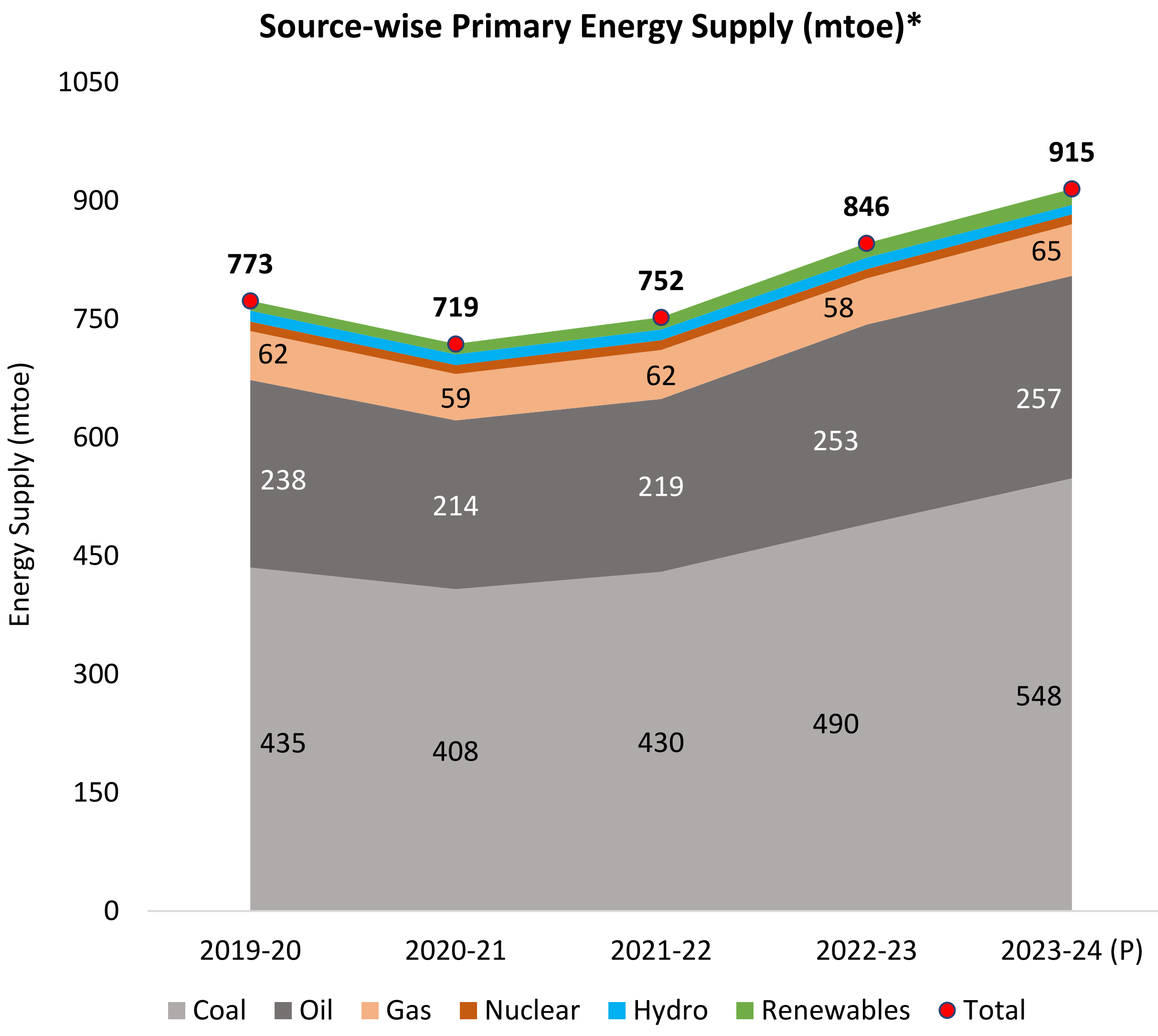
India’s Energy Overview

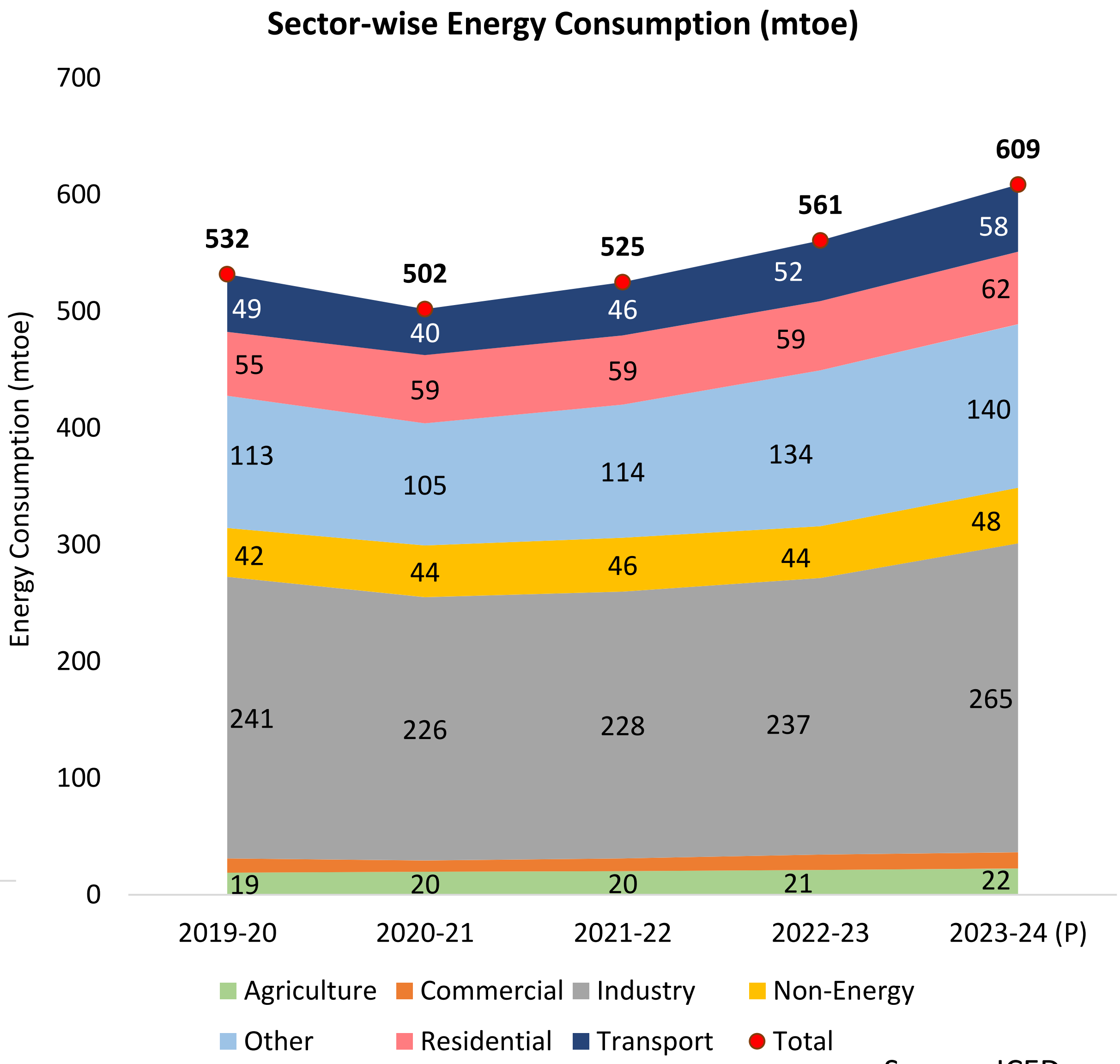
August 2025

VASUDHA FOUNDATION
Green ways for a good earth!

Contents

Primary* and Final Energy Mix in India

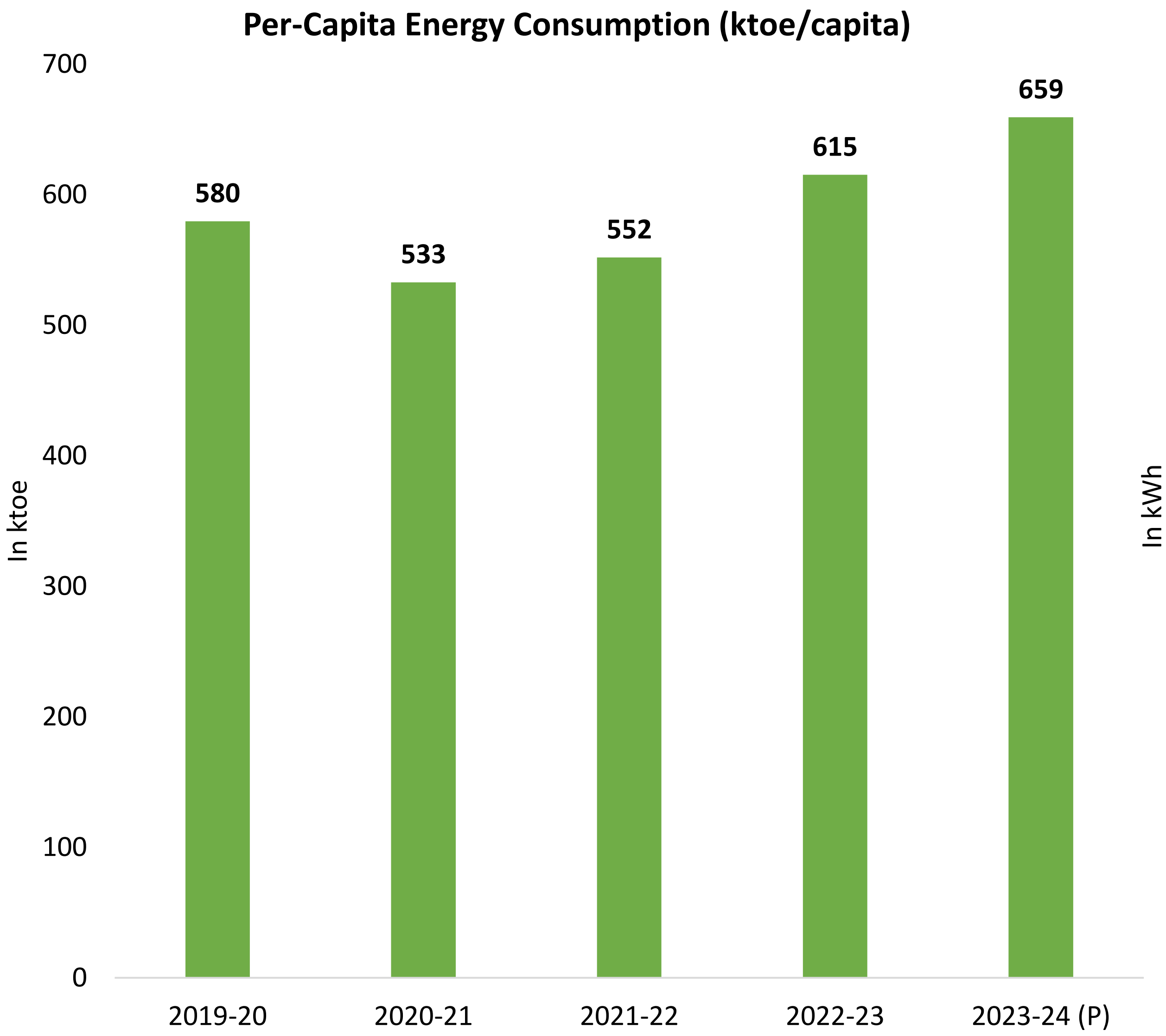


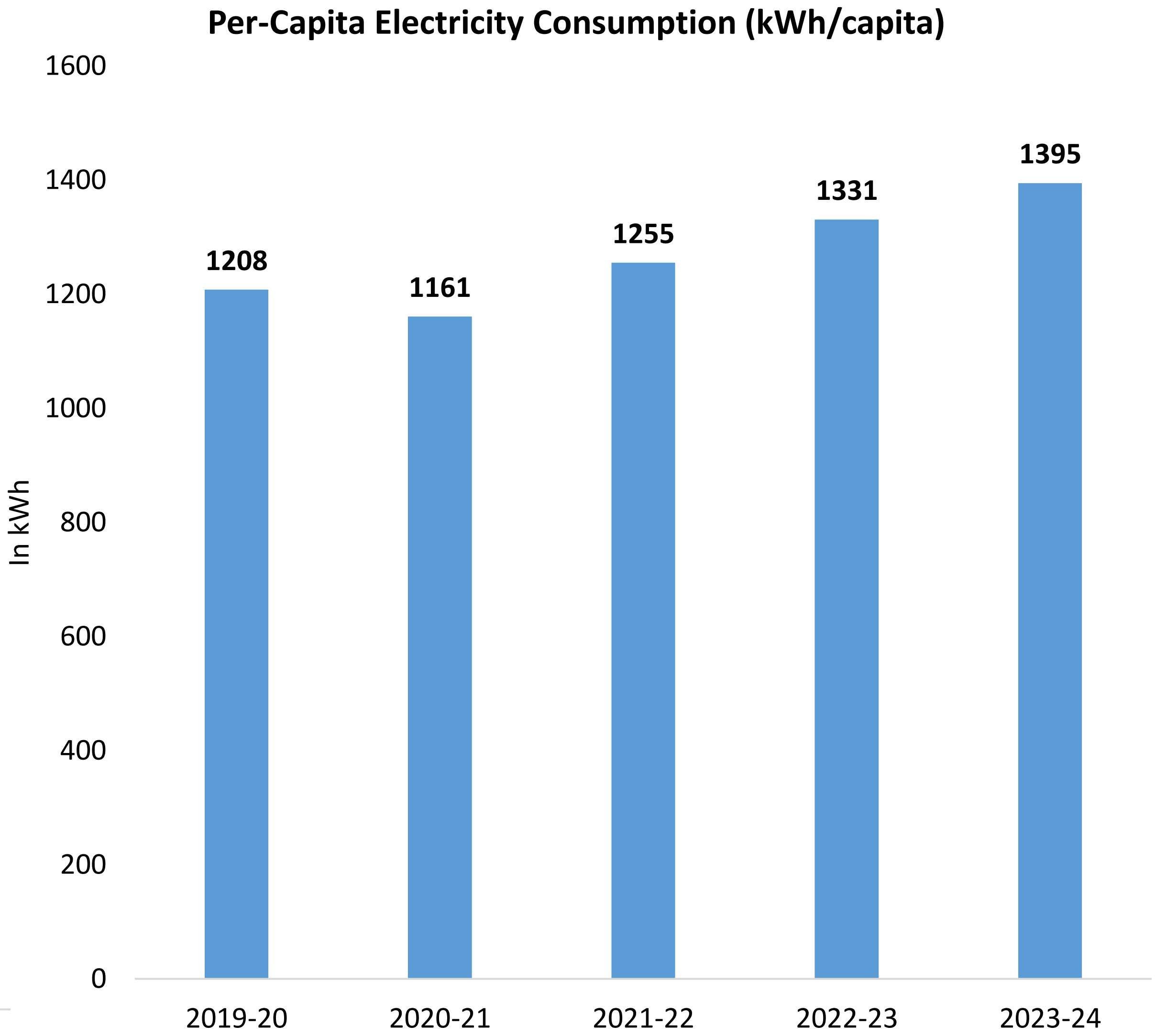


*Excluding biofuels, waste, and other non-commercial source of energy

Source: ICED

Per-Capita Energy and Electricity Consumption

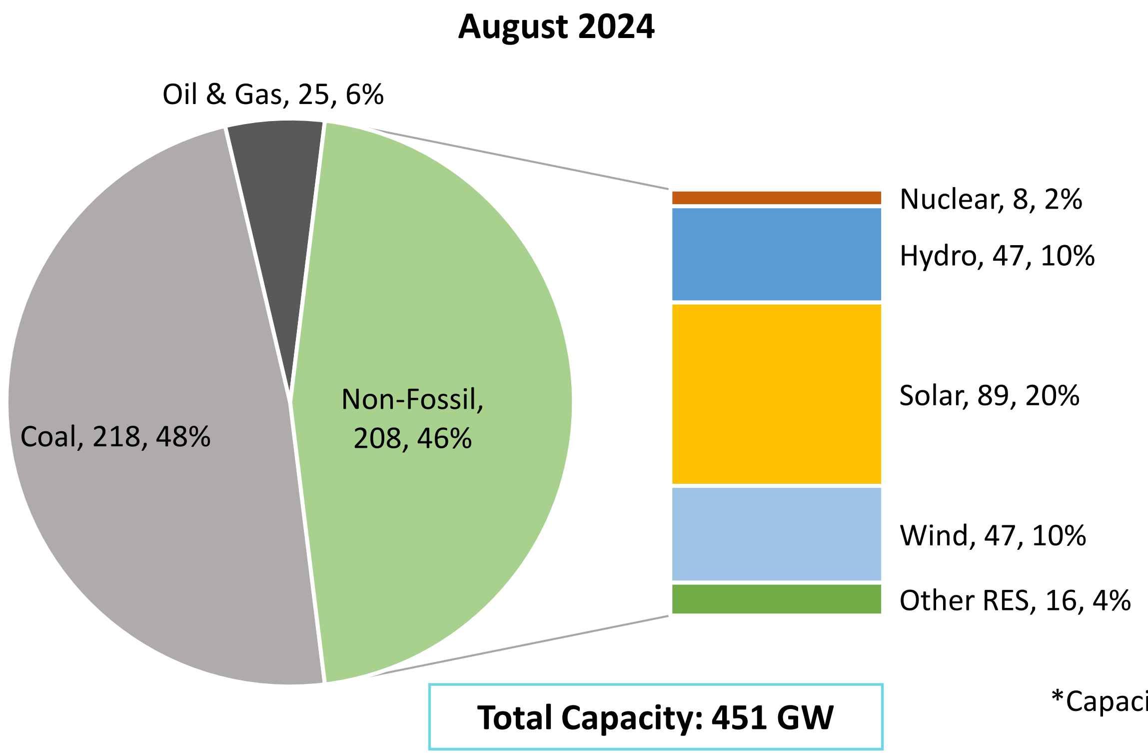


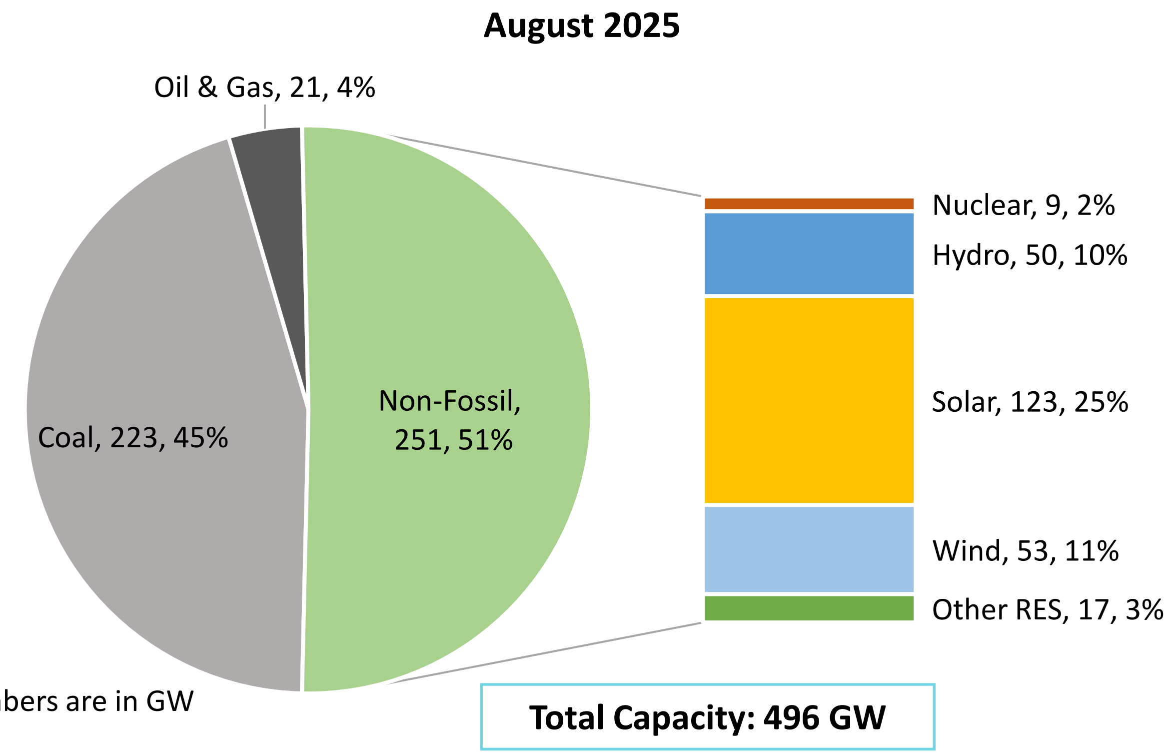


Note: Per Capita energy consumption is calculated on energy supply basis.

Source: ICED & CEA

India's Electricity Capacity Mix (Utility-scale)



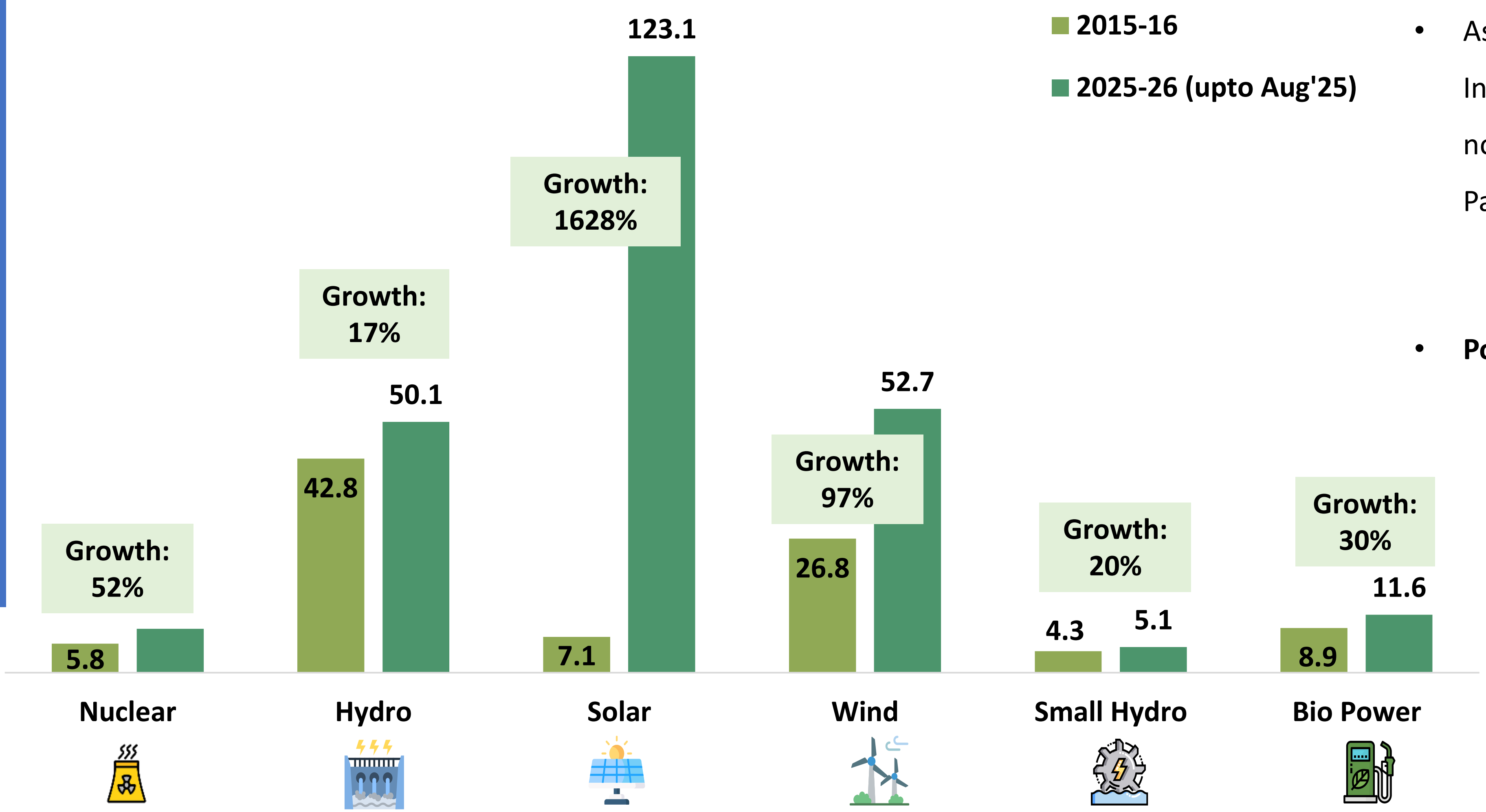


*Capacity Numbers are in GW

- India's electricity generating capacity is 496 GW as on Aug'2025 [coal 223 GW (45%), solar 123 GW (25%), wind 53 GW (11%), and hydro 50 (10%)].
- India has achieved its NDC target of 50% non-fossil capacity, 5 years ahead of the original target set for year 2030.
- As on Aug'2025, India's renewable energy capacity (including large hydro) stood at 243 GW out of 496 GW.

Source: CEA

Non-Fossil Energy Capacity (in GW) Growth Post-2015 Paris Agreement

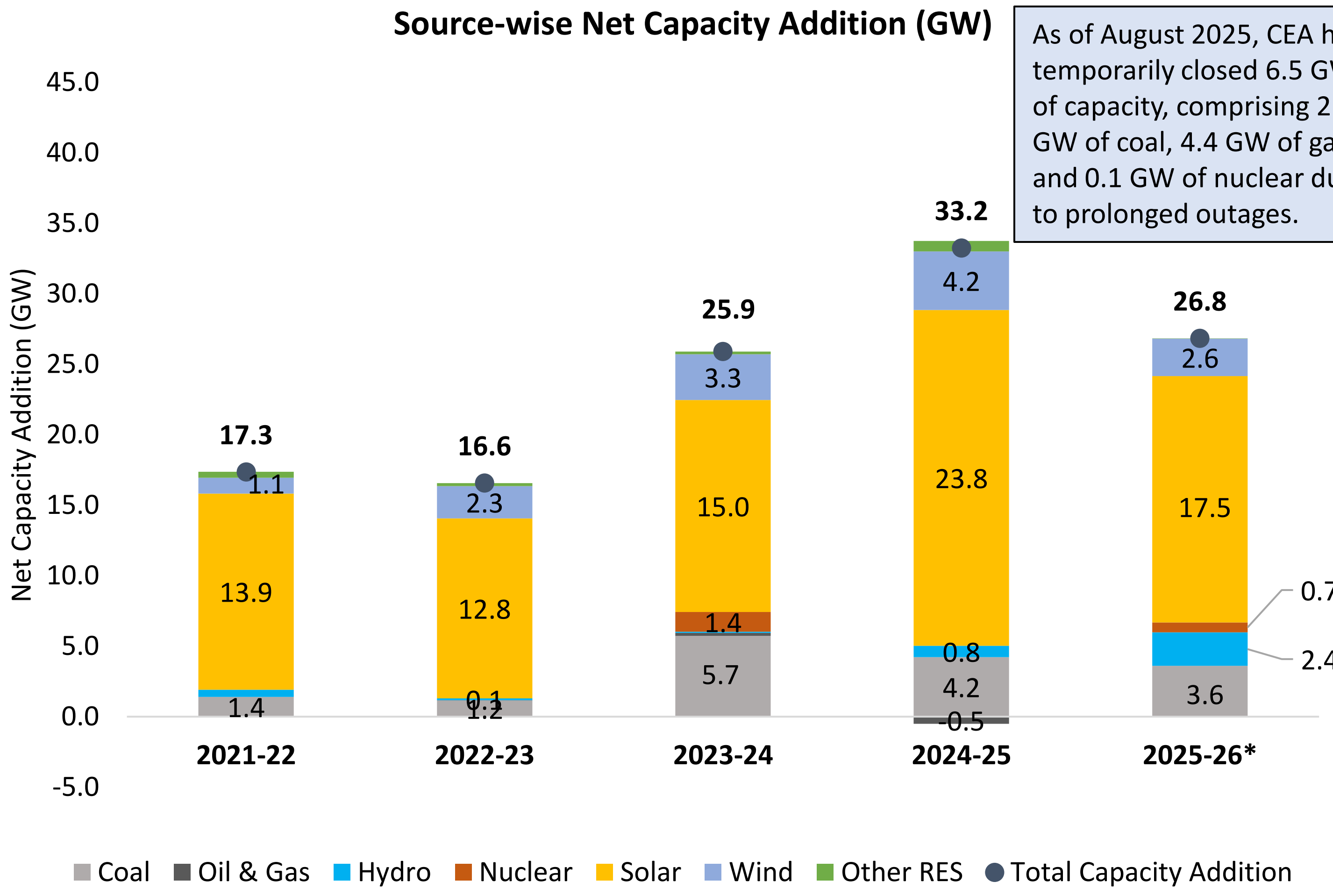


- As of August 31, 2025, **51% (251 GW)** of India's total power capacity (**496 GW**) is now non-fossil fuel-based, meeting the Paris Agreement pledge.

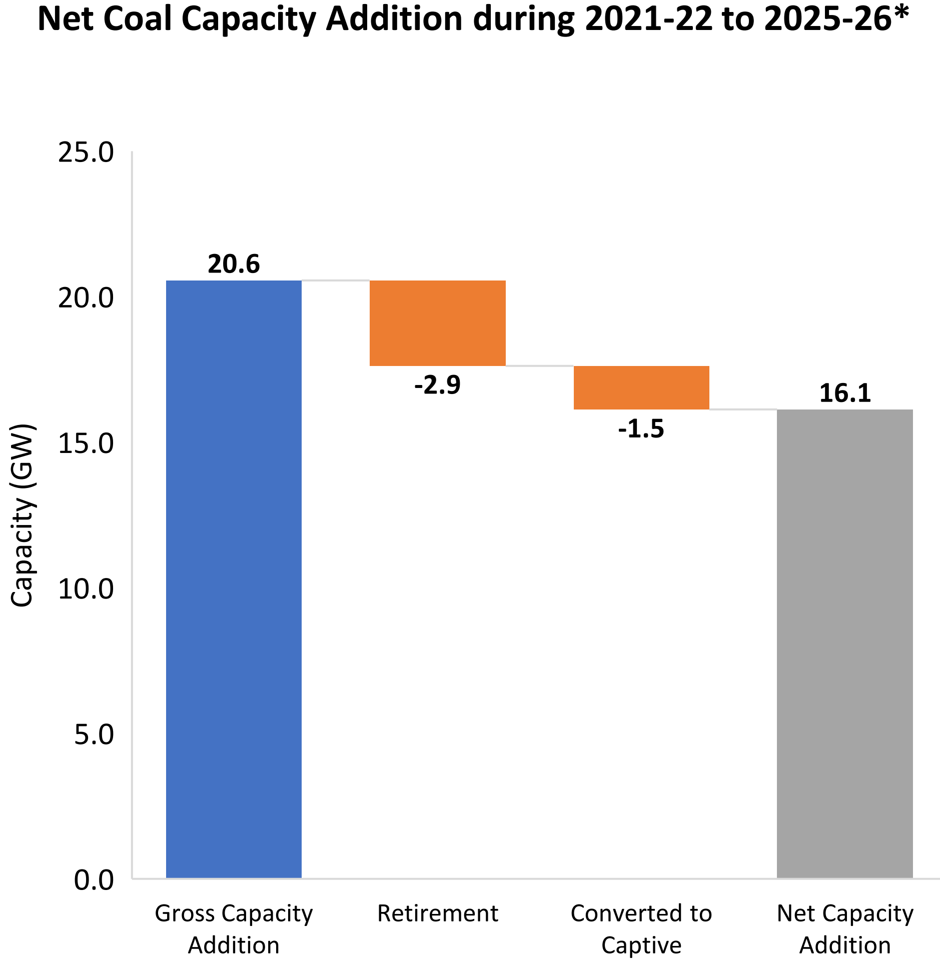
- **Post-2015 Paris Agreement Growth**:
  - solar capacity increased **17-folds**
  - wind power **doubled**
  - nuclear energy **doubled**.

Source: CEA & MNRE

India’s Electricity Capacity Addition in last 5 years



As of August 2025, CEA has temporarily closed 6.5 GW of capacity, comprising 2.0 GW of coal, 4.4 GW of gas, and 0.1 GW of nuclear due to prolonged outages.



- A total of 102 GW of generation capacity has been added in RE (Hydro, solar, wind, and other RES) over the past 5 years (2021-22 to 2025-26*), whereas the net coal capacity addition during the same period was 16 GW, mostly in the central sector.

NOTE: * The data for 2025-26 is up to August 2025.

Source: CEA & MNRE

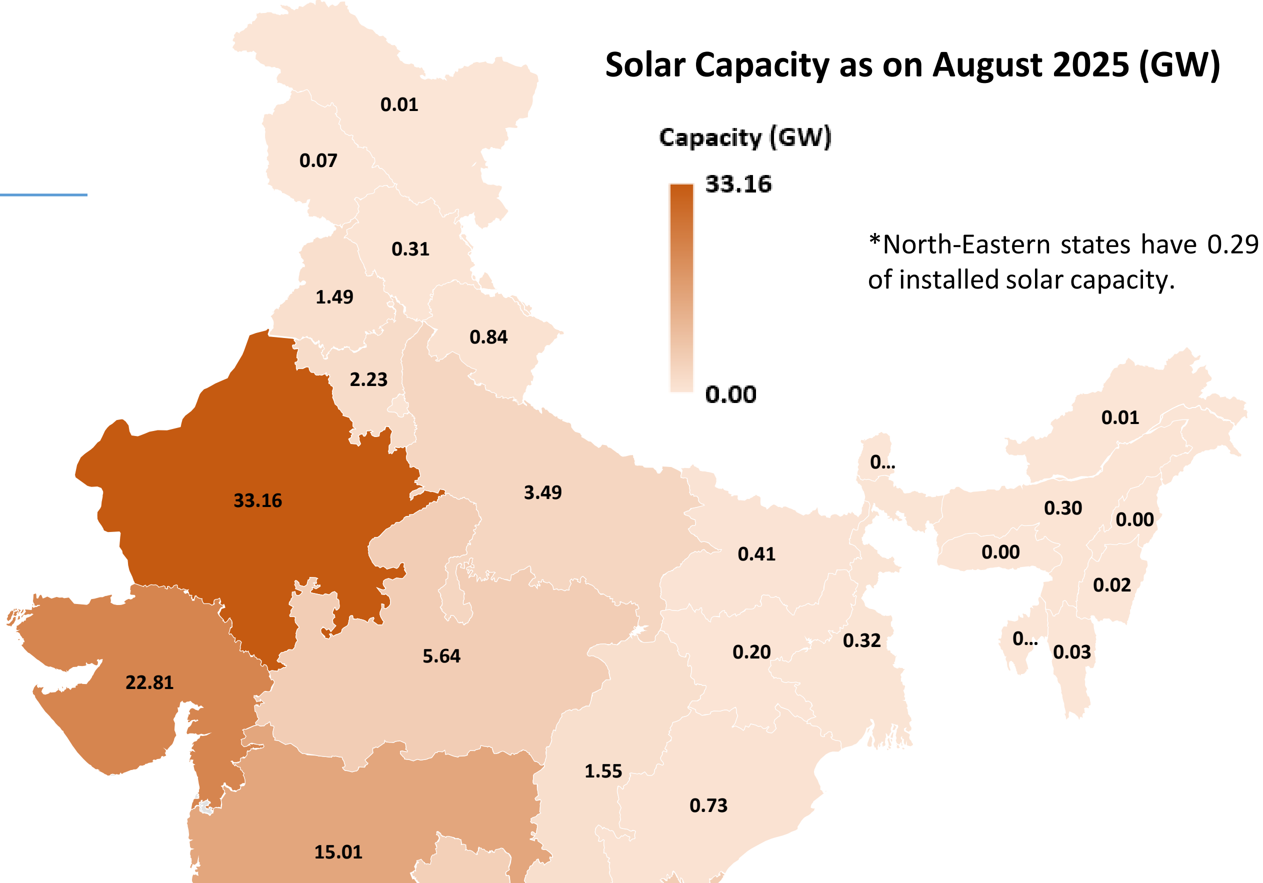
State-wise Solar Capacity

as on August 2025

State-wise installed capacity of Solar Power (GW)					
States	Ground Mounted	Rooftop	Solar Component in Hybrid	Off Grid	Total Solar Power
Rajasthan	**28.60**	1.77	**1.98**	0.81	33.16
Gujarat	15.67	**5.90**	1.06	0.17	22.81
Maharashtra	9.30	4.09	0.00	**1.62**	15.01
Tamil Nadu	9.75	1.16	0.00	0.07	10.98
Karnataka	9.07	0.76	0.21	0.04	10.08
Andhra Pradesh	5.02	0.63	0.00	0.09	5.74
Madhya Pradesh	4.87	0.67	0.00	0.10	5.64
Telangana	4.36	0.63	0.00	0.01	5.00
Uttar Pradesh	2.78	0.38	0.00	0.32	3.49
Haryana	0.27	0.92	0.00	1.04	2.23
Kerala	0.32	1.51	0.00	0.02	1.86
Chhattisgarh	1.00	0.16	0.00	0.39	1.55
Punjab	0.89	0.52	0.00	0.08	1.49
Uttarakhand	0.54	0.27	0.00	0.02	0.84
Others	1.47	1.45	0.00	0.33	3.24
All India	**93.90**	**20.85**	**3.26**	**5.12**	**123.13**

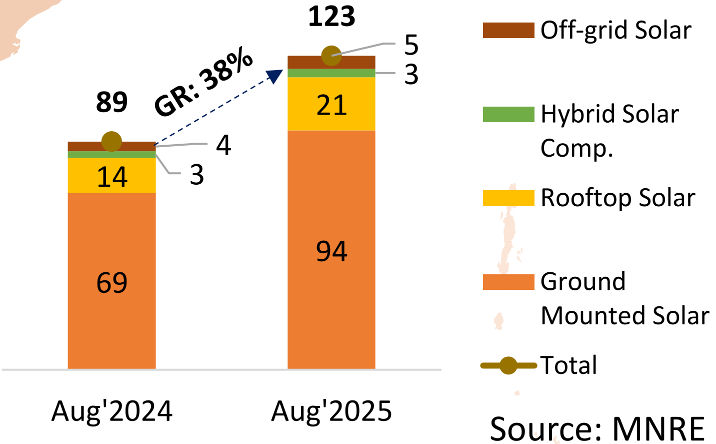
Others include- Andaman & Nicobar, Arunachal Pradesh, Assam, Bihar, Chandigarh, Dadar & Nagar Haveli, Daman & Diu, Delhi, Goa, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Ladakh, Lakshadweep, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Puducherry, Sikkim, Tripura, West Bengal, Others

Solar Capacity as on August 2025 (GW)



*North-Eastern states have 0.29 GW of installed solar capacity.

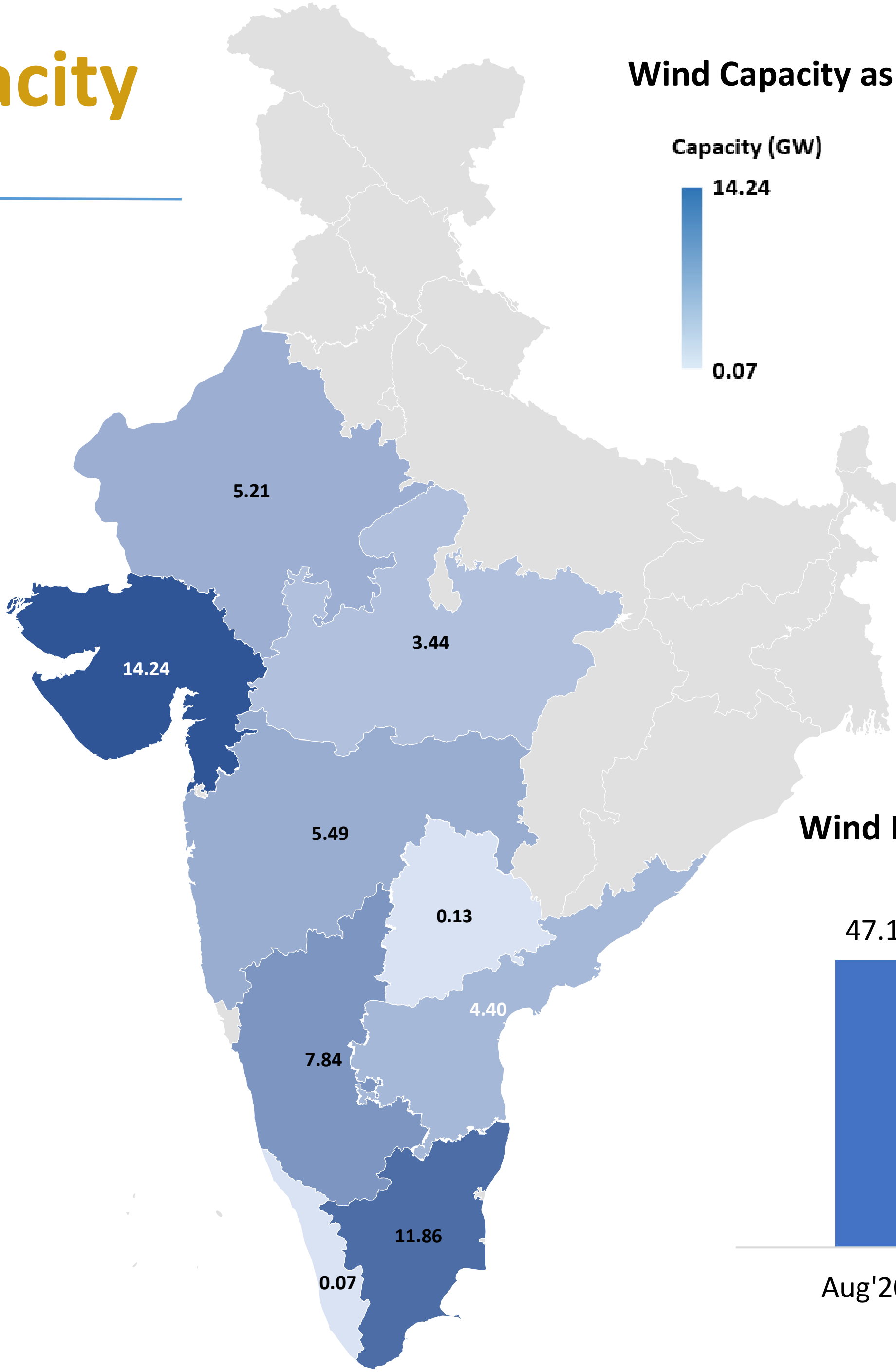
Solar Installed Capacity (GW)

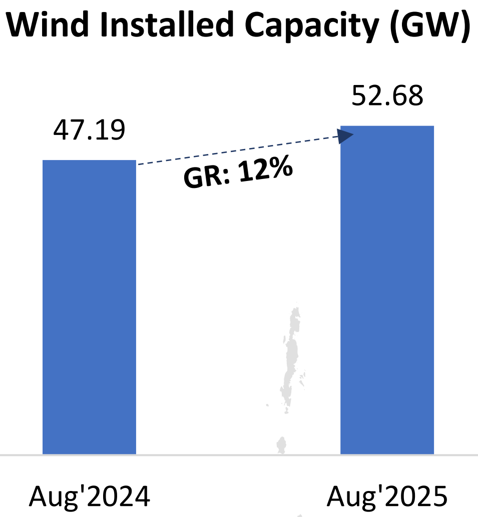


Source: MNRE

State-wise Wind Onshore Capacity
as on August 2025

State-wise installed capacity of Wind (Onshore) Power	
States	**Installed Capacity (GW)**
Gujarat	14.24
Tamil Nadu	11.86
Karnataka	7.84
Maharashtra	5.49
Rajasthan	5.21
Andhra Pradesh	4.40
Madhya Pradesh	3.44
Telangana	0.13
Kerala	0.07
India Total	**52.68**

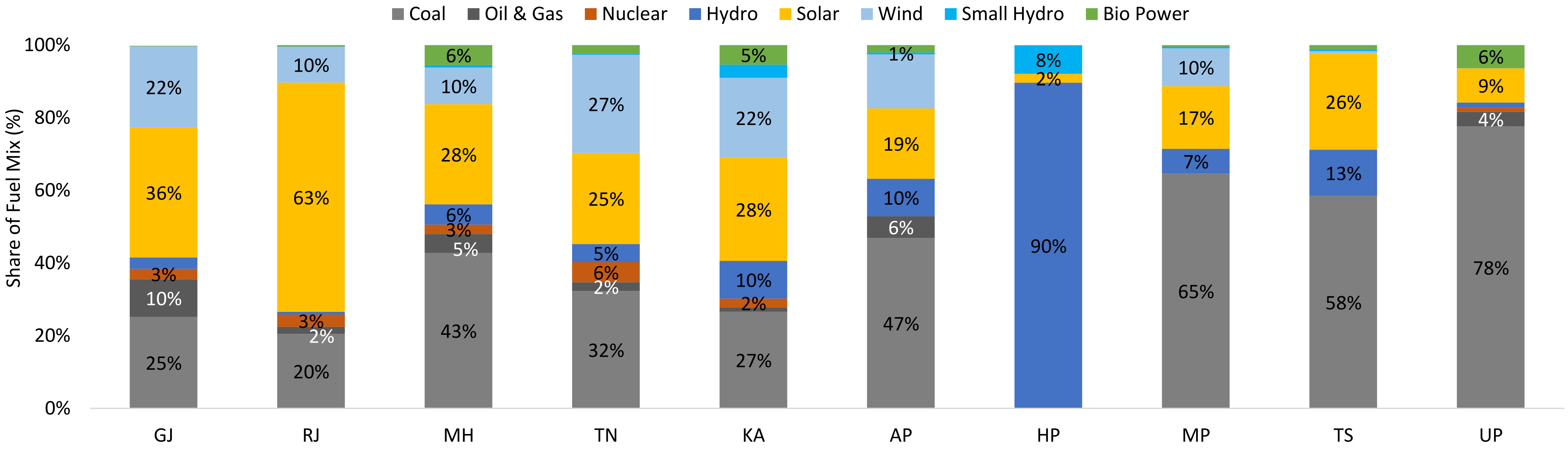




Source: MNRE

Top 10 High RE (incl. Large Hydro) States and Their Capacity Mix

as on August 2025



Numbers are in GW

Parameters	GJ	RJ	MH	TN	KA	AP	HP	MP	TS	UP
Total Installed Capacity	63.79	52.60	54.46	43.85	35.57	29.61	12.74	32.76	18.89	36.98
Total RE Capacity	39.28	39.01	26.93	26.19	24.82	13.95	12.74	11.59	7.85	6.35
RE Share	62%	74%	49%	60%	70%	47%	100%	35%	42%	17%

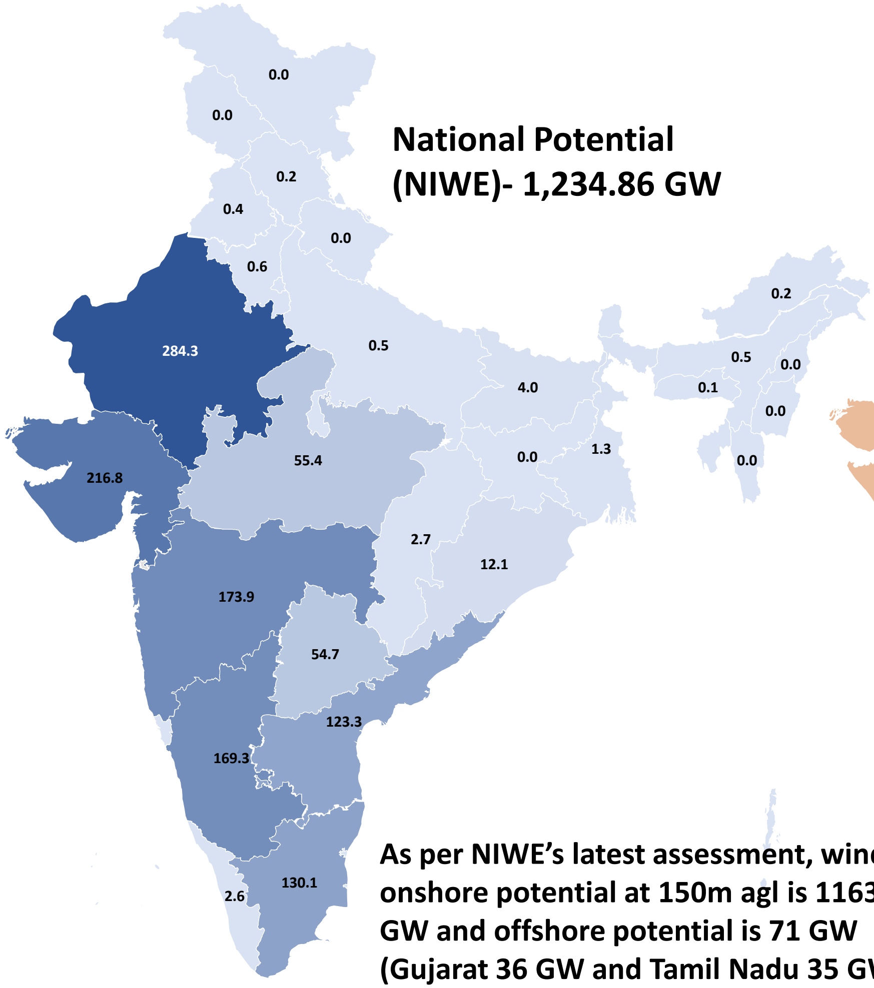
Source: MNRE & NPP

RE Potential and Installed Capacity (1/2)

RE potential in the state

Wind Onshore (at 150m agl) and Offshore Potential

State Potential (GW) 0.0 – 284.3

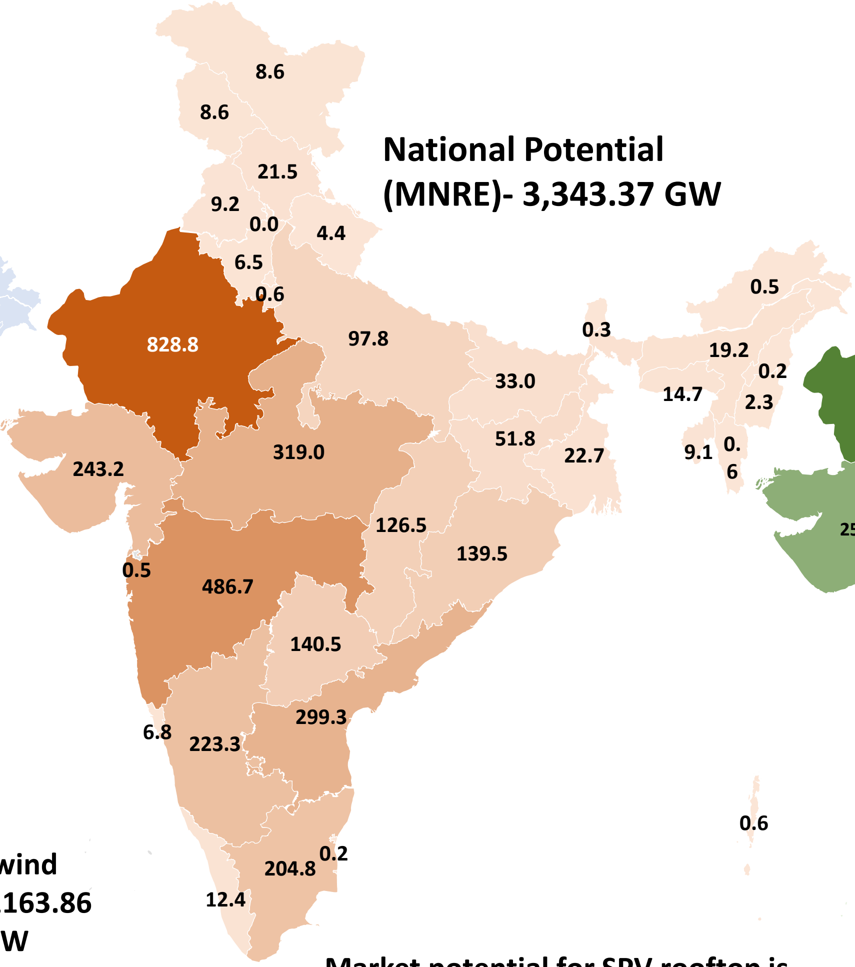


National Potential (NIWE)- 1,234.86 GW

As per NIWE's latest assessment, wind onshore potential at 150m agl is 1163.86 GW and offshore potential is 71 GW (Gujarat 36 GW and Tamil Nadu 35 GW).

Solar Ground Mounted Potential

Solar Potential (GW) 0.0 – 828.8

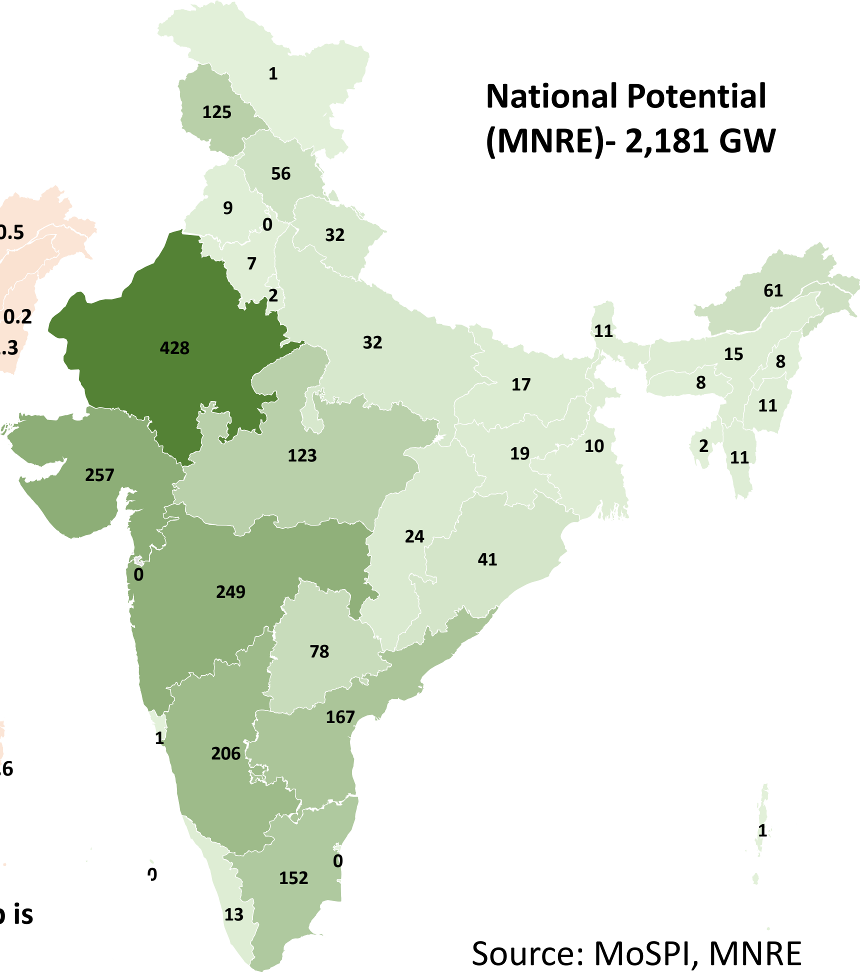


National Potential (MNRE)- 3,343.37 GW

Market potential for SPV rooftop is 124 GW.

Renewable Energy Potential (all sources incl. large Hydro)

Potential (GW) 0 – 428



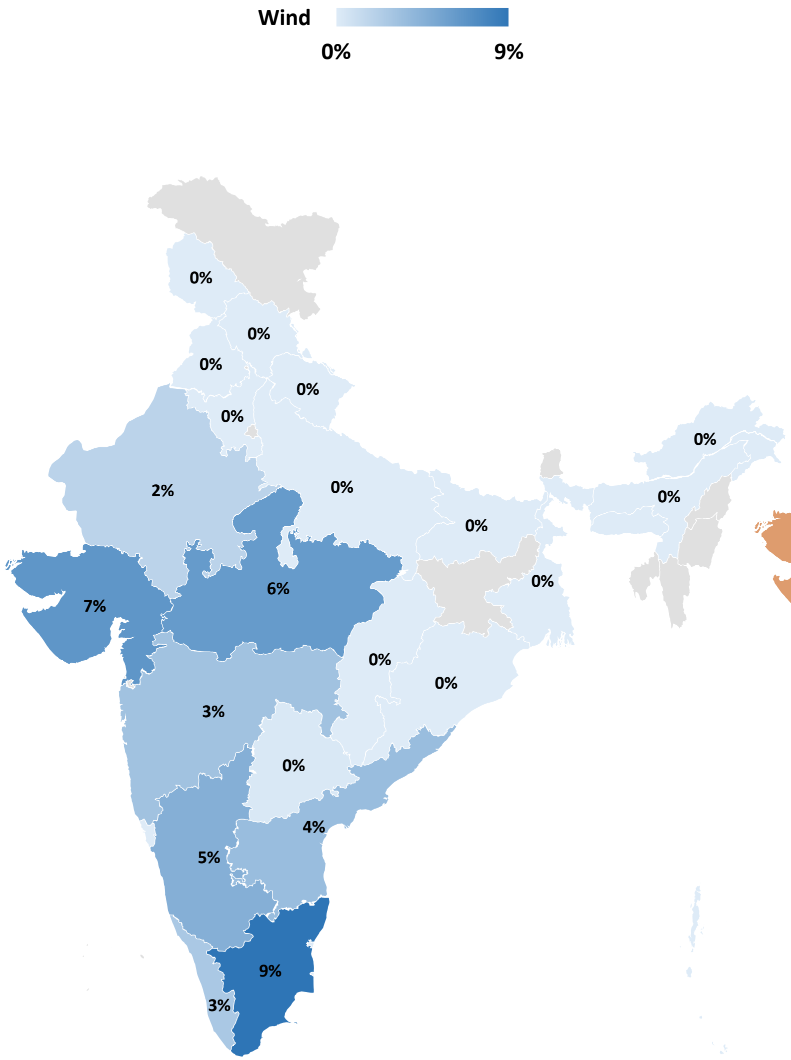
National Potential (MNRE)- 2,181 GW

Source: MoSPI, MNRE

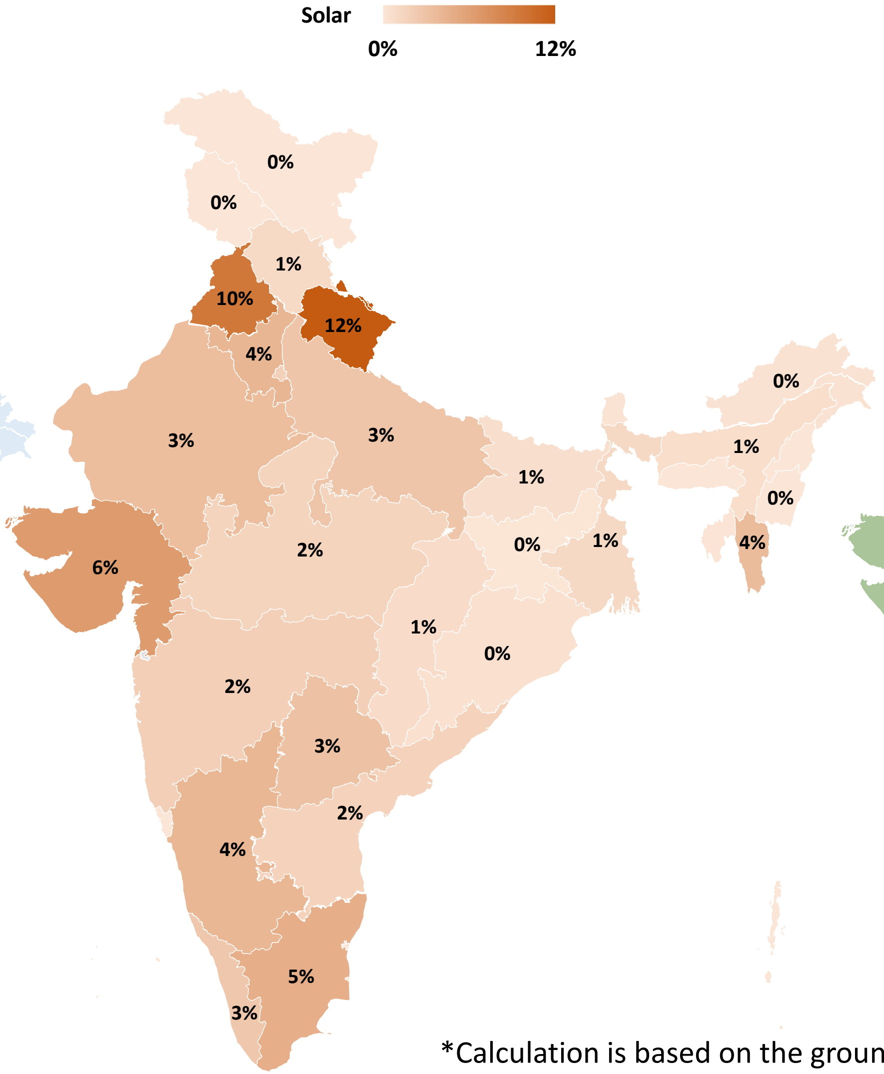
Renewable Energy (RE) Potential and Installed Capacity (2/2)

RE Installed capacity as a Percentage of the total resource potential in the state as on August 2025

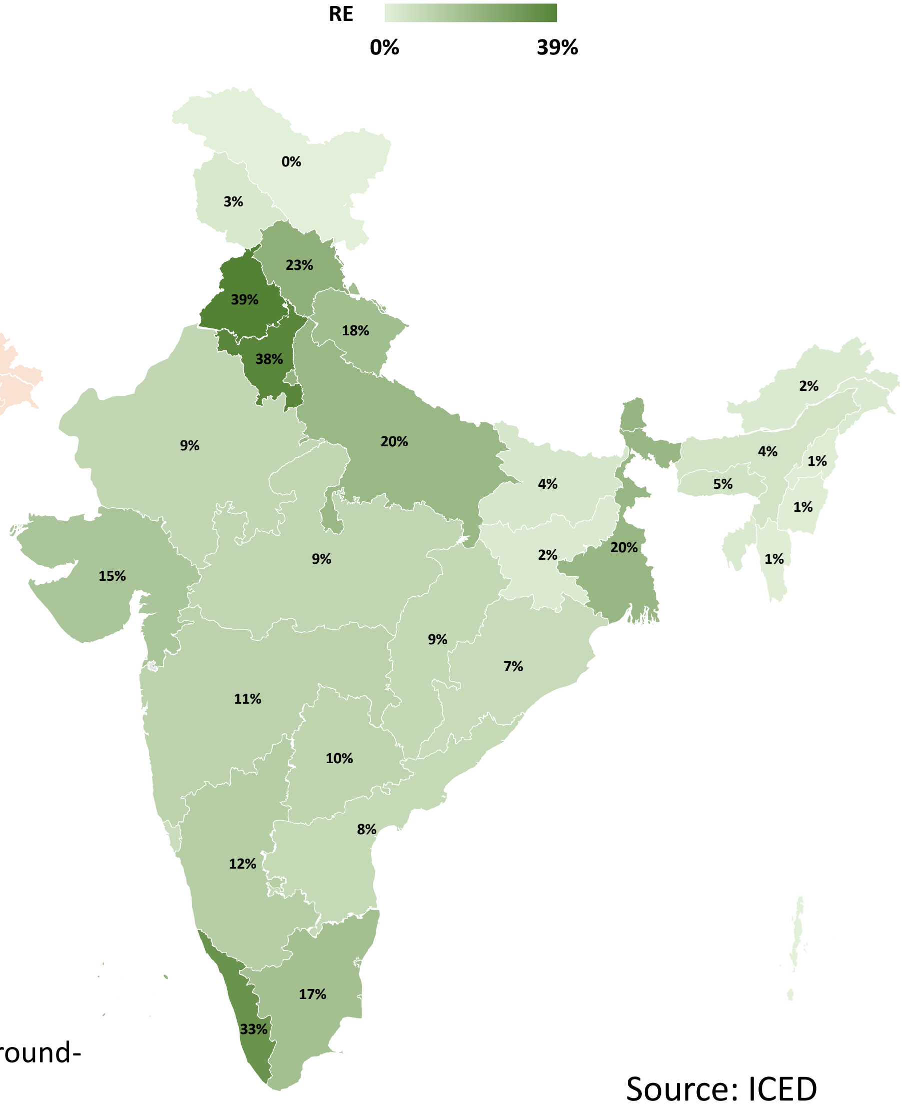
Wind Capacity



Solar Capacity*



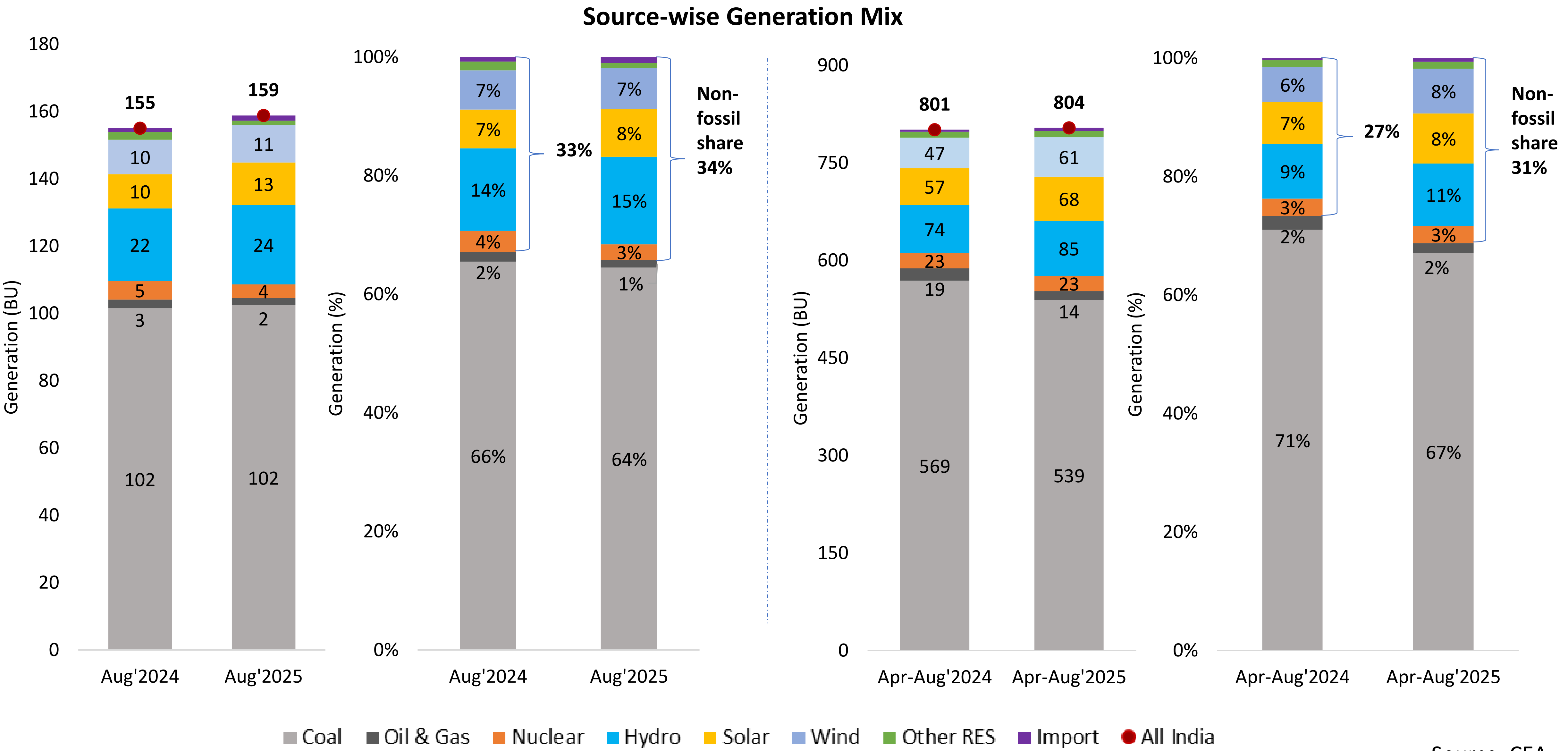
RE Capacity (all sources including large hydro)



*Calculation is based on the ground-mount solar installed capacity.

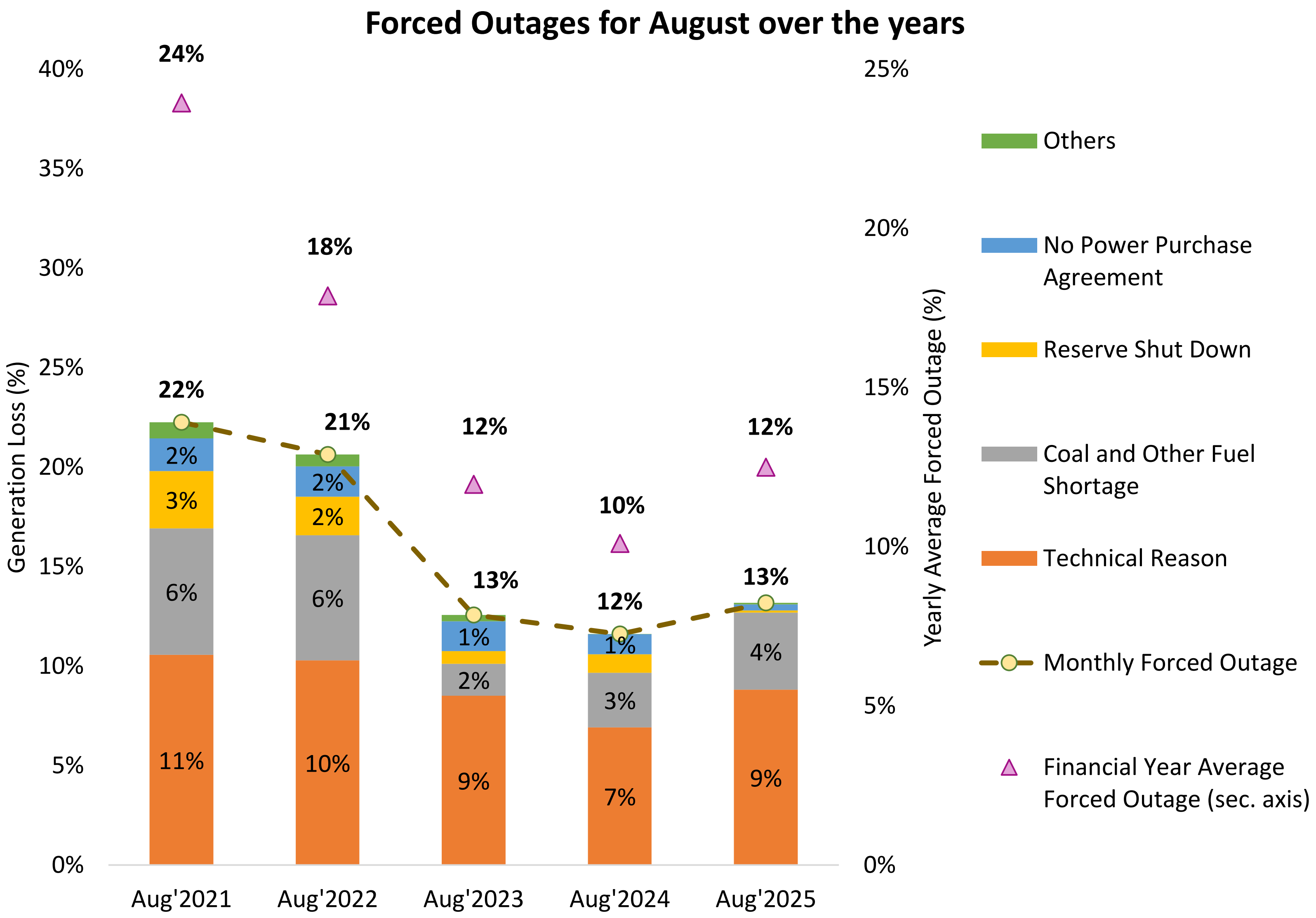
Source: ICED

India’s Electricity Generation Mix



Source: CEA

Thermal Generation Loss and Reasons for Forced Outages

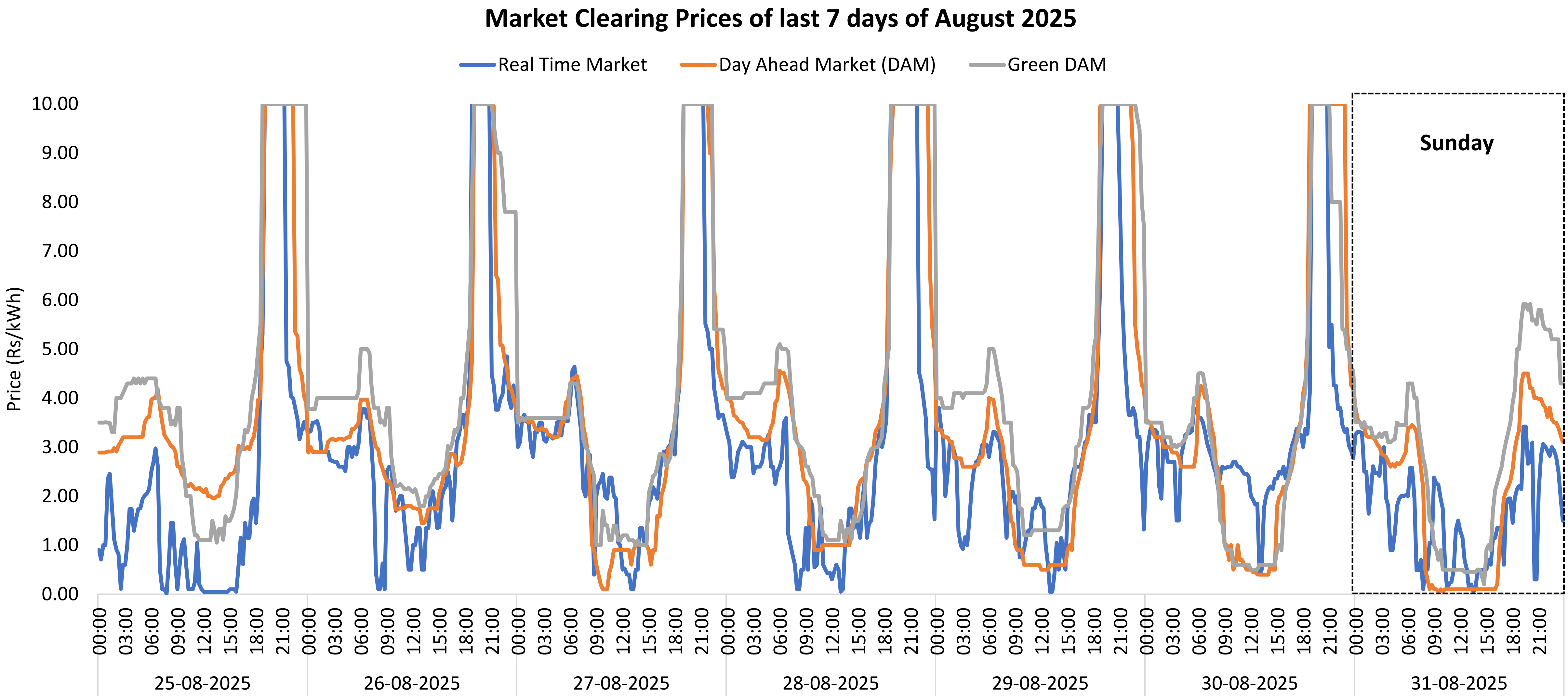


Year/ Month		Average Forced Outage Share
Yearly	FY 2023-24	12%
	FY 2024-25	10%
	FY 2025-26 (up to Aug'25)	12%
Monthly	Aug'2023	13%
	Aug'2024	12%
	Aug'2025	13%

Thermal includes only Coal and Lignite Plants.

Source: ICED

Indian Electricity Exchange (IEX) Market Snapshot

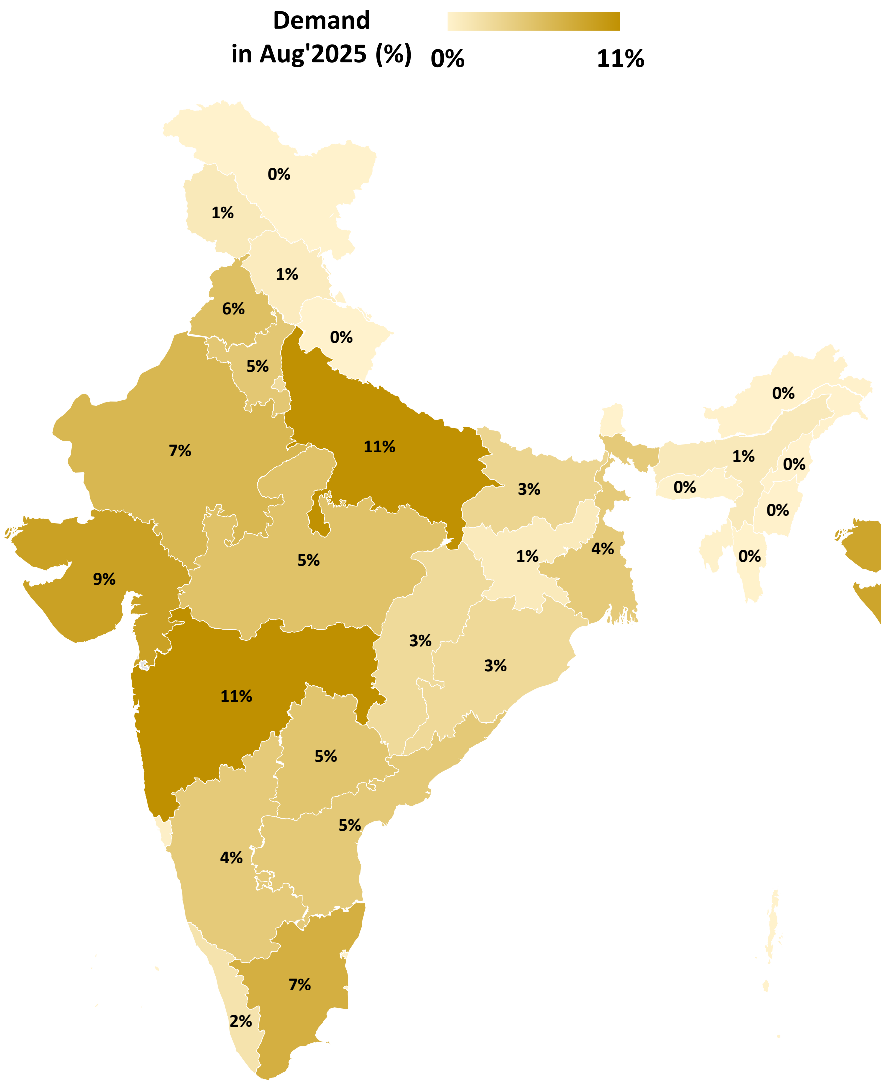


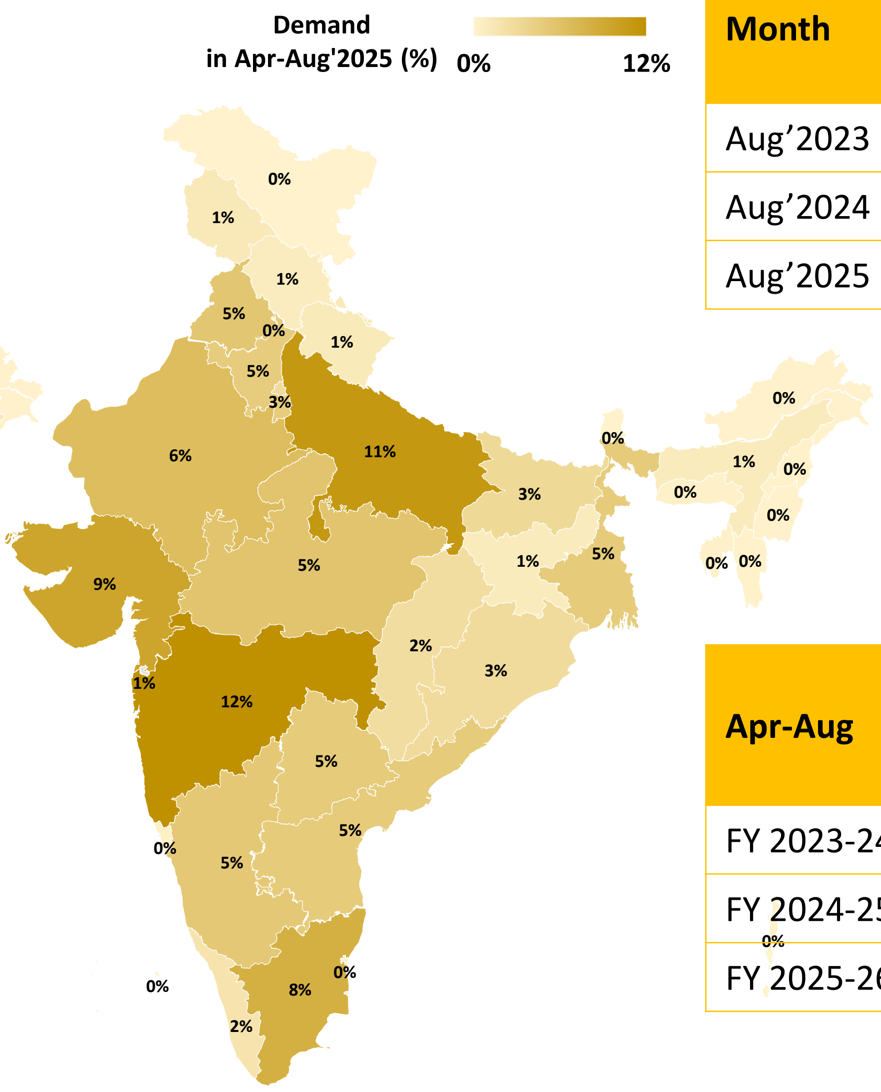
In April 2023, CERC revised the price ceiling from ₹12/kWh to ₹10/kWh in the power exchange market.

Source: IEX

National and State level Electricity Demand

State-level Electricity Demand as a percent of National Demand (%)





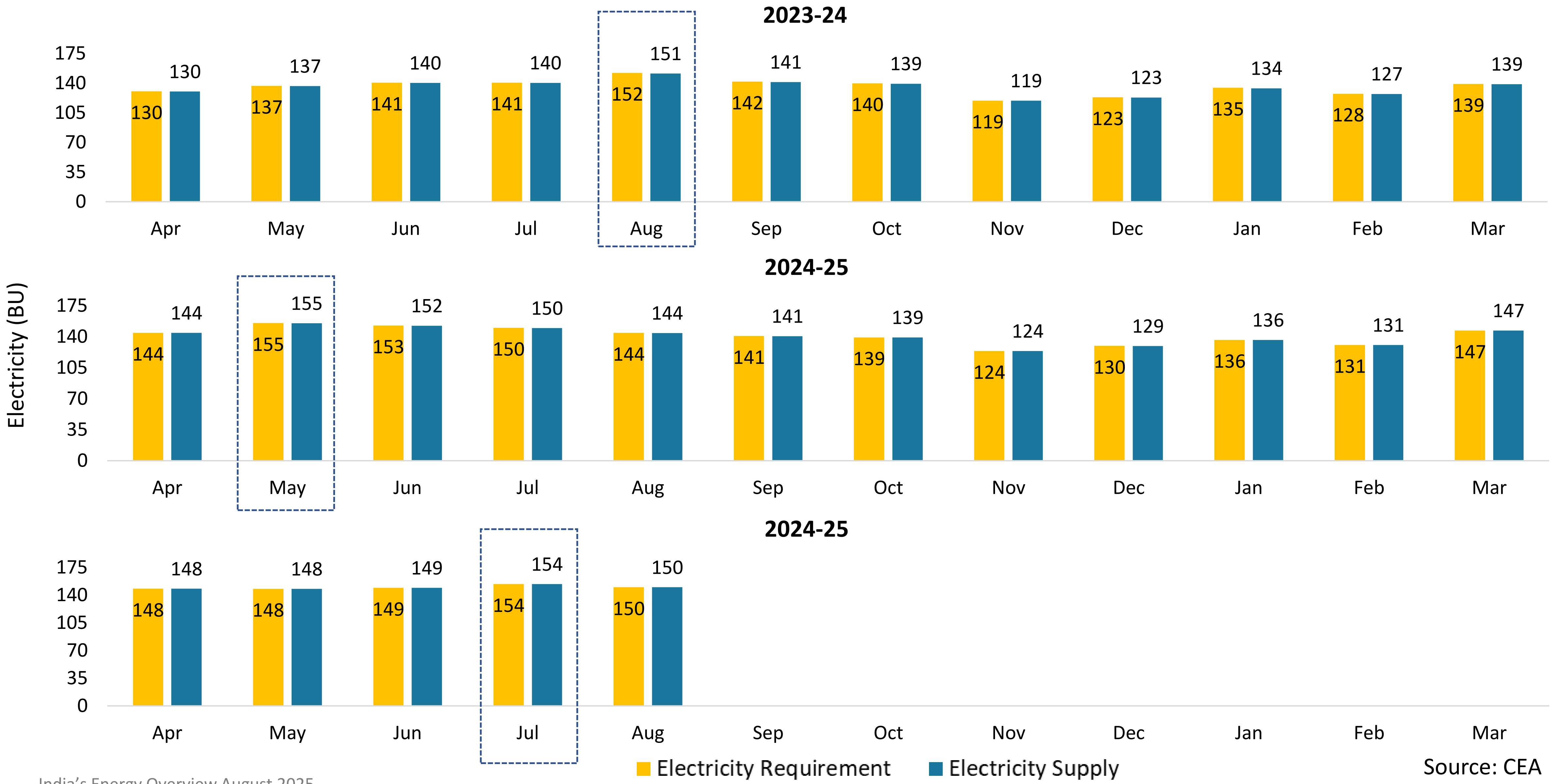
Month	Electricity Demand (BU)	Electricity Supply (BU)	Gap (BU) (+/-)
Aug’2023	152	151	0.9
Aug’2024	144	144	0.2
Aug’2025	150	150	0.0

Apr-Aug	Electricity Demand (BU)	Electricity Supply (BU)	Gap (BU) (+/-)
FY 2023-24	701	699	2.0
FY 2024-25	747	746	1.1
FY 2025-26	749	749	0.2

NOTE: The demand represented above includes intra state T&D losses.

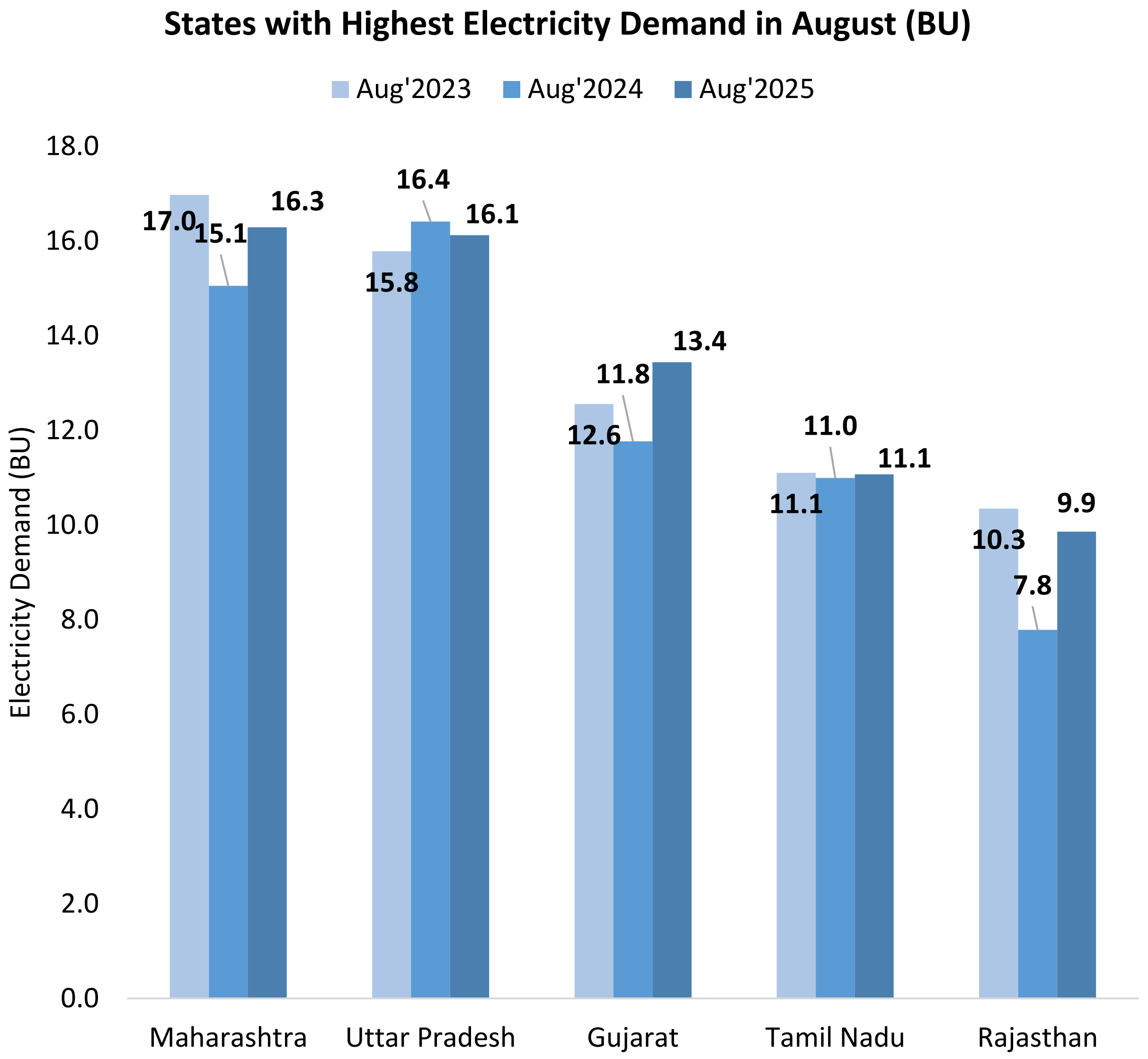
Source: CEA

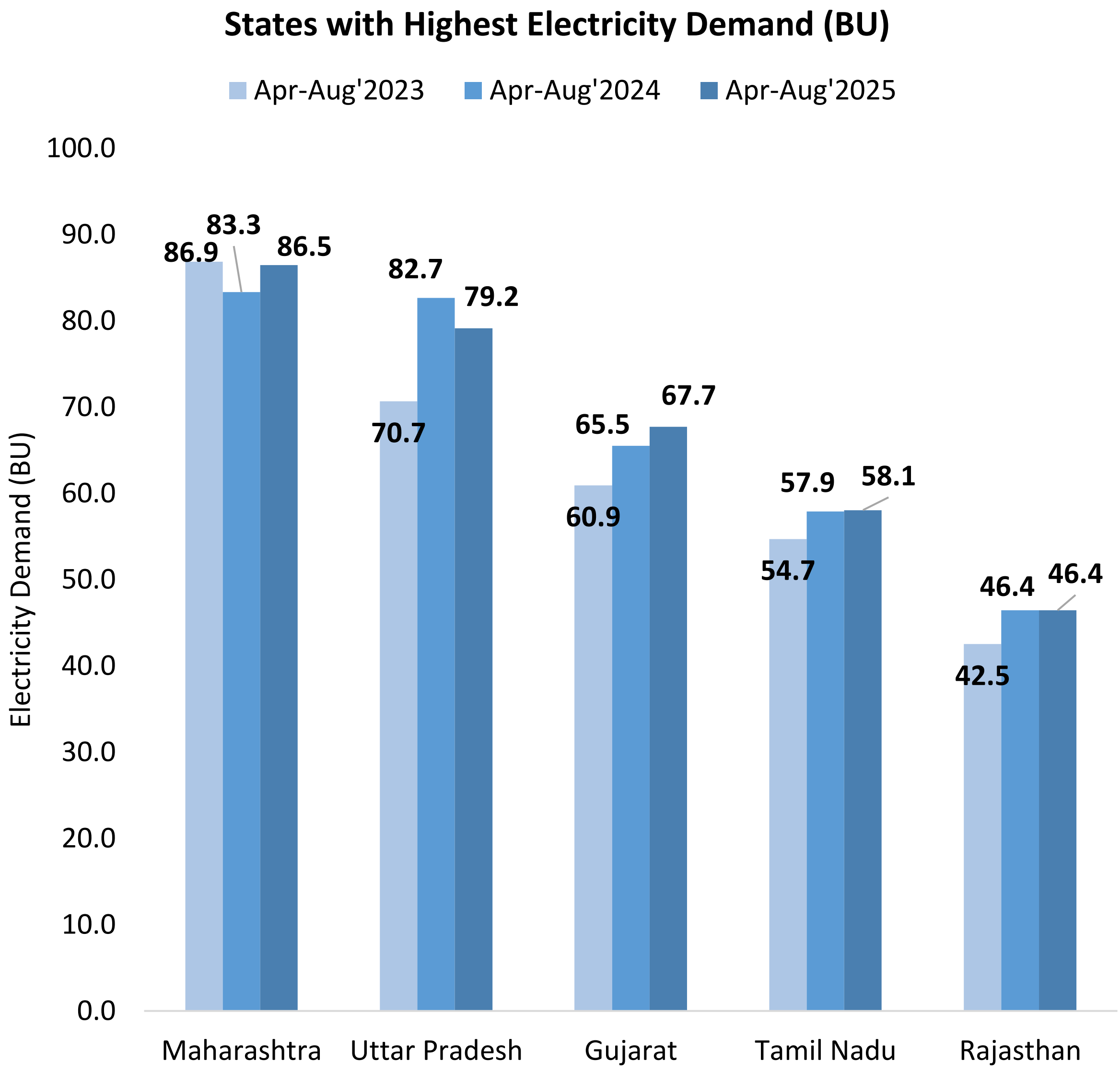
India's Monthly Electricity Requirement and Supply



Source: CEA

Monthly Electricity Demand of the top 5 states

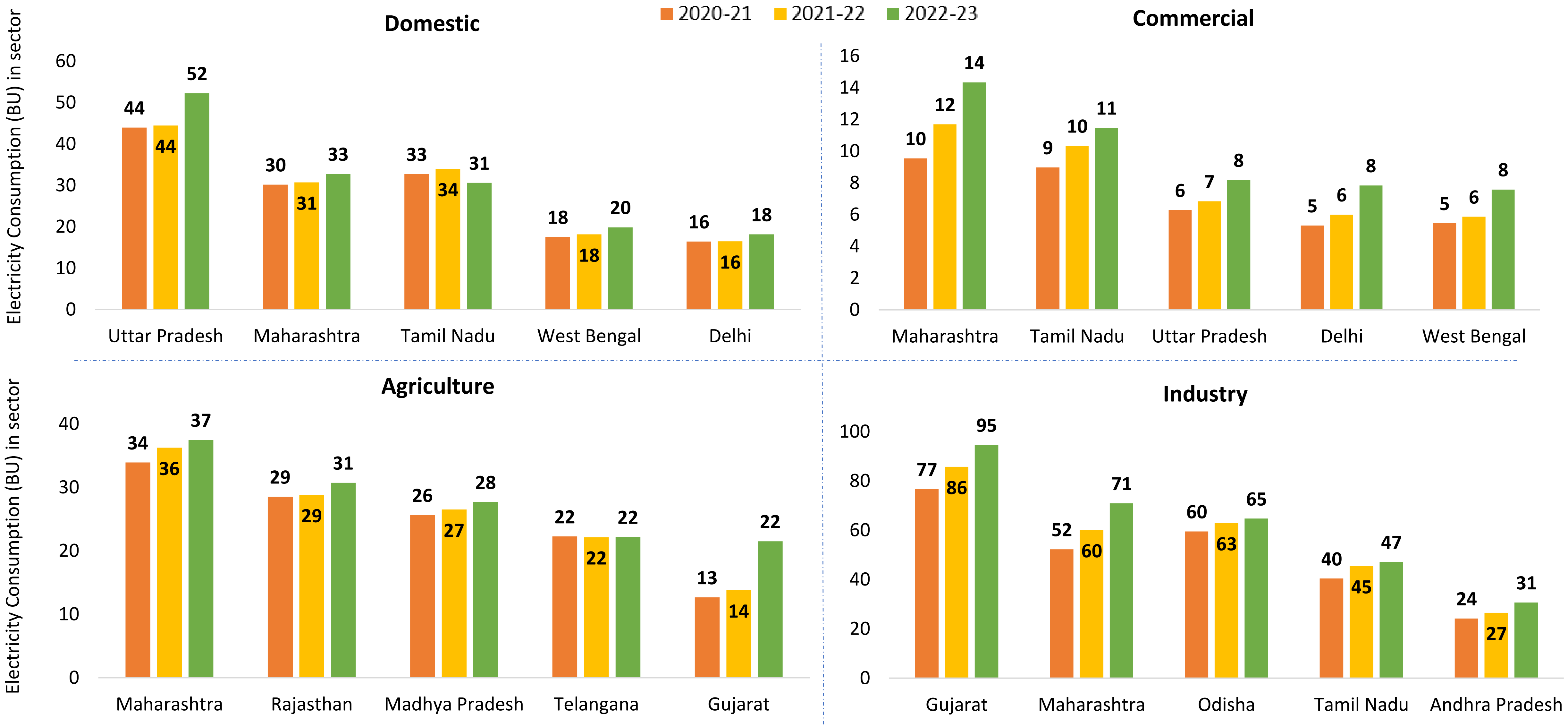




Note: The electricity demand data for Aug’25 is Provisional.

Source: CEA

Electricity Consumer-category wise top 5 States

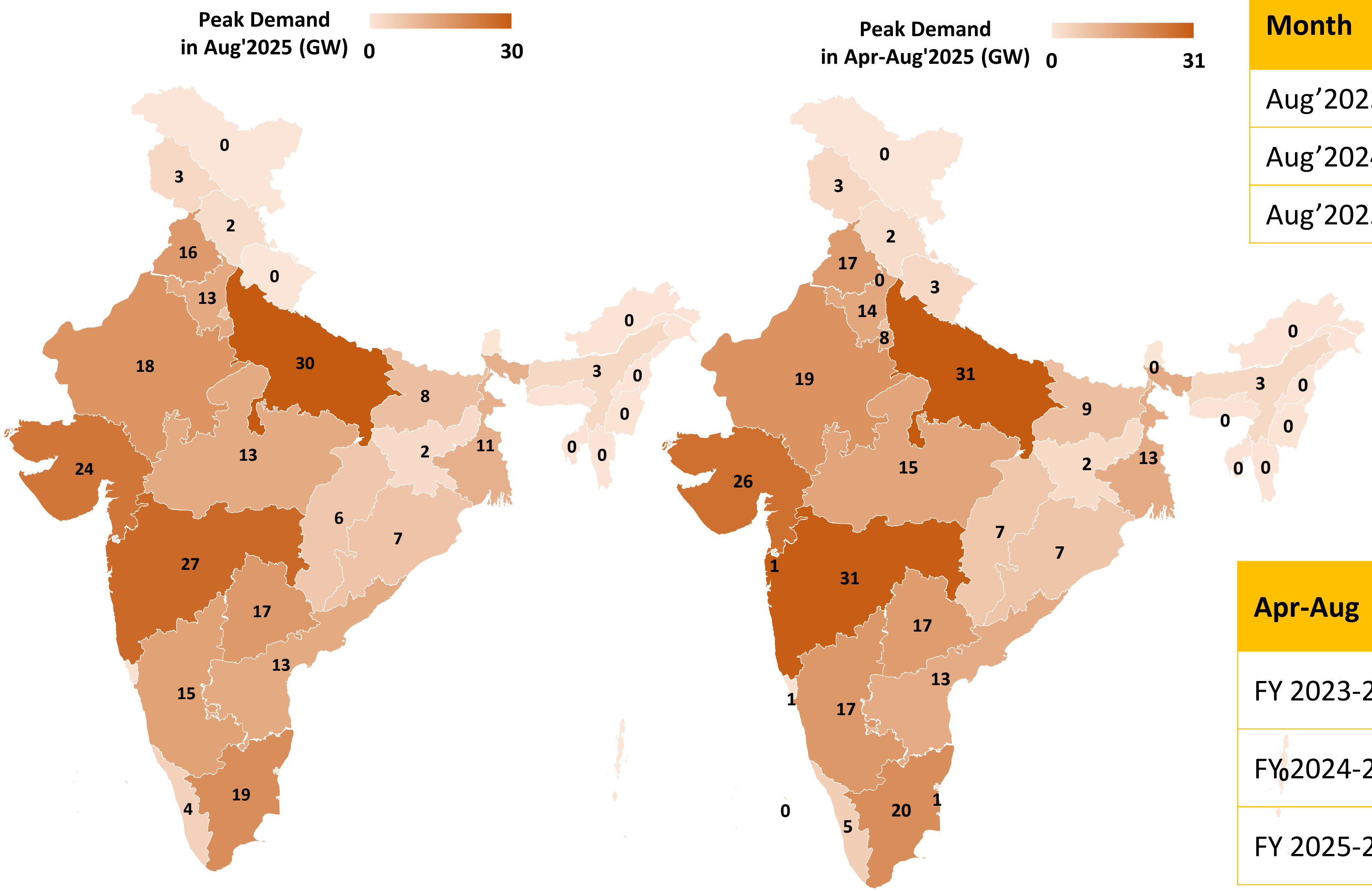


NOTE: Top 5 States under consumer-categories are selected on the basis of 2022-23

Source: CEA

National and State level Peak Electricity Demand

State-level Peak Electricity Demand (GW)



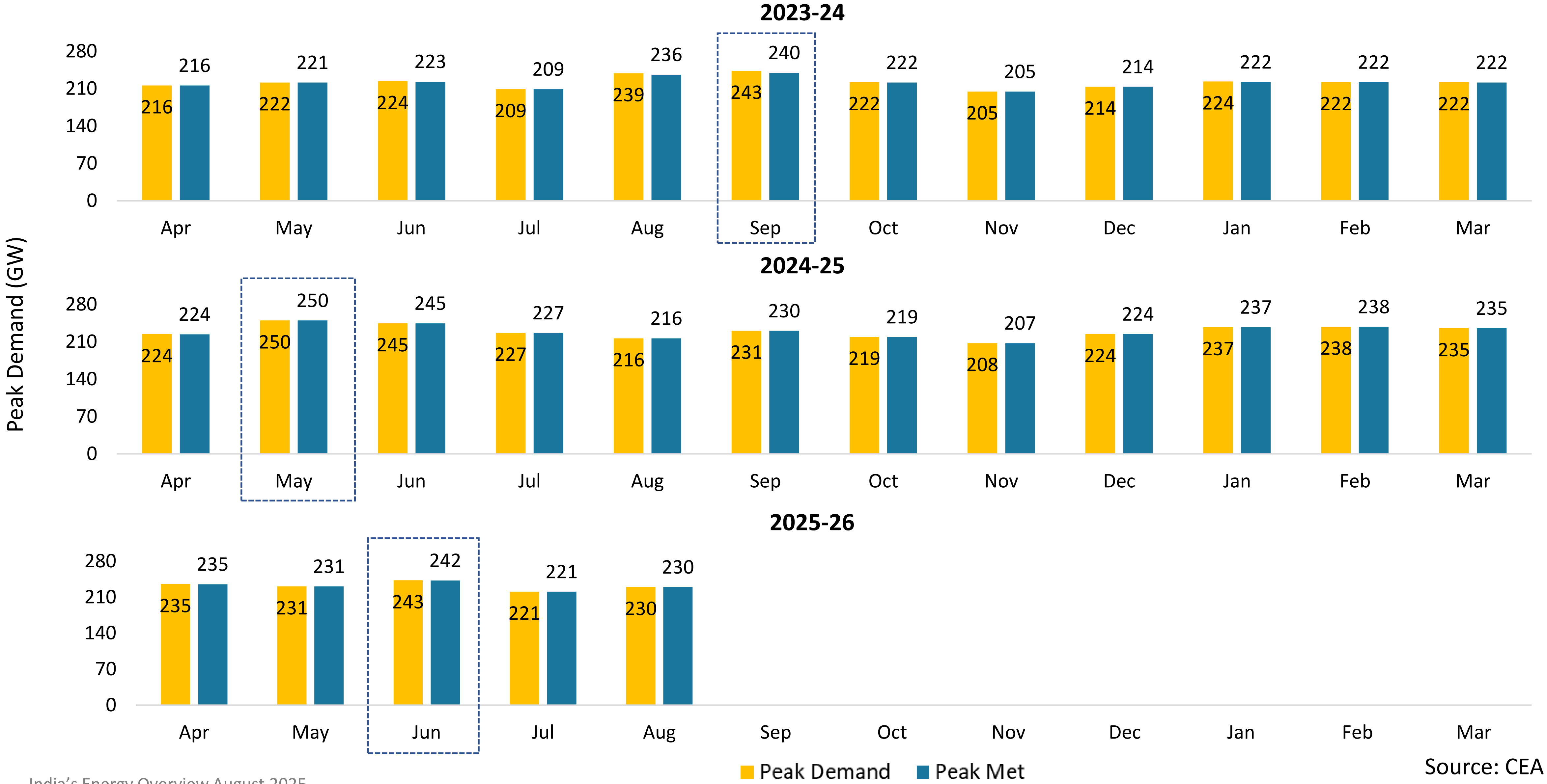
Month	Peak Demand (GW)	Peak Supply (GW)	Gap(GW) (+/-)
Aug’2023	239	236	2.5
Aug’2024	216	216	0.0
Aug’2025	230	230	0.0

Apr-Aug	Peak Demand (GW)	Peak Supply (GW)	Gap (GW) (+/-)
FY 2023-24	239	236	2.5
FY 2024-25	250	250	0.0
FY 2025-26	243	242	0.3

Note: The peak electricity demand data for Aug’25 is Provisional.

Source: CEA

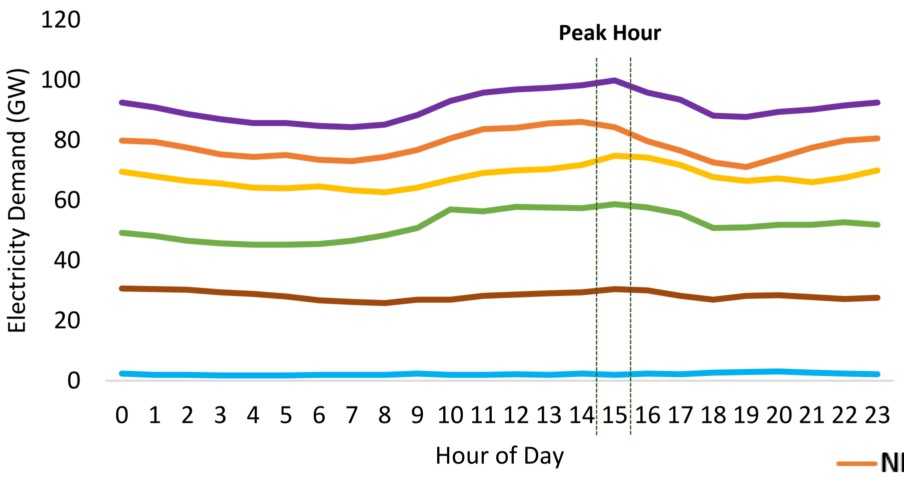
India's Monthly Peak Electricity Demand and Supply



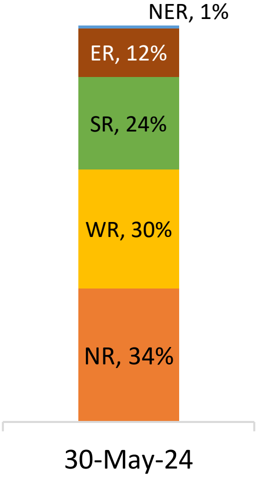
Source: CEA

All India, Regional, and Seasonal Electricity Demand Curve of Peak Demand Day

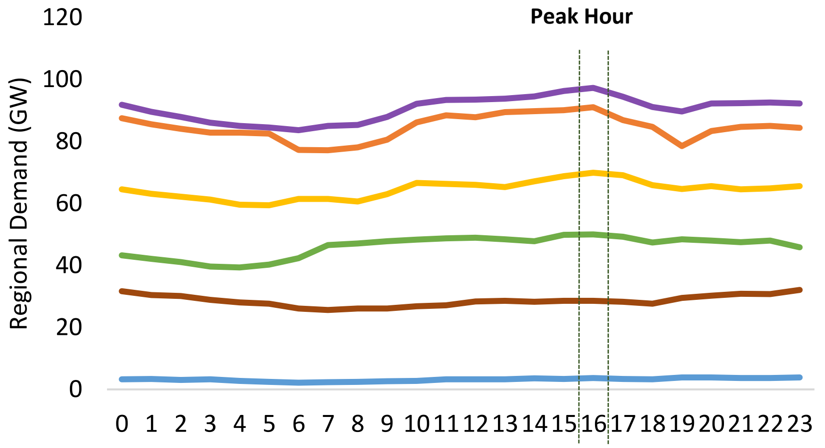
Regional Hourly Demand Curve of Peak Demand Day in 2024-25 (30th May 2024)



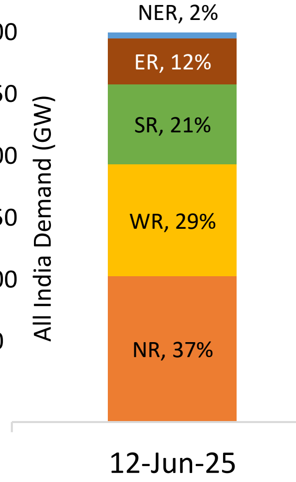
Share of Regions in All India Peak Demand



Regional Hourly Demand Curve of Peak Demand Day in 2025-26* (12th Jun'2025)

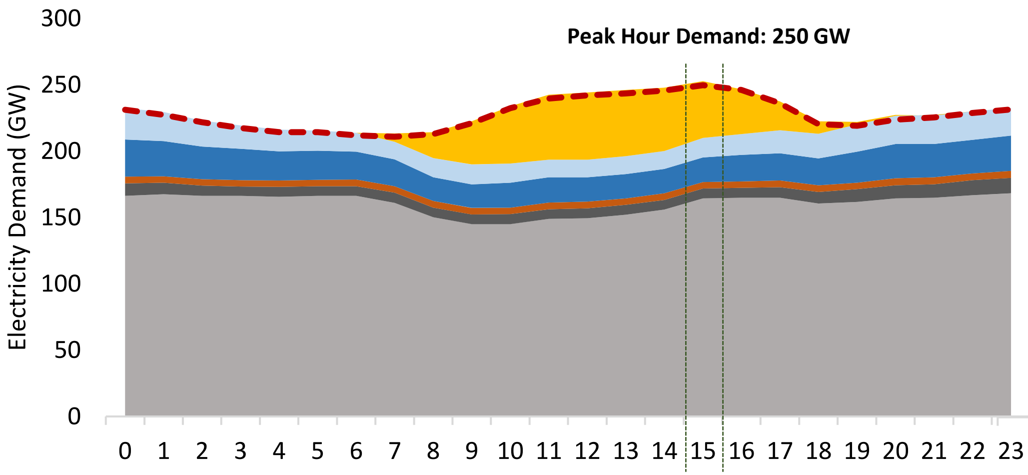


Share of Regions in All India Peak Demand

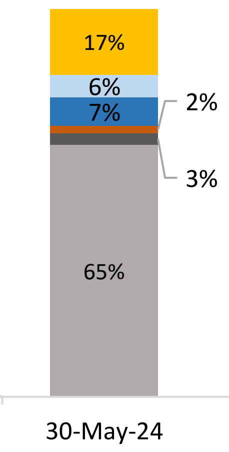


NR WR SR ER NER All India Demand (sec. axis)

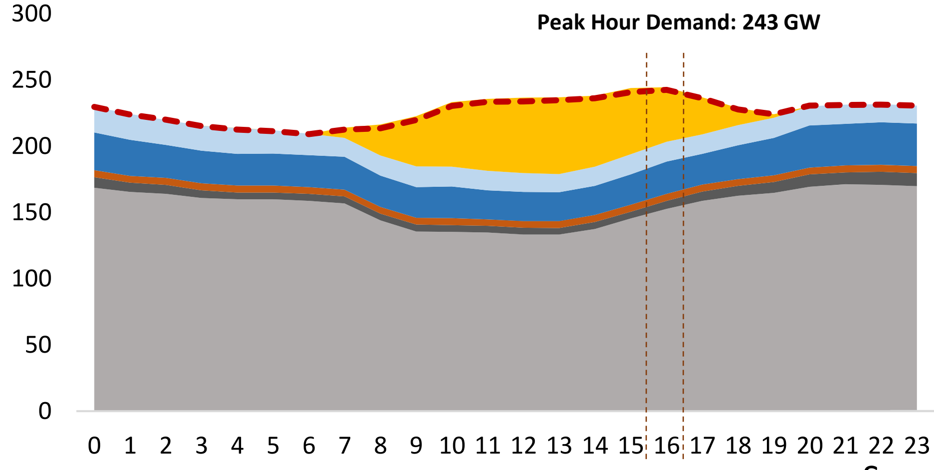
India's Electricity Demand Curve of Peak Demand Day in 2024-25 (30th May 2024)



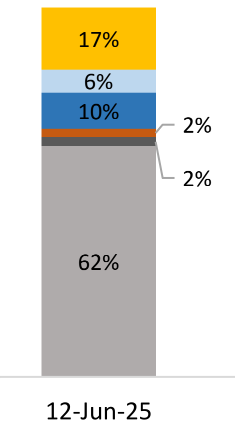
Share of Supply Sources in Peak Demand



India's Electricity Demand Curve of Peak Demand Day in 2025-26 * (12th Jun 2025)



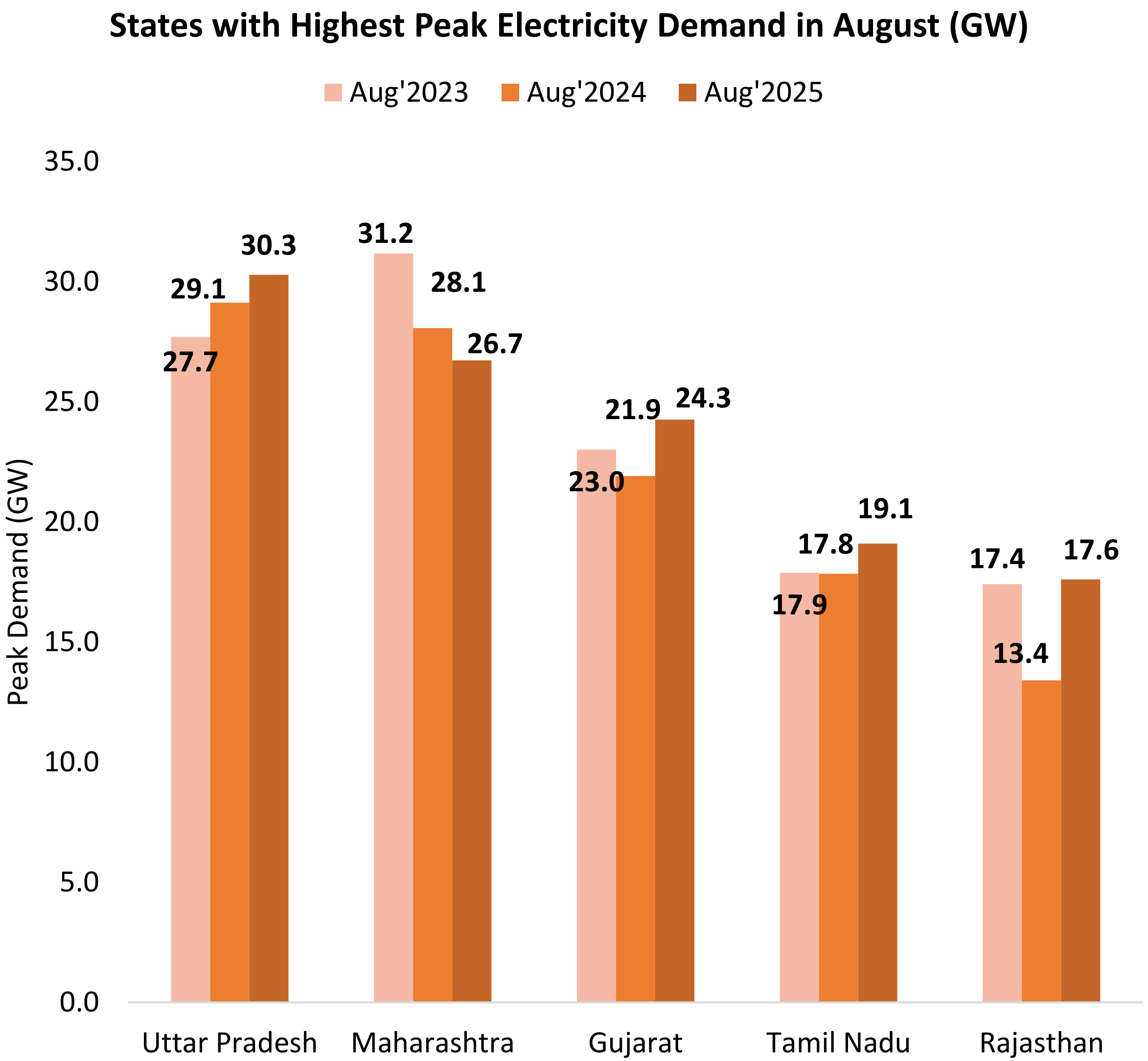
Share of Supply Source in Peak Demand

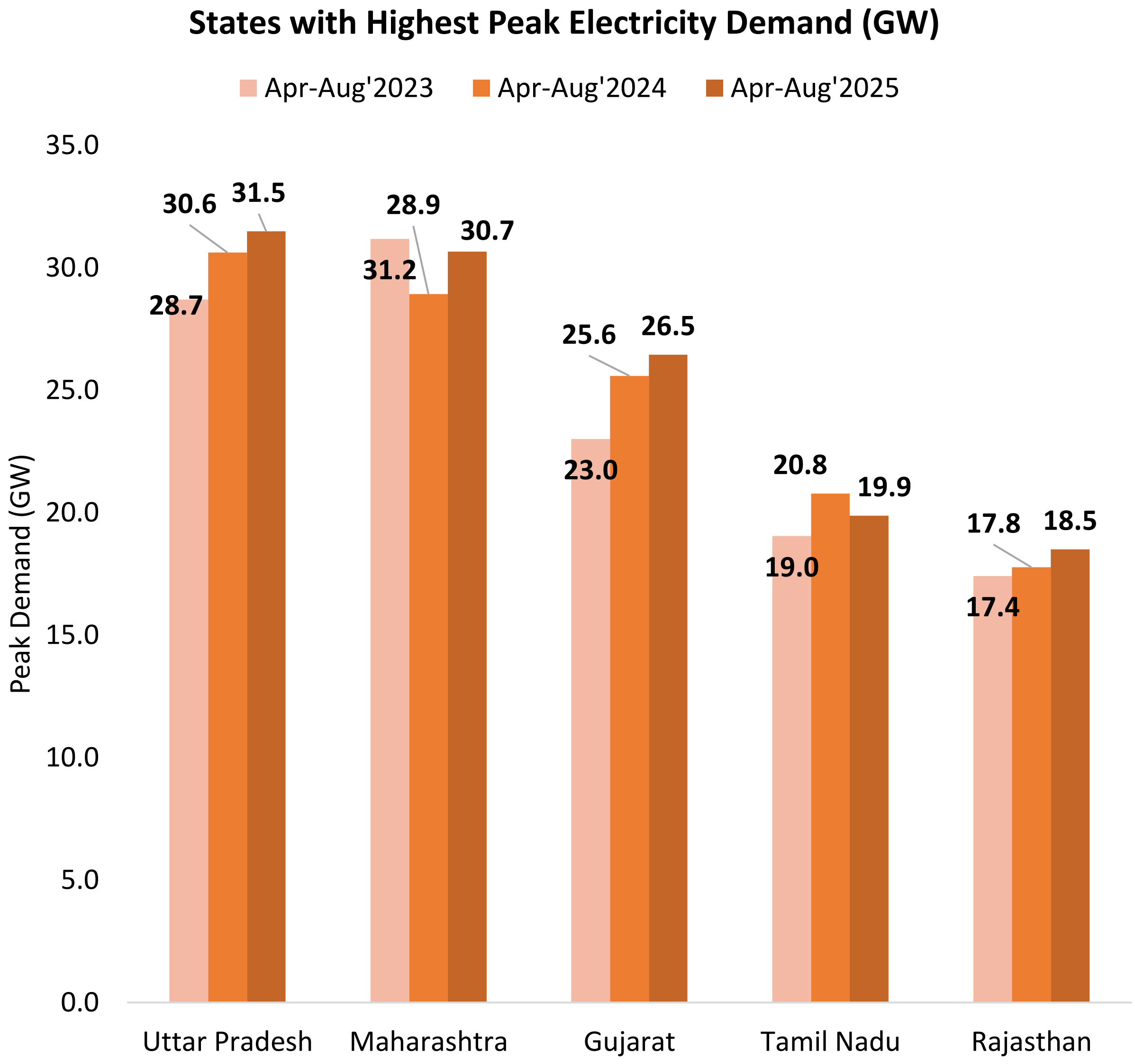


Coal Gas Nuclear Hydro Wind Solar Gross Demand

Source: Grid-India

Monthly Peak Electricity Demand of the top 5 states

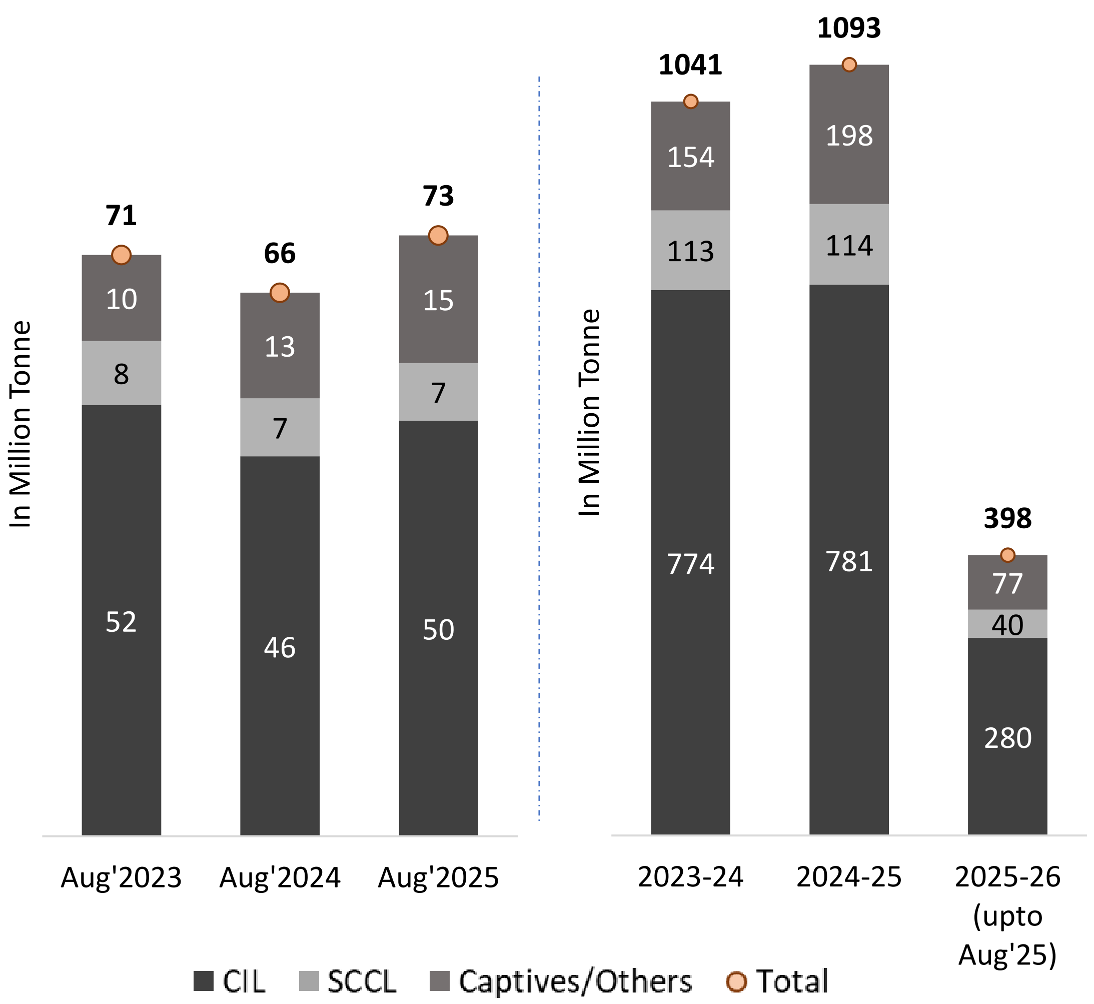




Note: The peak electricity demand data for Aug’25 is Provisional.

Source: CEA

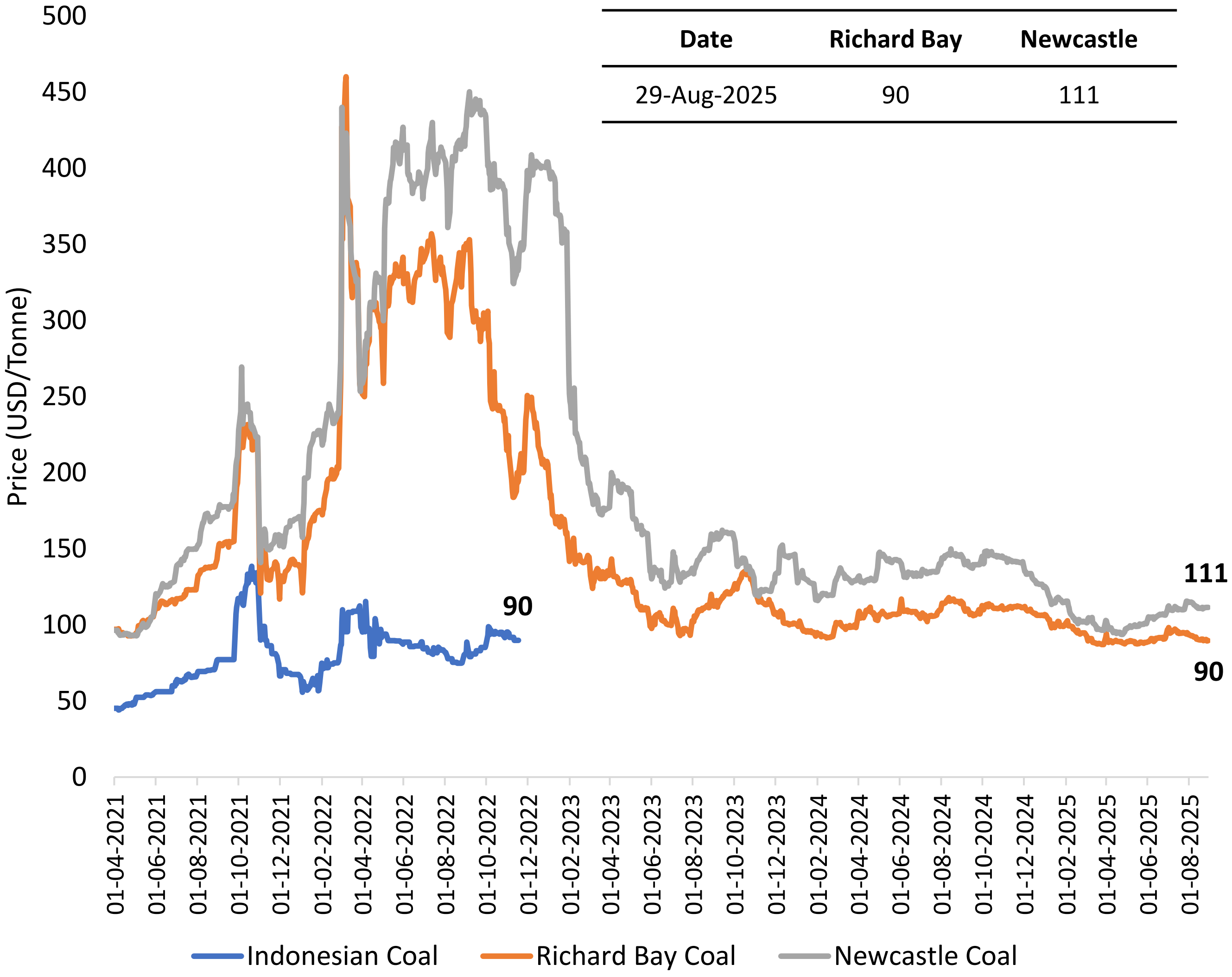
Monthly Coal Statistics



Source: Ministry of Coal

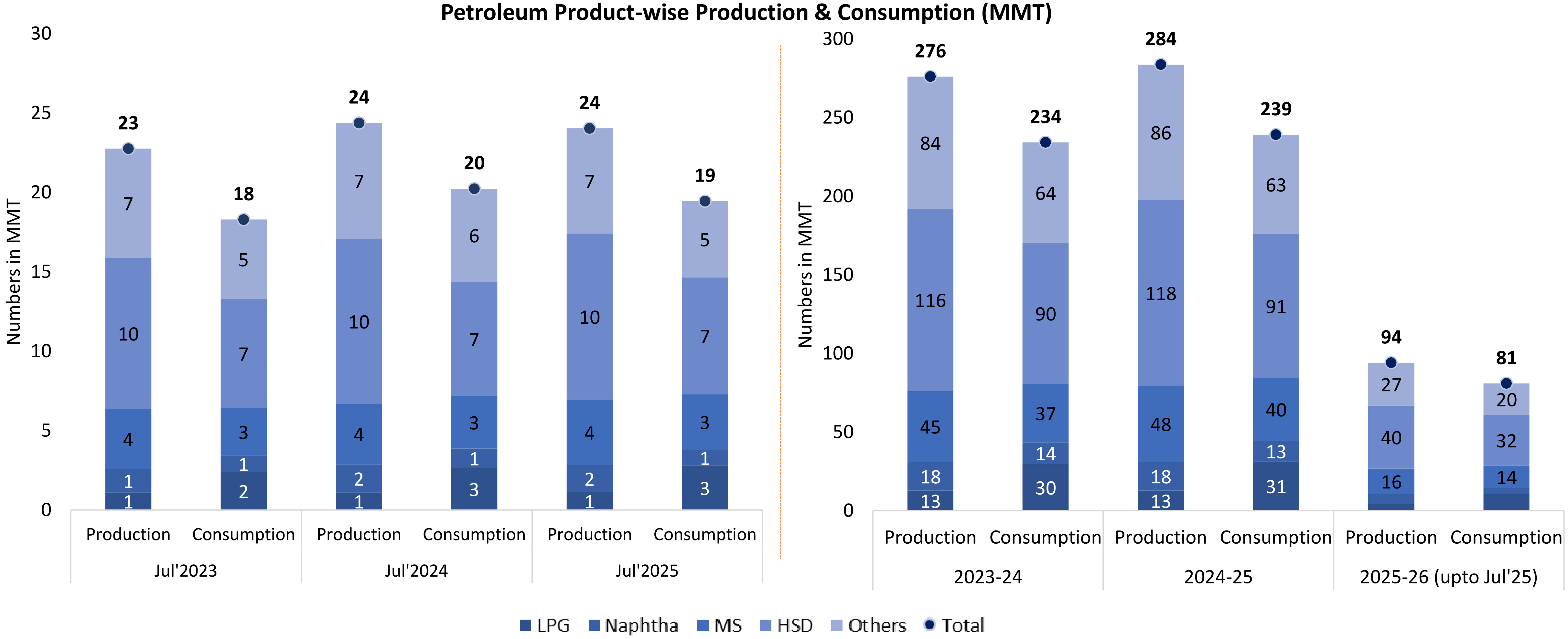
International Coal Prices

Date	Richard Bay	Newcastle
29-Aug-2025	90	111



Source: Investing.com

Petroleum Products Market Scenario (1/3)



Others include ATF, SKO, LDO, Lubes, FO, LSHS, Bitumen, pet coke, and others.

Abbreviations: ATF- Aviation Turbine Fuel, FO- Furnace Oil, HSD- High-Speed Diesel, LDO- Light Diesel Oil, MS- Motor Spirit (Petrol), SKO- Superior Kerosene Oil, LSHS- Low Sulphur Heavy Stock, LPG- Liquefied Petroleum Gas, MMT- Million Metric Tonne

NOTE: The data is available latest up to July 2025.

Source: PPAC

Petroleum Products Market Scenario (2/3)

Import/Export of Crude Oil and Petroleum Products ('000 Tonnes)							
Petroleum Products	Import/ Export	Monthly			Yearly		
		Jul'23	Jul'24	Jul'25	2023-24	2024-25	2025-26 (upto Jul'25)
Crude Oil	Import	19508	19403	18560	234262	243225	81189
	Export	0	0	0	0	0	0
	Net Import	**19508**	**19403**	**18560**	**234262**	**243225**	**81189**
LPG	Import	1366	1822	1884	18514	20667	7038
	Export	41	45	47	525	551	192
	Net Import	**1324**	**1777**	**1837**	**17989**	**20116**	**6846**
Diesel	Import	1	1	3	42	42	9
	Export	2386	2082	2242	28204	28027	8131
	Net Import	**-2385**	**-2080**	**-2239**	**-28162**	**-27985**	**-8122**
Petrol	Import	0	54	0	717	235	0
	Export	1259	1065	1197	13472	15830	5142
	Net Import	**-1259**	**-1011**	**-1197**	**-12755**	**-15596**	**-5142**
Others	Import	2405	3059	2422	29419	29960	9696
	Export	1734	1933	1536	20391	20667	6561
	Net Import	**671**	**1127**	**886**	**9029**	**9293**	**3135**

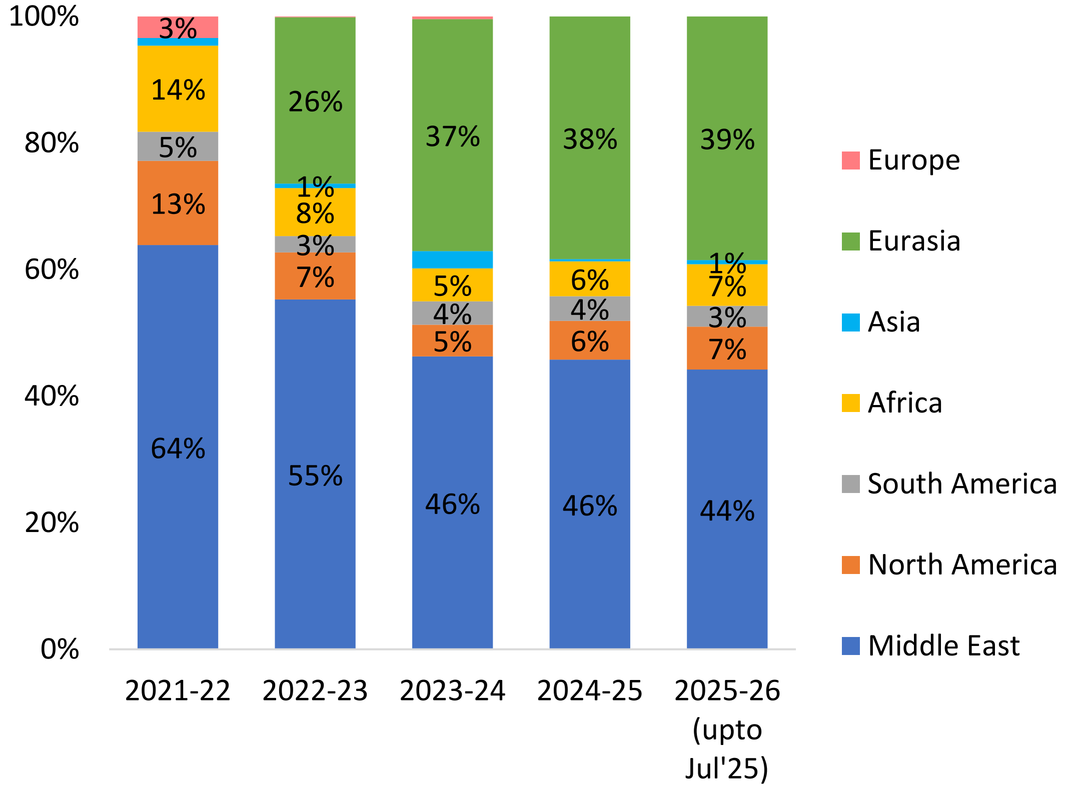
*Others include ATF, Naphtha, SKO, LDO, Lubes, FO, LSHS, Bitumen, pet coke, and others.

NOTE: The data is available latest up to July 2025.

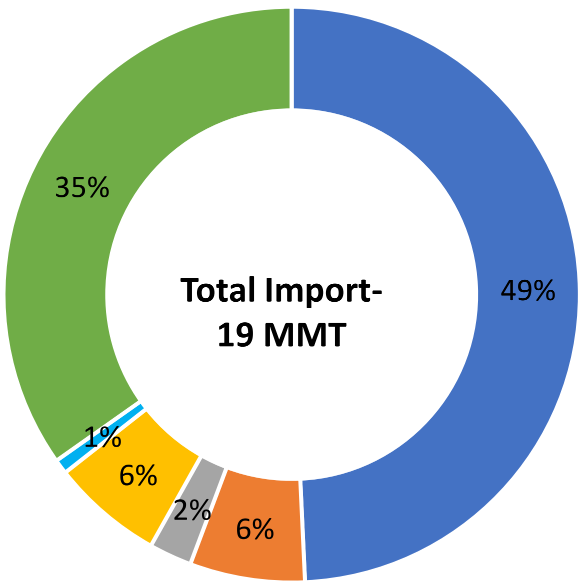
Source: PPAC

Petroleum Products Market Scenario (3/3)

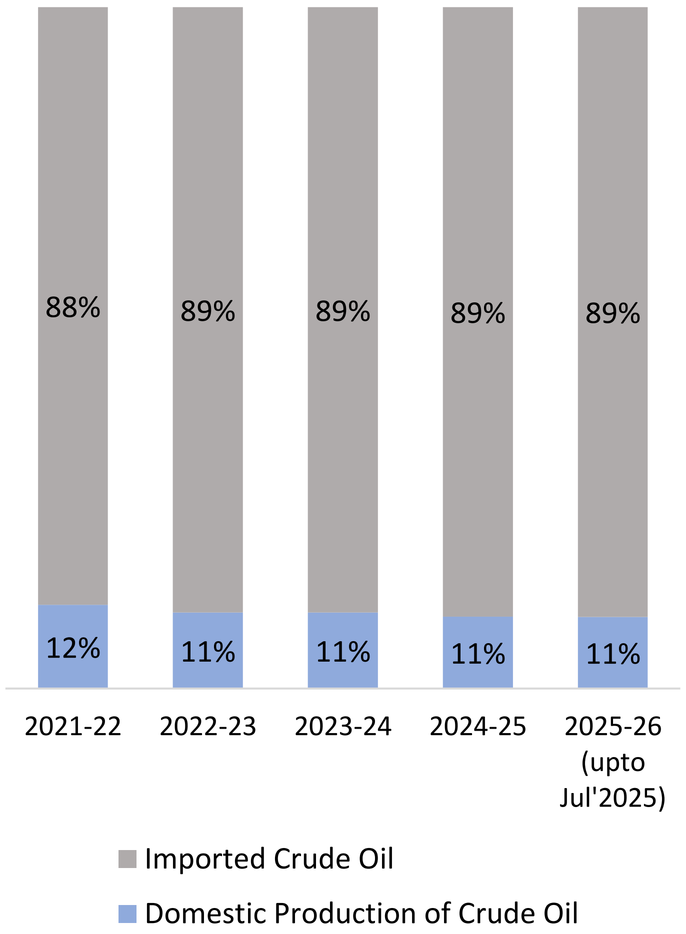
Region-wise Share in Import of Crude Oil (%)



Regional share of Imported Crude oil in July 2025



Domestic and Imported Crude Oil share in India (%)



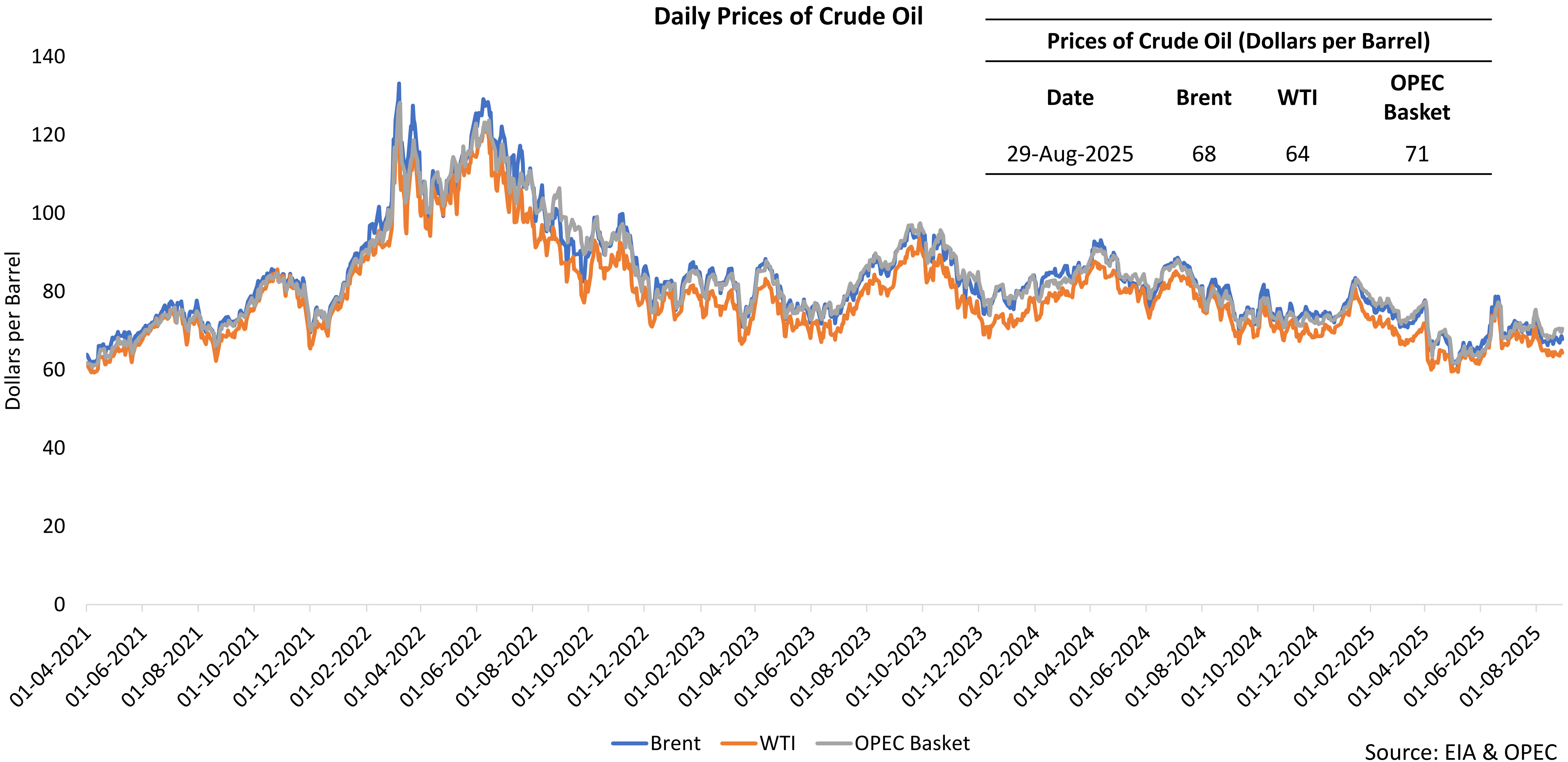
Total Import of Crude Oil (MMT)

Total Import	2023-24	2024-25	2025-26 (up to Jun'25)
Crude Oil	**234**	**243**	**81**

NOTE: The data is based on the latest available information.

Source: MoPNG and PPAC

Daily Prices of Crude Oil

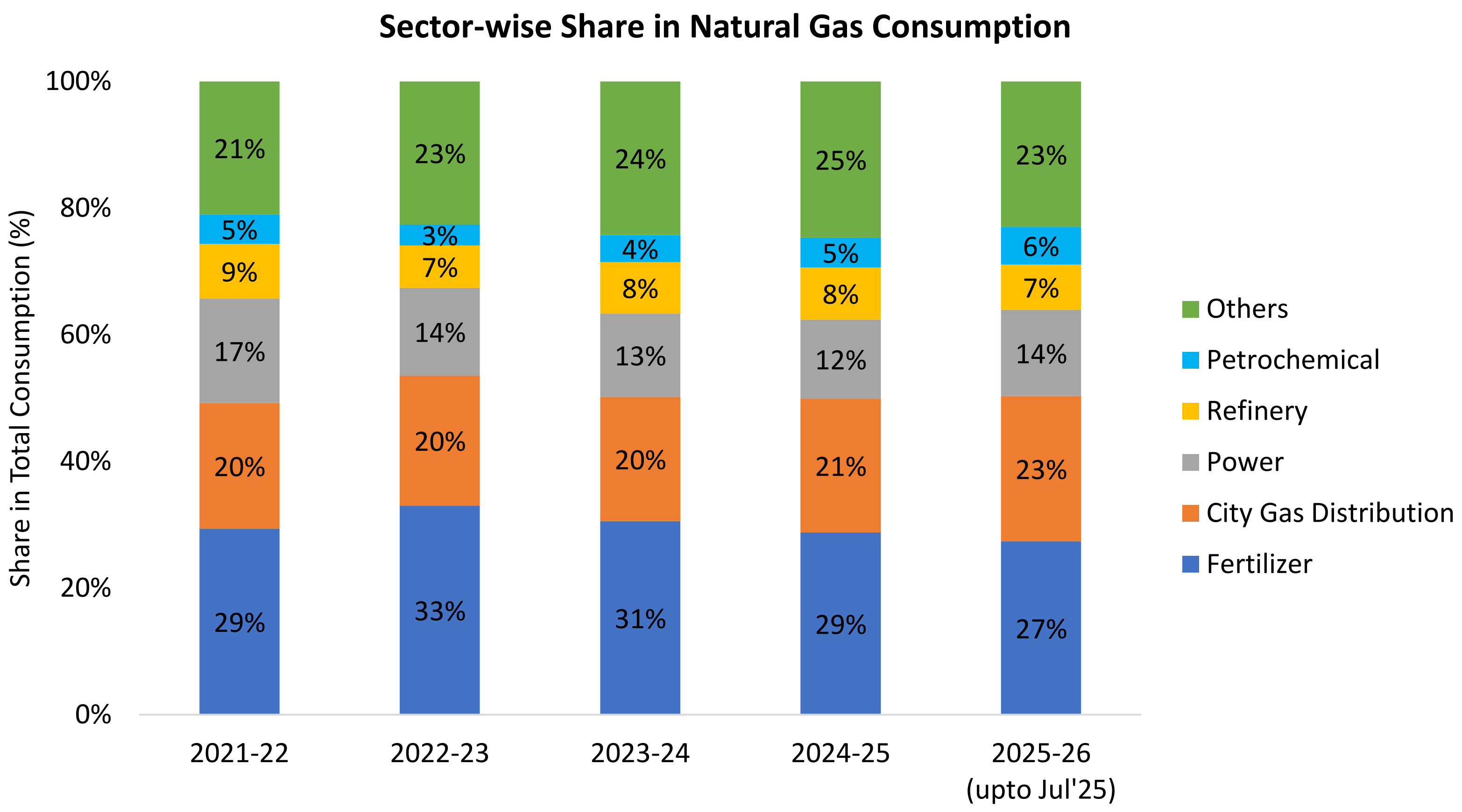


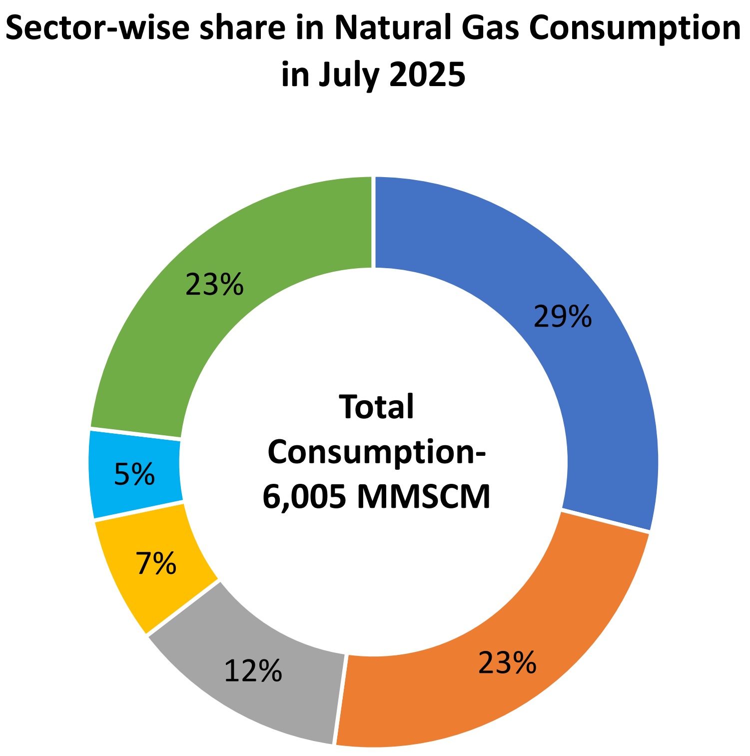
Prices of Crude Oil (Dollars per Barrel)

Date	Brent	WTI	OPEC Basket
29-Aug-2025	68	64	71

Source: EIA & OPEC

Gas Market Scenario (1/2)





Total Consumption of Natural Gas (NG) (MMSCM)

Total Consumption	2021-22	2022-23	2023-24	2024-25	2025-26 (up to Jul'25)
Natural Gas	**61,491**	**58,702**	**68,809**	**71,196**	**23,185**

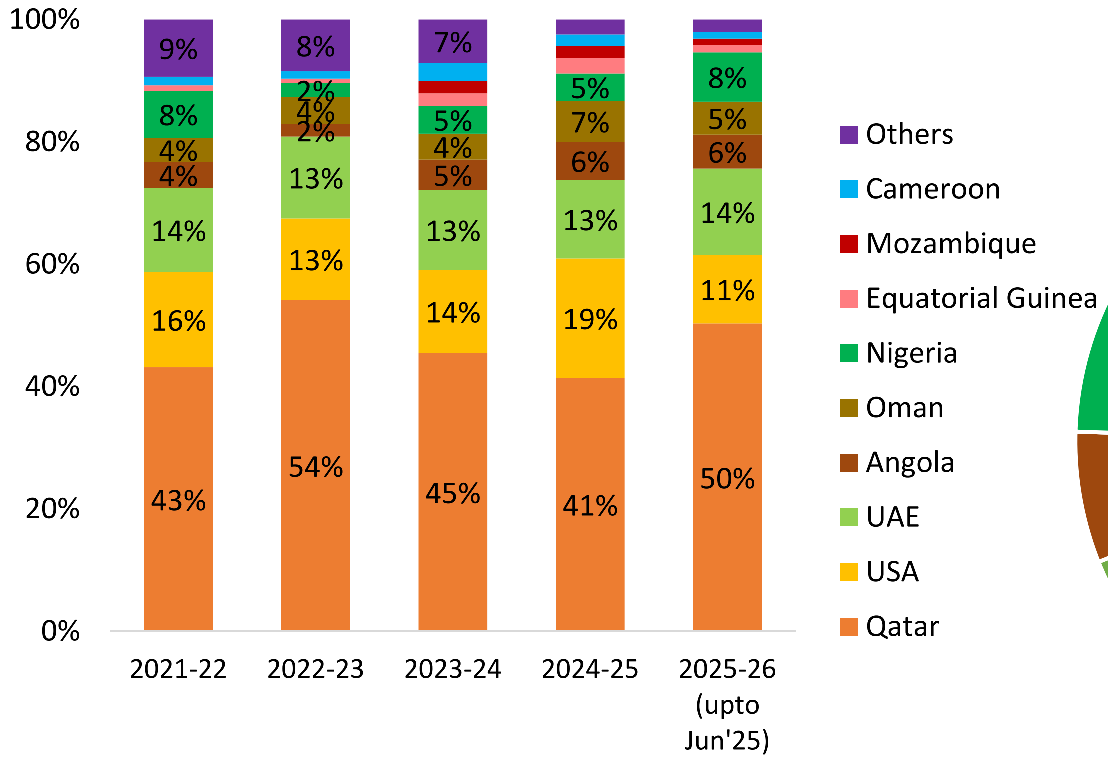
Others include- Internal Combustion of Pipeline System, Industrial, Sponge iron/steel, LPG shrinkage, Manufacturing, Agriculture (tea plantation), Others

NOTE: The data is available latest up to July 2025

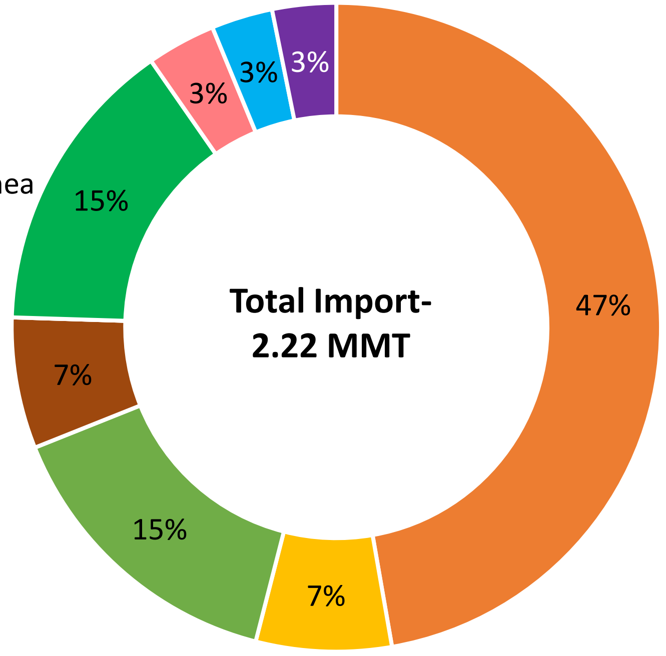
Source: PPAC

Gas Market Scenario (2/2)

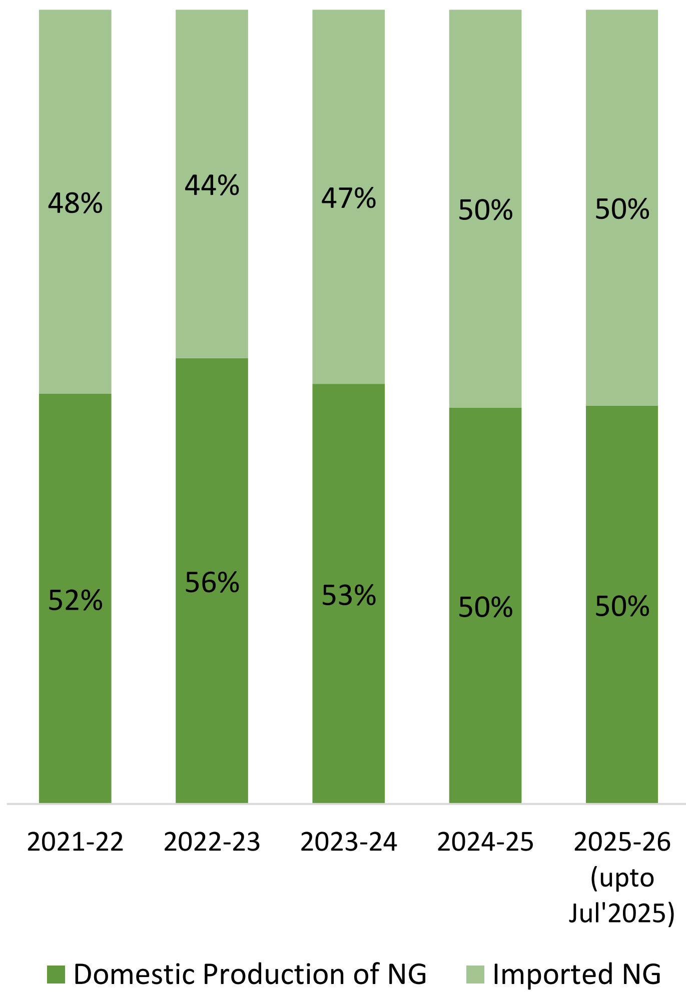
Region-wise Share in Import of LNG (%)



Country Share of Imported LNG in Jun'2025



Domestic and Imported Natural Gas share in India (%)



Others include- Trinidad, Cameroon, Egypt, France, Algeria, Belgium, Indonesia, Turkey, Russia, Spain, Malaysia, Brunei, Netherlands, Norway, and others.

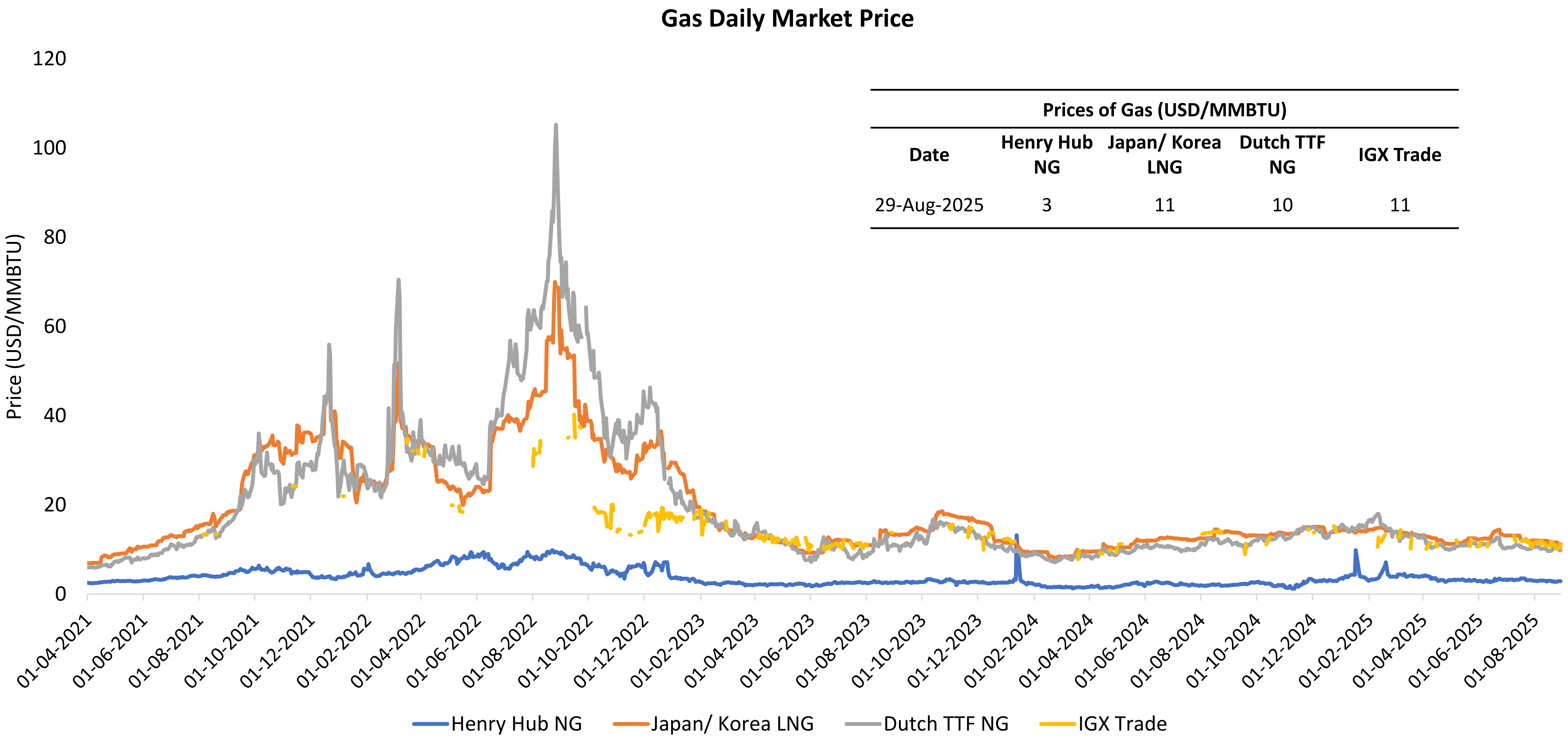
Total Import of Liquified Natural Gas (LNG) (MMT)

Total Import	2023-24	2024-25	2025-26 (up to Jul'25)
LNG	**24.00**	**26.96**	**8.71**

NOTE: The data is based on the latest available information.

Source: MoCI and PPAC

Daily Prices of Gas



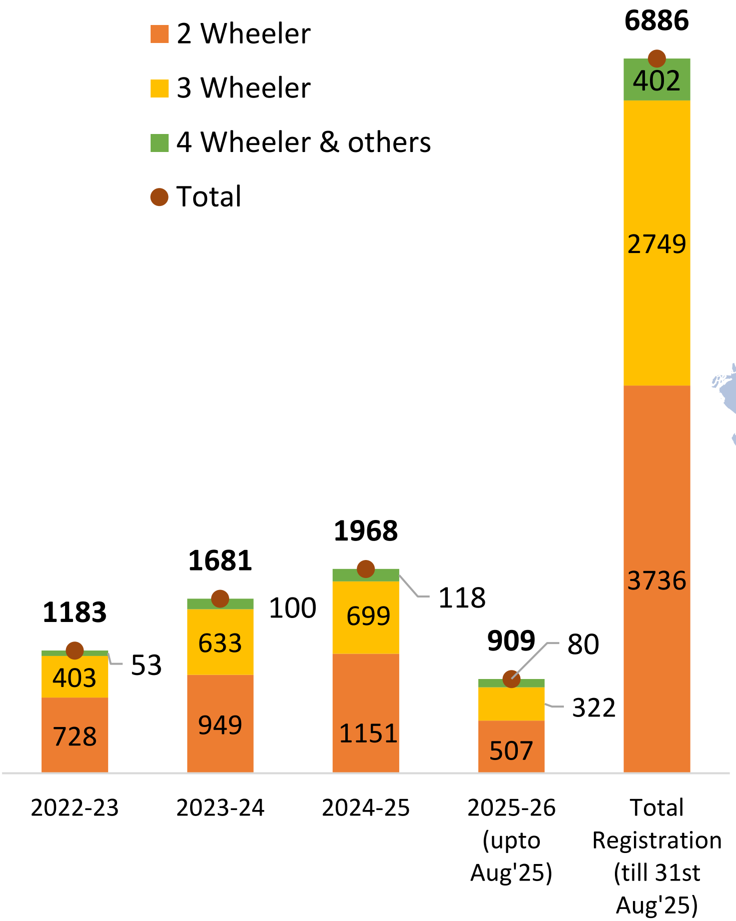
Prices of Gas (USD/MMBTU)				
Date	Henry Hub NG	Japan/ Korea LNG	Dutch TTF NG	IGX Trade
29-Aug-2025	3	11	10	11

MMBTU- Million Metric British Thermal Unit

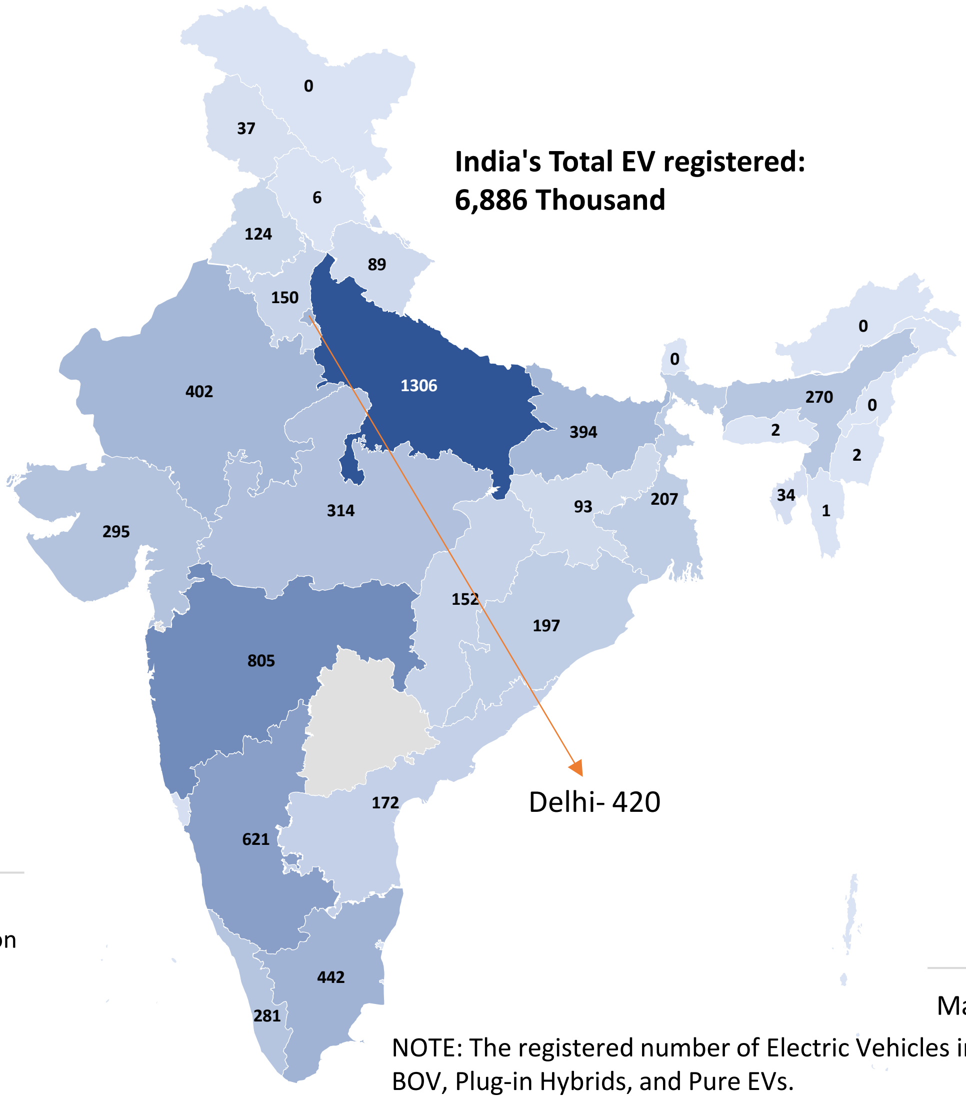
Source: EIA, Investing.com, IGX

Status of Electric Mobility in India

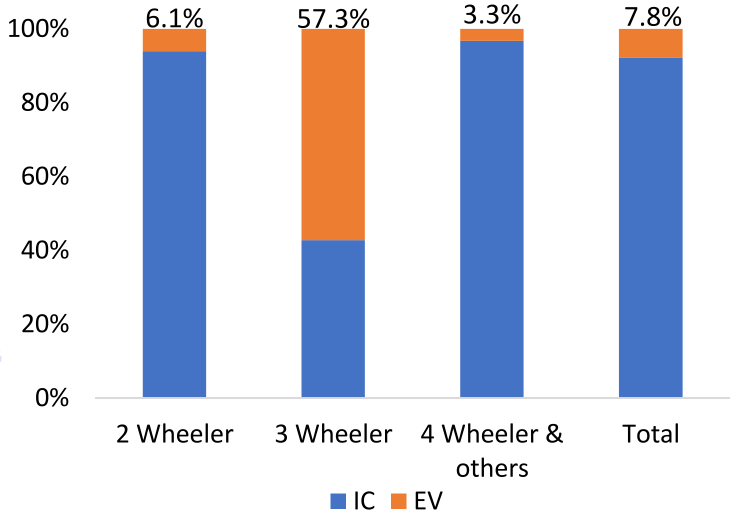
National EV registration (Number in Thousands)



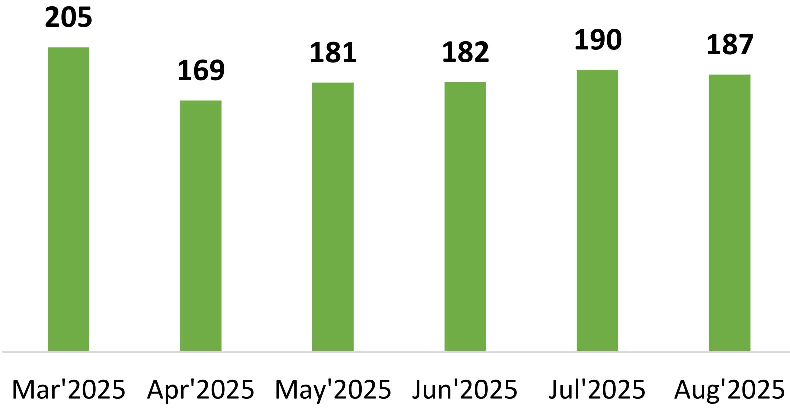
Cumulative State-wise EV registration as on 31st August 2025 (in Thousands)



EV and ICE sale composition in 2024-25



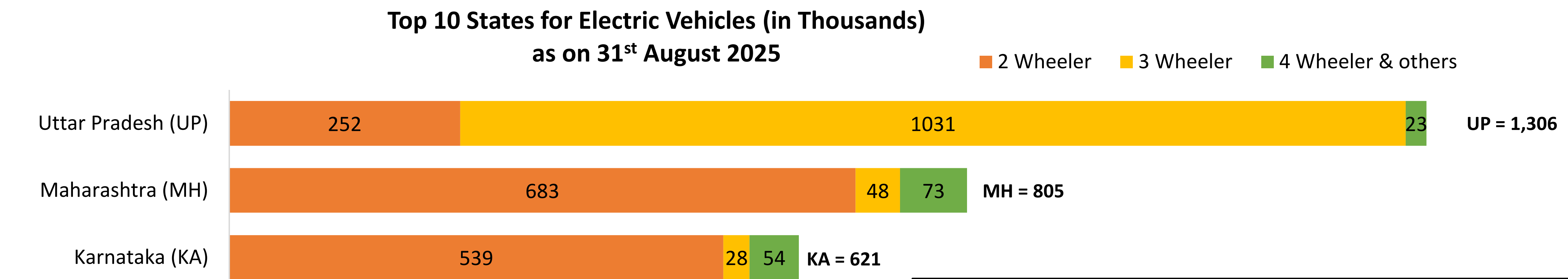
Provisional Monthly EV registered (in Thousands)

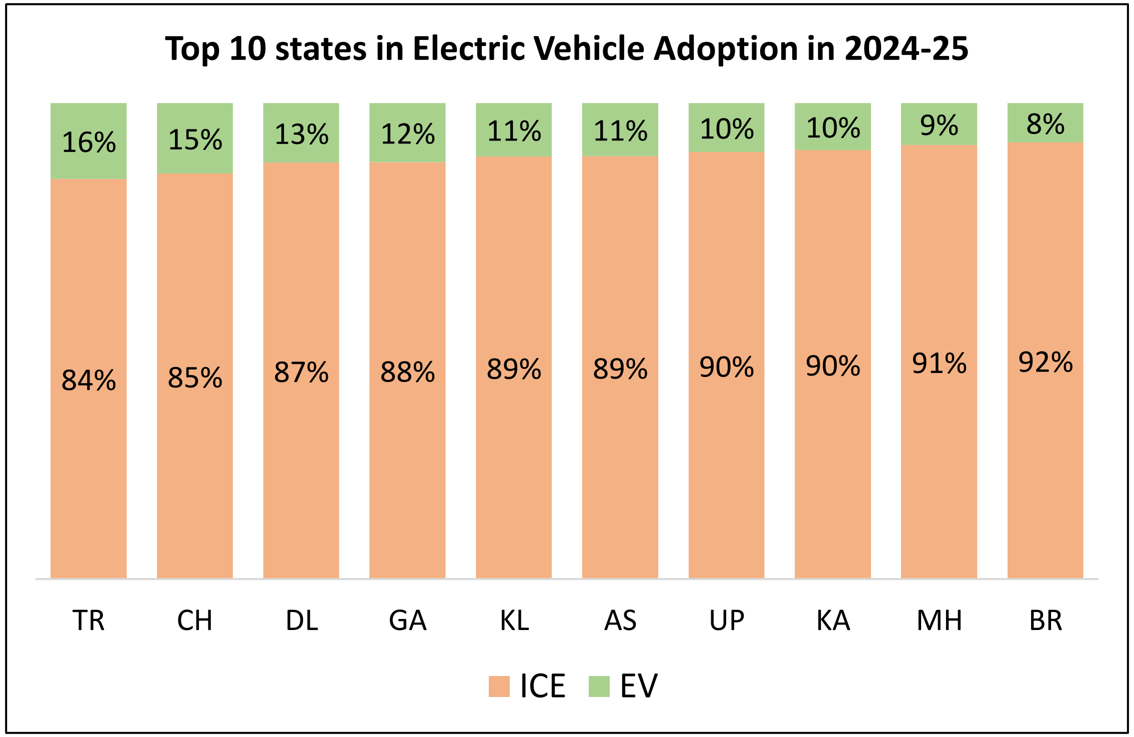


NOTE: The registered number of Electric Vehicles includes Electric BOV, Plug-in Hybrids, and Pure EVs.

Source: VAHAN Dashboard

Status of Electric Mobility in India





NOTE: CH- Chandigarh, GA- Goa, AS- Assam, TR- Tripura

Source: VAHAN Dashboard

Recent Interventions to promote Renewable Energy

Solar

Under the PLI scheme, the GOI has announced INR 19,500 crores to incentivize the manufacturing of domestic solar PV modules.

PM-Surya Ghar: Muft Bijli Yojana relaesed with a total outlay of Rs. 75,021 crore for installing rooftop solar (RTS) for one crore households. The scheme provides a CFA of Rs 30,000 for a 1 kW RTS system, Rs 60,000 for a 2kW RTS system, and Rs 78,000 for a 3kW RTS system.

The inter-state transmission charges are waived for 25 years for the projects being commissioned before 30th June 2025.

The updated RPO compliance supports solar integration of up to 33.57% of the electricity purchased by DISCOMs/states till the year 2029-30.

PM KUSUM scheme has been extended till Mar'26 to install pump sets up to 15 HP in selected areas.

Wind

Reverse auctions have been scrapped for wind projects. A traditional two-part (technical and financial) bid system has been put in place.

To support off-shore wind, SECI will invite bids for up to 4GW to set up offshore wind plants off the coast of Tamil Nadu and Gujarat.

The ISTS charges are waived for 25 years for the onshore projects being commissioned before 30th June 2025 and for off-shore projects on or before 31st December 2032.

The updated RPO compliance supports WIND integration of up to 6.94% of the electricity purchased by DISCOMs/states till the year 2029-30.

The National Repowering & Life Extension Policy for Wind Power Projects- 2023, for wind power projects is released for the optimum utilization of wind energy resources by maximizing energy (kWh) yield per sq. km of the wind project areas.

The GoI has decided to invite bids for 50 GW of RE annually, which includes up to 10 GW of wind capacity.

Energy Storage

Ministry of Power has released the guidelines for the development of PSP with the target of 26.7 GW of PSP and 47.2 GW of BESS to integrate with RE capacity till 2032.

PLI scheme unveiled for setting up 50 GWh ACC battery storage with an outlay of ₹18,100 crores.

Under the Waste Management Rules 2022, the disposal of waste batteries in landfills and incineration is prohibited and the recycling of waste batteries is made mandatory.

CERC, under RRAS regulation, has allowed the use of energy storage in secondary and tertiary ancillary support.

The Energy Storage Obligation of DISCOMs is pegged at 4.0% up to 2029-30.

India's first 20 MW/40MWh BESS project is going to go live at the 33/11 kV Kilokari sub-station belonging to BRPL, Delhi.

Under the aegis of MNRE, SECI has successfully commissioned India's largest BESS plant, featuring a 40 MW/120 MWh BESS alongside a solar PV plant with a installed capacity of 152 MWh, located in Rajnandgaon, Chhattisgarh.

Green Hydrogen (H_2)

National Green Hydrogen Mission (NGHM) aims to meet the target of 5 million metric tonnes of green hydrogen production by 2030. The initial outlay for the Mission will be INR 19,744 crores. NGHM portal to track the recent initiatives and developments.

India's first Green Hydrogen Hub to be build in Andhra Pradesh by NTPC at an estimated cost of ₹1.85 Lakh Crore with a capacity of producing 1500 TPD Green Hydrogen and 7500 TPD Green Hydrogen derivative

MNRE has sanctioned pilot projects on Hydrogen Fuelled Buses and Trucks consisting total of 37 vehicles and 9 hydrogen refueling stations.

MNRE has sanctioned 3 pilot projects in steel sector for use of green Hydrogen in steel production to be commissioned in next 3 years with total financial outlay of ₹347 Crore from GoI.

Indian Railways to run 35 Hydrogen trains under "Hydrogen for Heritage" at an estimated cost of ₹ 80 crores per train and ground infrastructure of ₹ 70 crores per route on various heritage/hill routes.

Key Highlights or Announcements of August 2025

- The Ministry of Environment, Forest and Climate Change has signed a Memorandum of Cooperation (MoC) with Japan on the Joint Crediting Mechanism (JCM) under Article 6.2 of the Paris Agreement. The MoC aligns with the Indo-Japan priority of *"Green Energy Focus for a Better Future".* The agreement strengthens collaboration between India and Japan on climate change mitigation, with low-carbon technologies approved by the National Designated Agency for Implementation of Article 6 (NDAIAPA) playing a key role in India's long-term low-carbon development pathway towards achieving Net Zero by 2070.

- Bureau of Energy has released three new draft methodologies for public consultation under its domestic carbon market. This comes after the country approved eight methodologies under the mechanism, known as Carbon Credit Trading Scheme (CCTS), in March. The new methodologies for offset mechanism are:
  - electricity and heat generation from biomass;
  - production of compressed bio-gas;
  - emission reduction through improved management practices in rice cultivation.

- The Ministry of Environment, Forest and Climate Change has notified the establishment of the National Designated Authority for the Implementation of Article 6 of the Paris Agreement. The Authority will evaluate, approve, and authorize carbon market projects, ensure alignment with India's sustainable development priorities, and oversee emission reduction trading under Article 6.2 and 6.4 mechanisms.

- On 4th August 2025, the Ministry of Power released the draft Energy Conservation (Compliance Enforcement) Rules, 2025, empowering the Bureau of Energy Efficiency to monitor and enforce compliance under the Energy Conservation Act, 2001. The rules mandate periodic reporting by designated consumers, manufacturers/importers, entities, empower State Commissions to adjudicate non-compliance cases, and channel penalties into the Energy Conservation Fund to support national and state-level efficiency initiatives.

Vasudha Foundation
D-2, 2nd Floor, Southern Park Mall,
Saket District Court, New Delhi - 110017, India
Tel/fax: + 91-11-2437-3680

Visit us at http://www.vasudha-foundation.org/

For more information about Vasudha Foundation, email us at

info@vasudhaindia.org