

India's Energy Overview

AUGUST 2022



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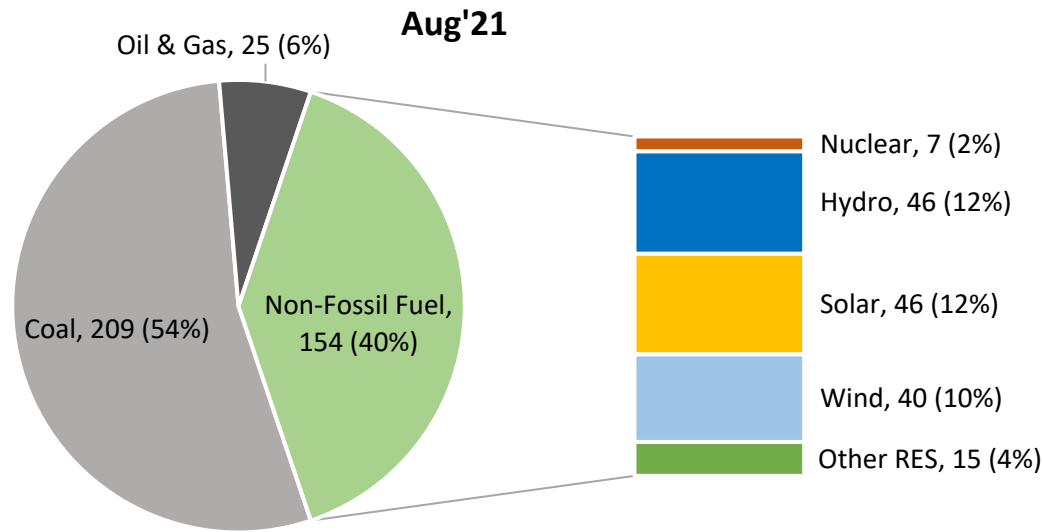
Monthly Petroleum Products Market Scenario



Key Highlights or Announcements of August'22

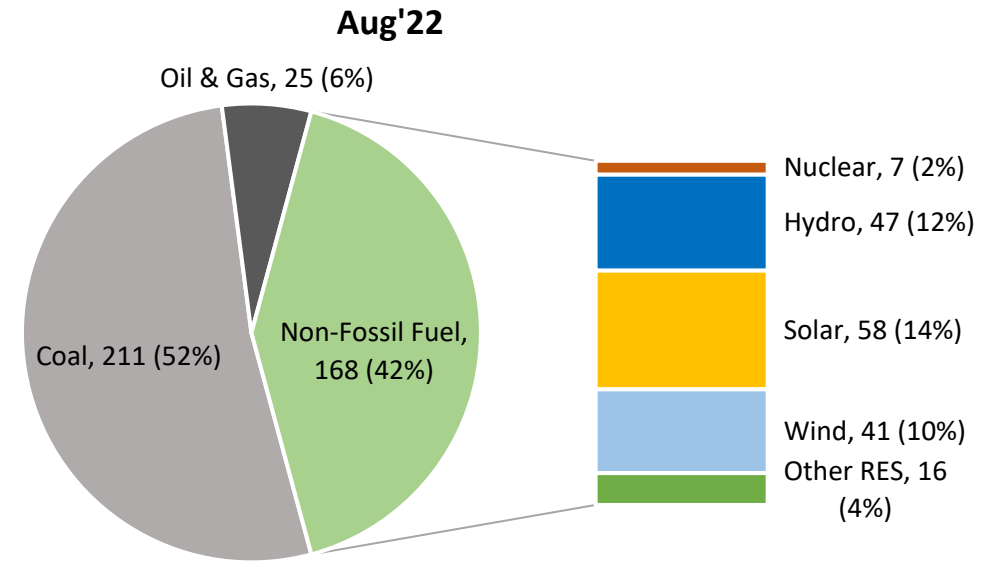


India's Electricity Capacity Mix



Total Capacity: 388 GW

*Capacity Numbers are in GW



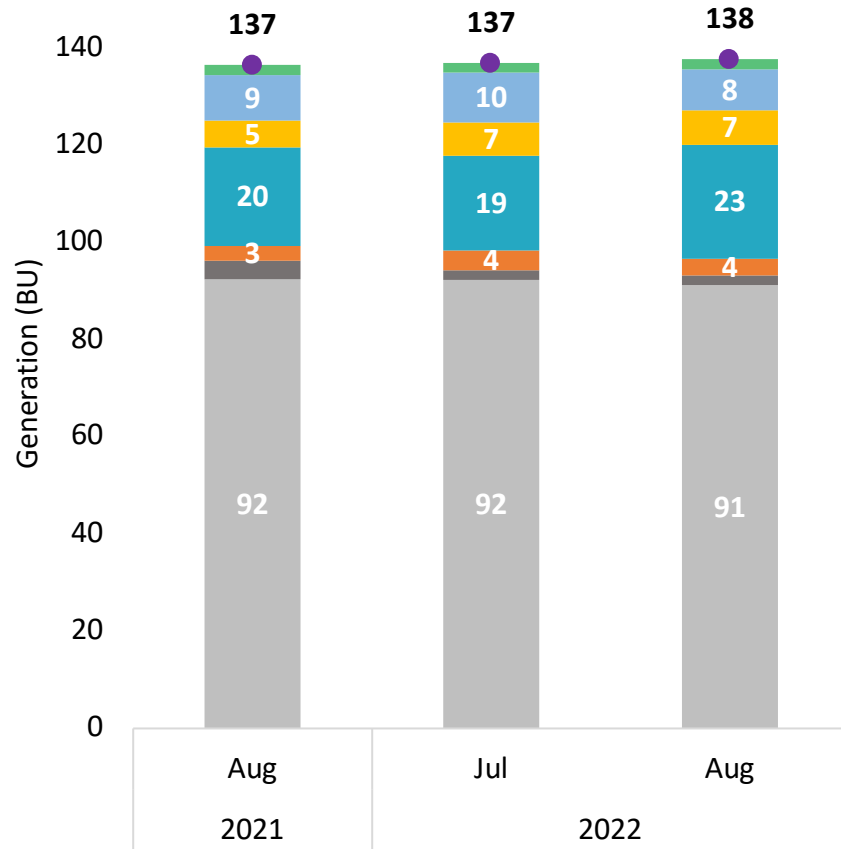
Total Capacity: 404 GW

- India's electricity generating capacity is 404 GW as on Aug'22. Major contributors to the capacity are coal 211 GW (52%), solar 58 GW (14%), hydro 47 GW (12%), and wind 41 GW (10%).
- Non-fossil fuels' share in total generation capacity has increased from 154 GW to 168 GW since Aug'21, a jump of 11%. Major capacity addition was in Solar technology followed by Wind.
- As on Aug'22, India's renewable energy capacity (which includes solar, wind, biopower & small hydro) stood at 114 GW.

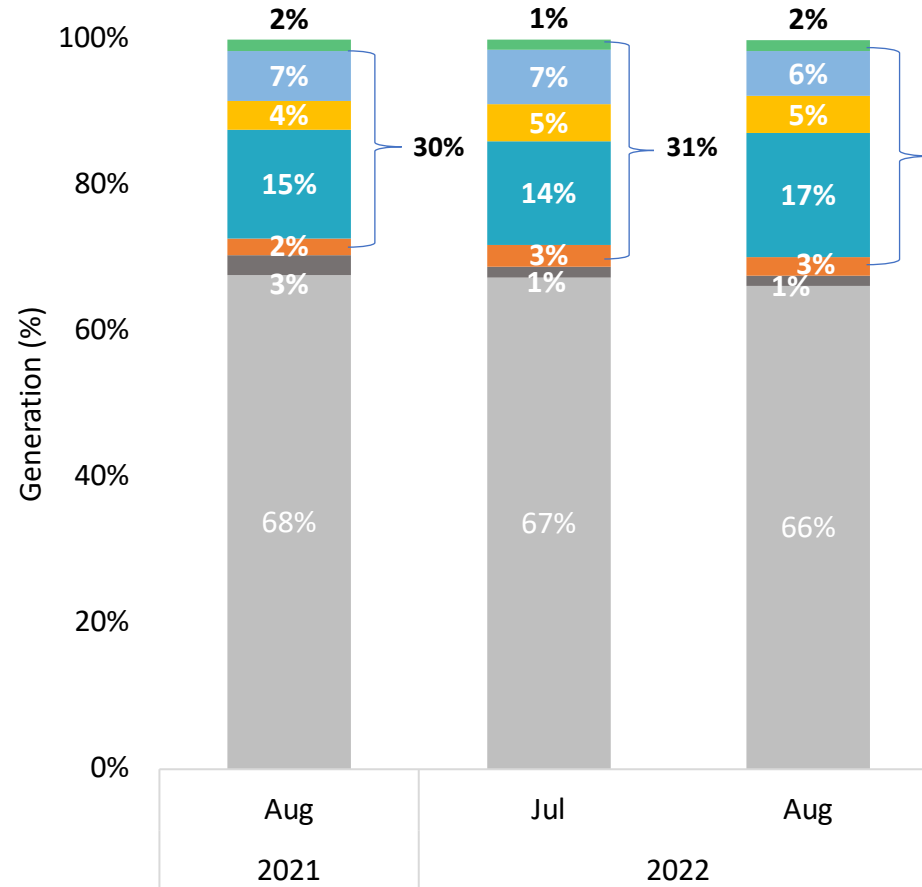


India's Electricity Generation Mix

Source-wise Generation Mix (BU)



Source-wise Generation Mix (%)

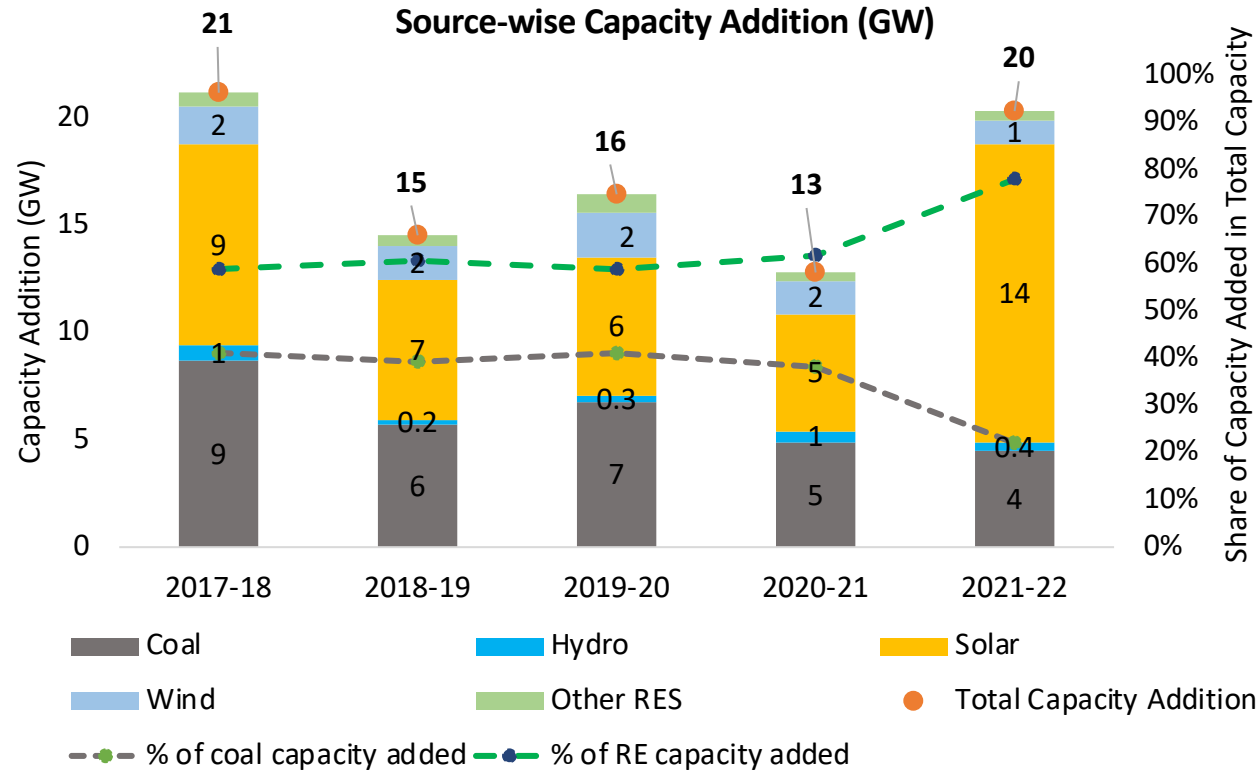


- In Aug'22, the contribution of hydro in the total generation mix was 17%, 3% higher than last month.
- Additionally, hydropower PLF has increased to 67% from 56% as compared to the previous month.
- Higher hydro generation resulted in an overall increase in Non-Fossil Fuel share in the total generation to 32%.

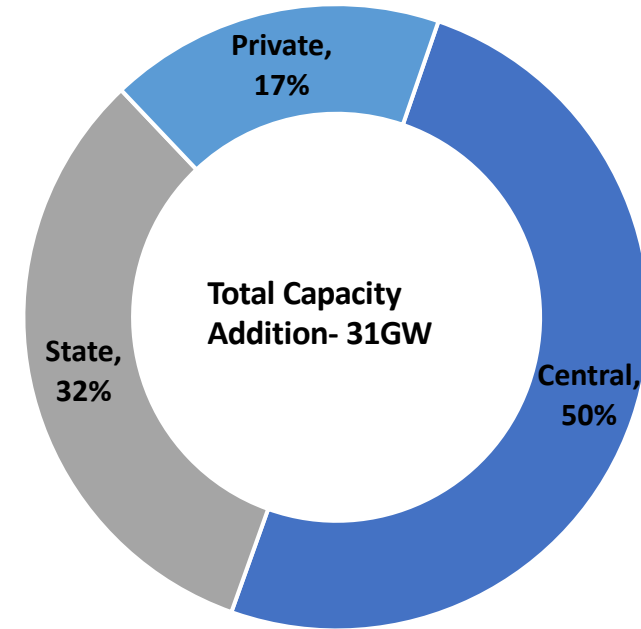
Coal
 Oil & Gas
 Nuclear
 Hydro
 Solar
 Wind
 Other RES
 All India



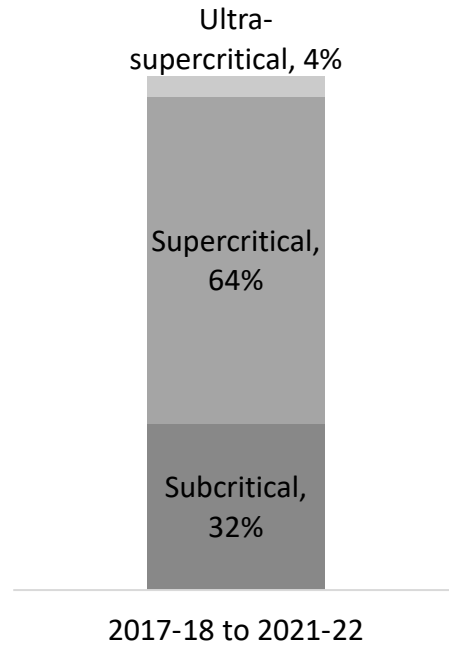
Source-wise Capacity Addition in last 5 years



Sectoral Coal Capacity Addition for the last 5 years (2017-18 to 2021-22)



Technology type

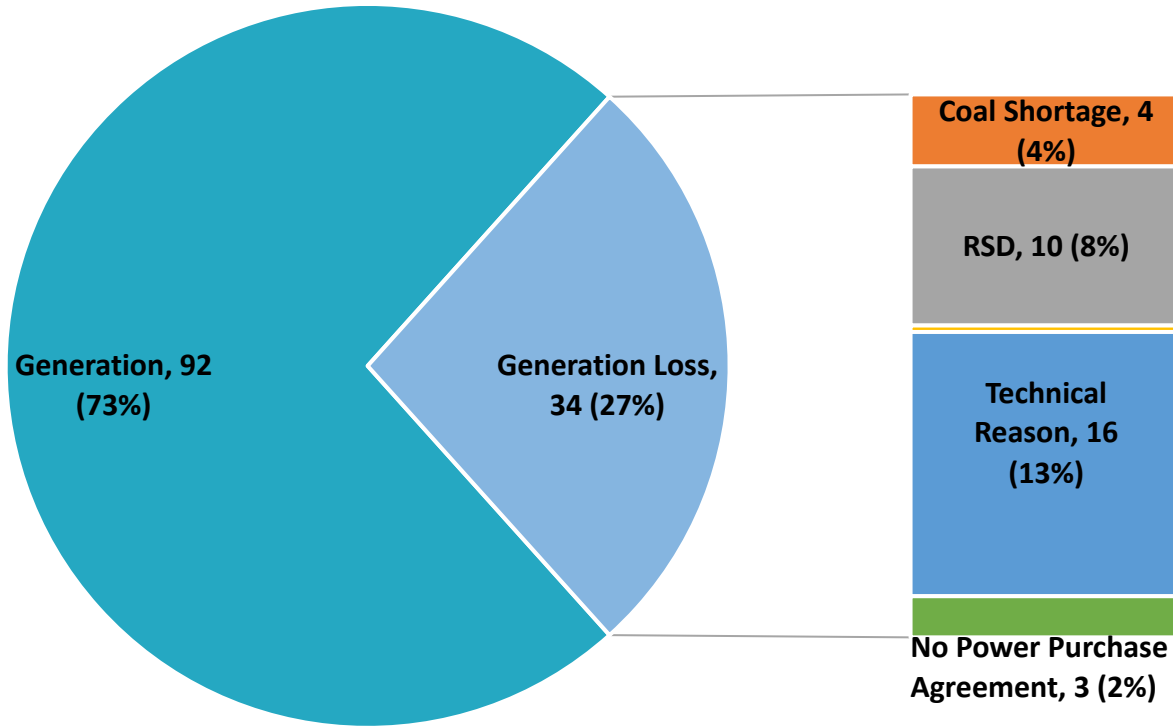


- A total of 55 GW of generation capacity has been added in RE (Hydro, solar, wind, and other) over the past 5 years, whereas the coal capacity addition during the same period was 31 GW, mostly in central sector (50%).
- The share of RE addition in total capacity addition is increasing over the years (from 59% in 2017 to 78% in 2022).
- Since Apr'17, there has been no capacity addition in nuclear power.

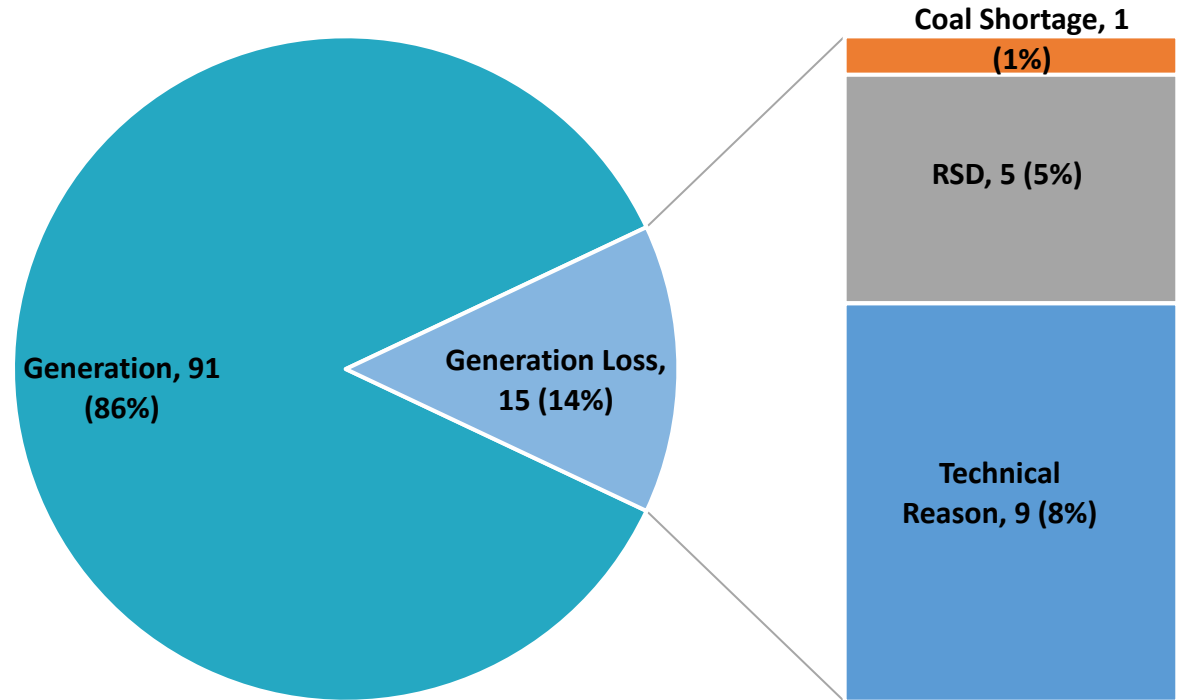


Coal Generation Loss: Reasons for Forced Outages

Aug'21



Aug'22



Generation and Generation Loss in BU

Sources: Vasudha Analysis

Note: The graph does not include generation loss due to Planned outages

BU: Billion Units

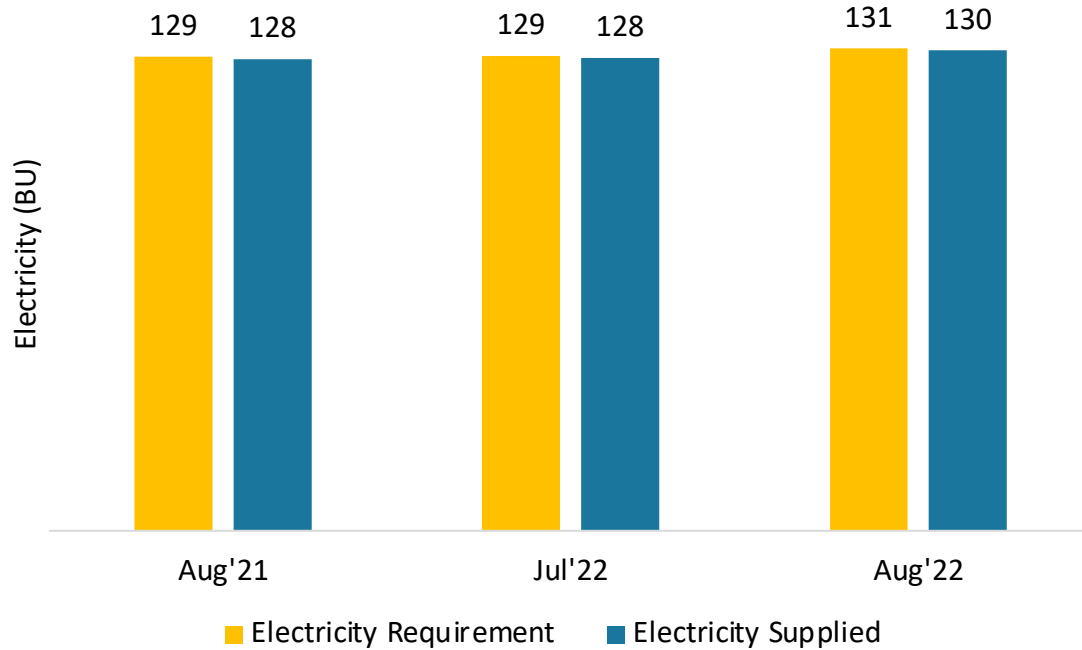
RSD: Reserve shut down



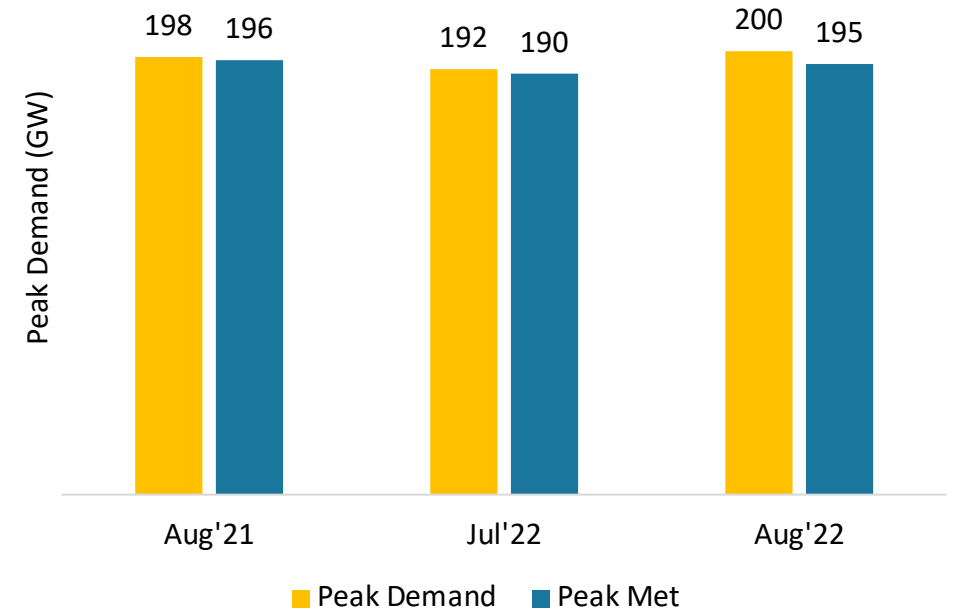


India's Electricity Demand & Supply Position

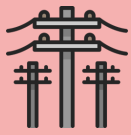
Electricity Supply Position



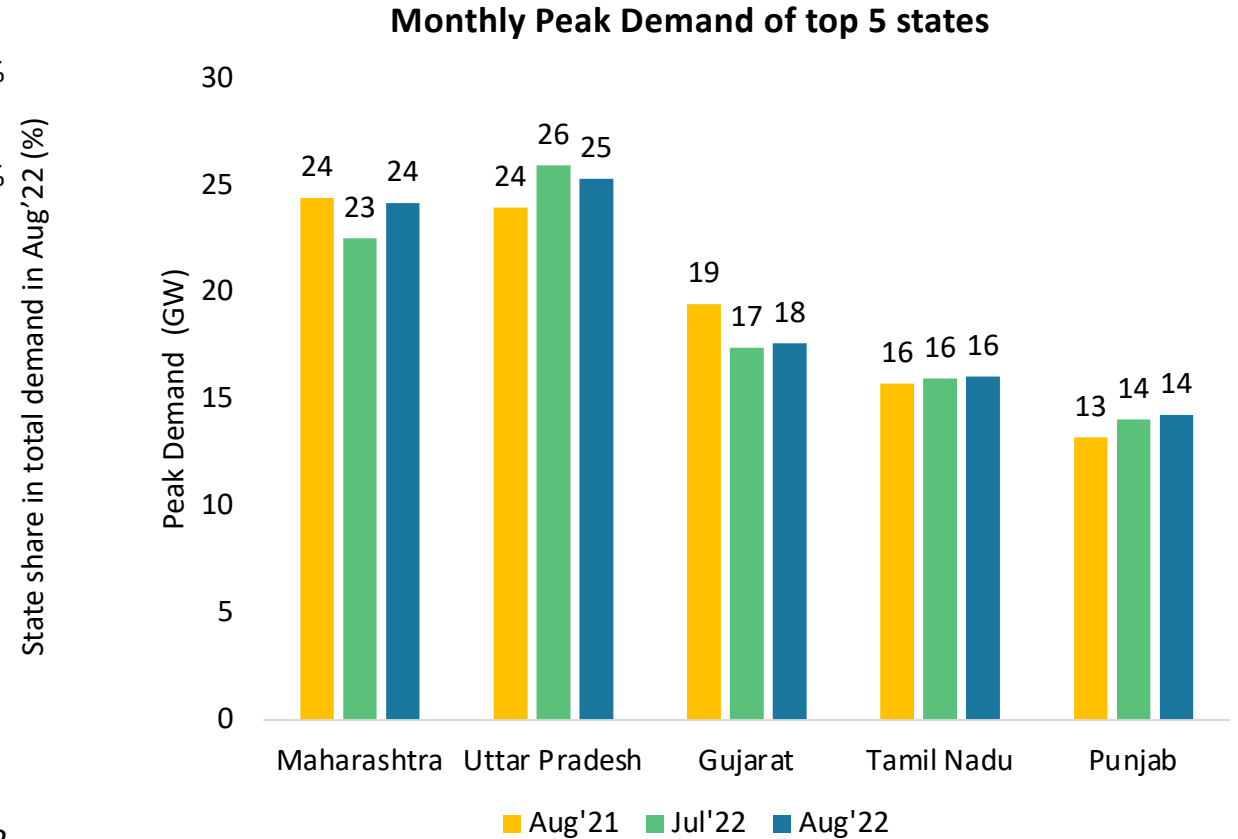
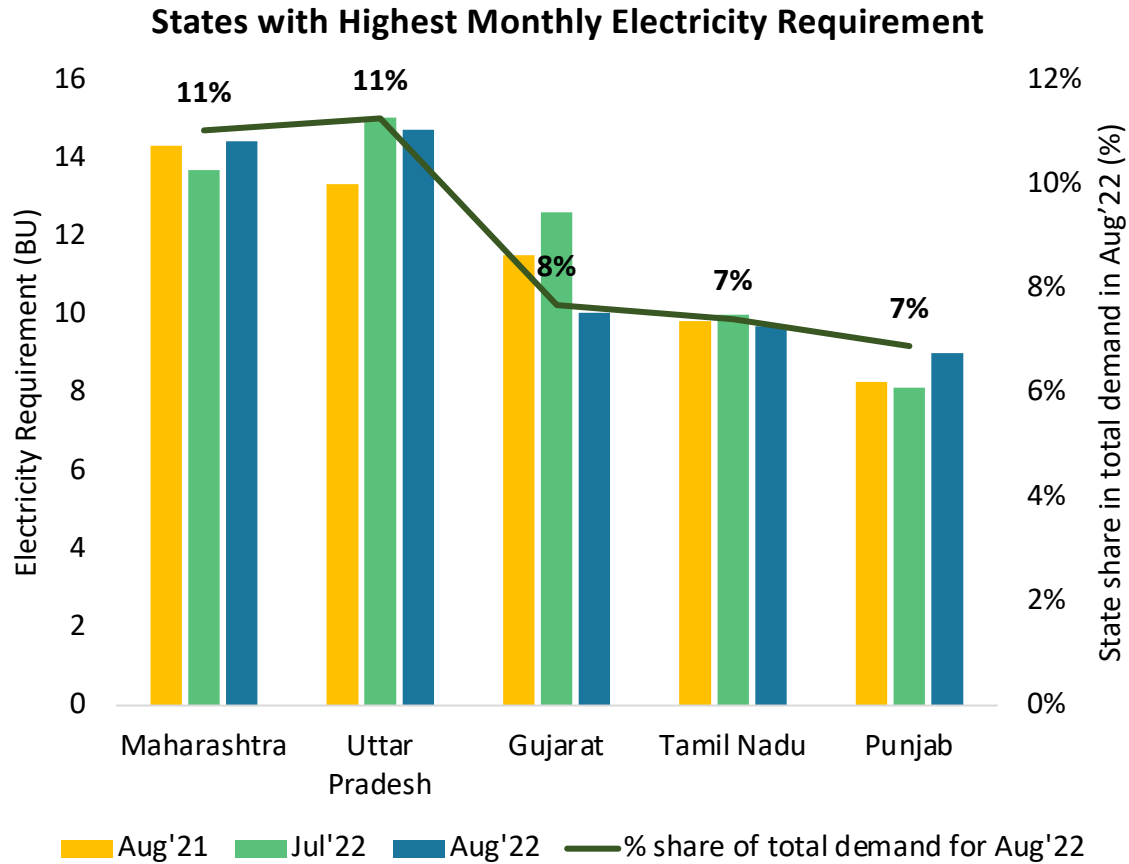
Peak Demand Position



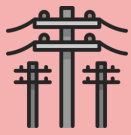
- National electricity demand in Aug'22 increased by 2% , compared to demand in Aug'21.
- The peak demand deficit in Aug'22 has increased from 0.7% (Aug'21) to 2.9%.
- National peak electricity demand in Aug'22 has increased by 1% as compared to peak demand in Aug'21.



Monthly Electricity Demand of the top 5 states (1/3)



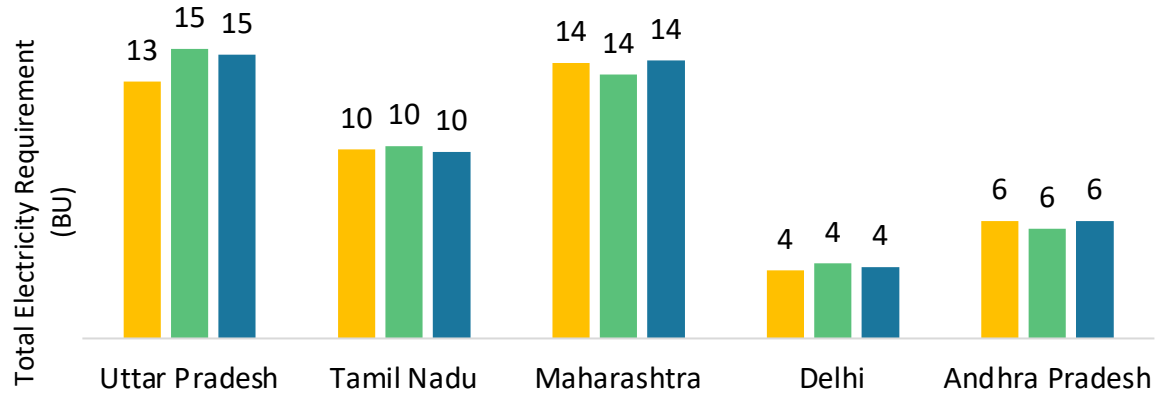
The top 5 states collectively account for a 44% share of India's total electricity requirement (129 BU).



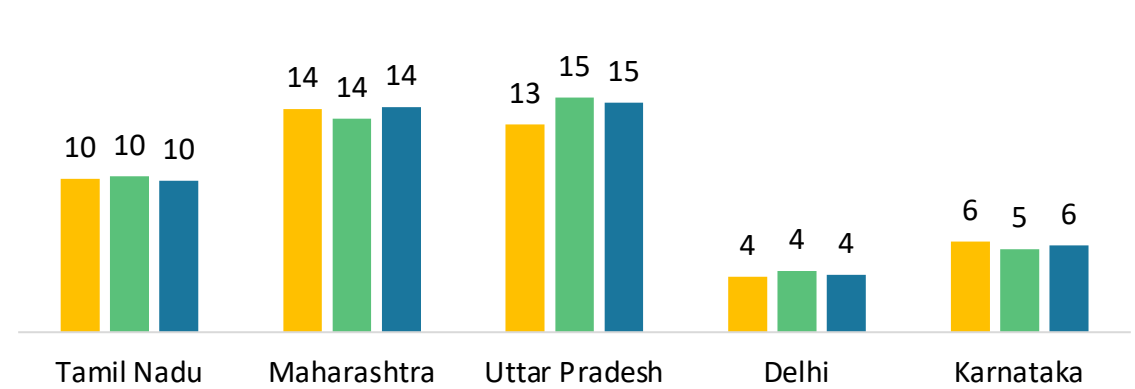
Monthly Electricity Demand of the top 5 states (2/3)

States have been selected on the basis highest electricity consumption in the sector

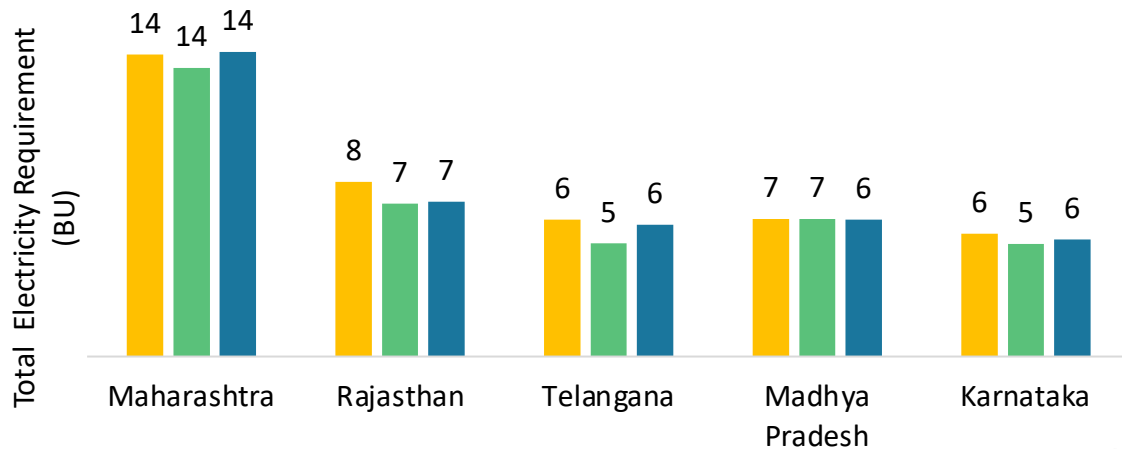
In Domestic Sector



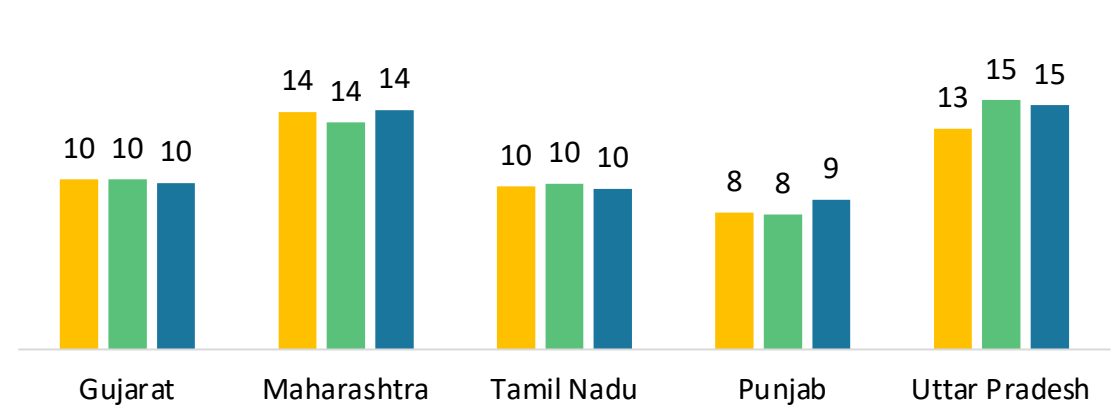
In Commercial Sector



In Agricultural Sector



In Industrial Sector



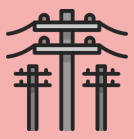
■ Aug'21 ■ Jul'22 ■ Aug'22

Sources: CEA and POSOCO

Notes: 1. Top 5 states under sectors are selected based on trued-up sectoral electricity sales in FY20 mentioned in the state tariff orders. However, the numbers presented in the graphs are total monthly electricity sale as sector specific monthly electricity consumption numbers are not available for current financial year.

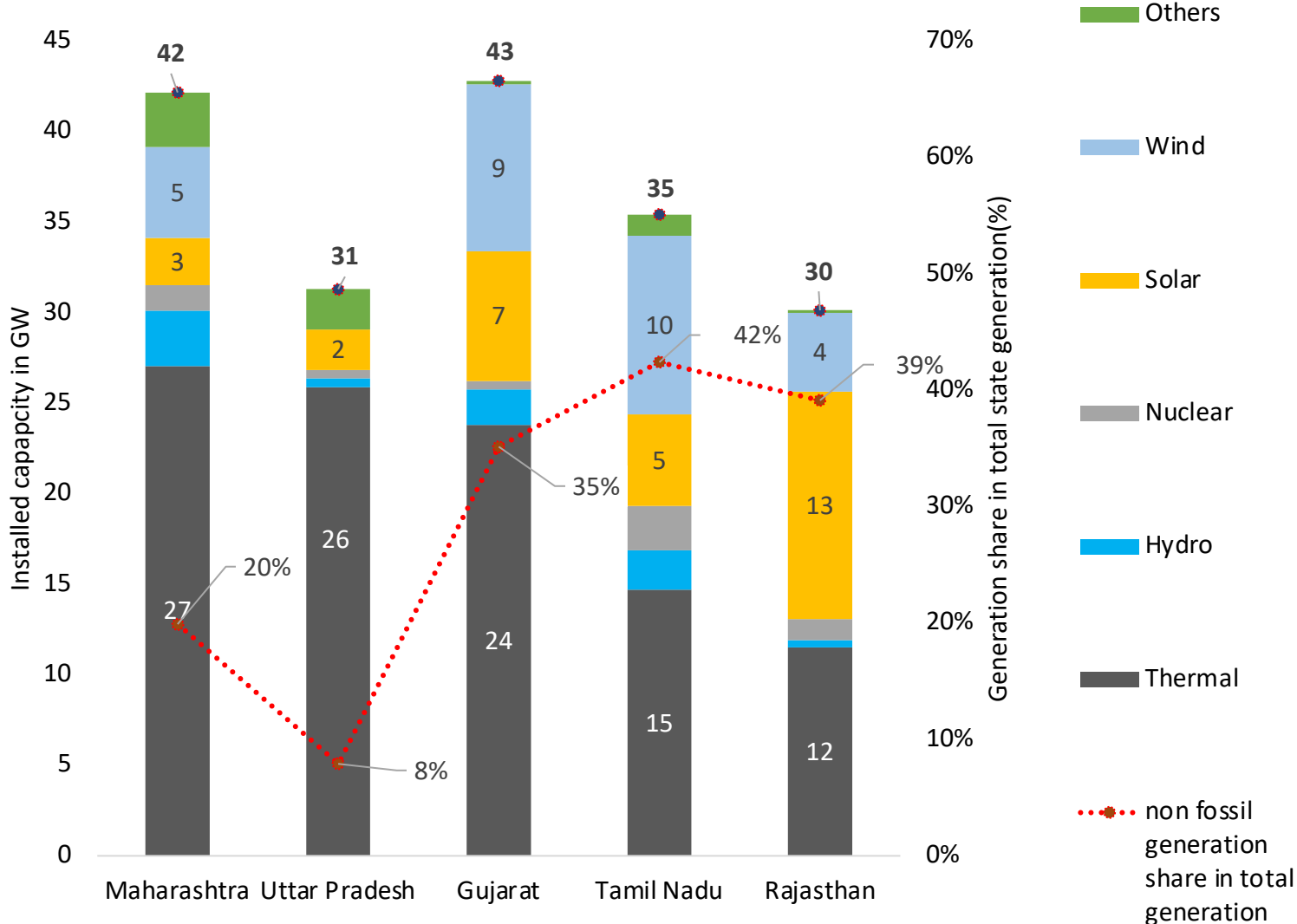
2. Aug'22 numbers are provisional.



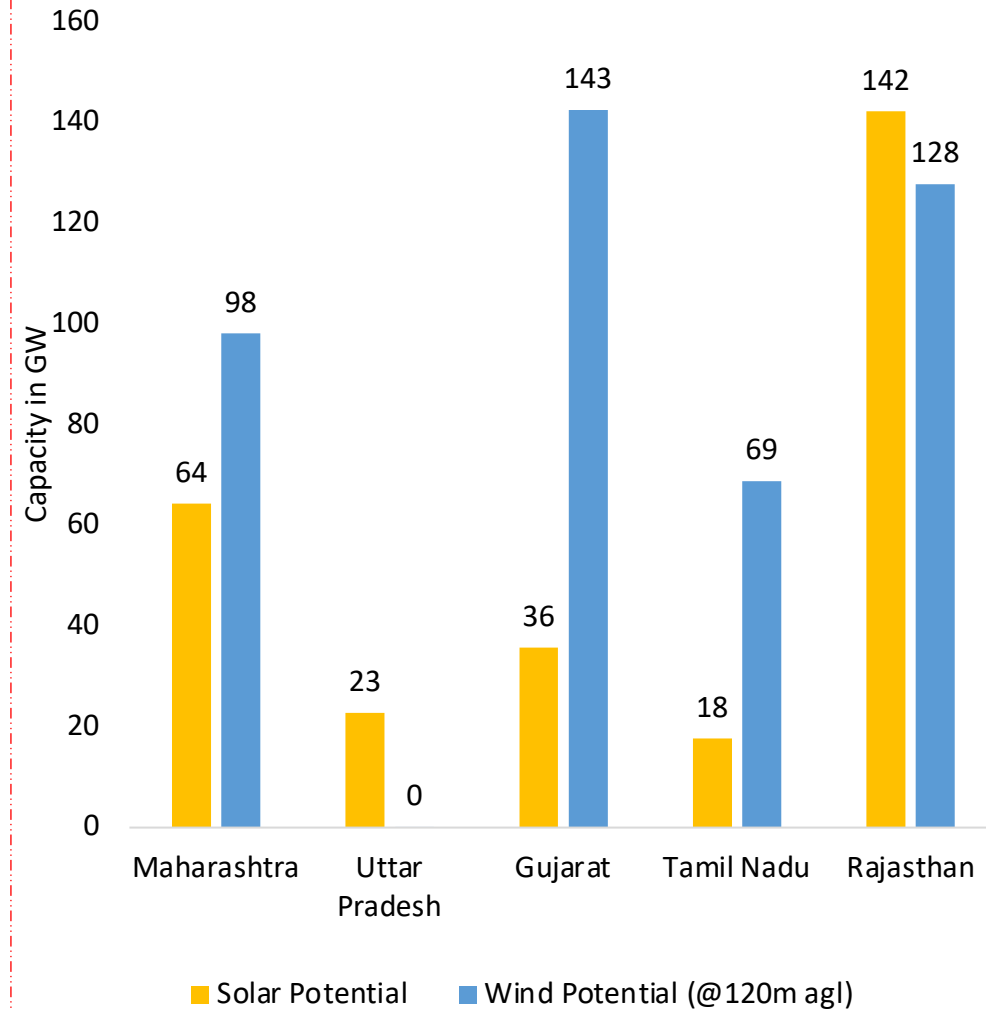


Highest Electricity Demanding States: Energy sources and RE potential (3/3)

State Sources and Generation Share



RE Resource potential in State



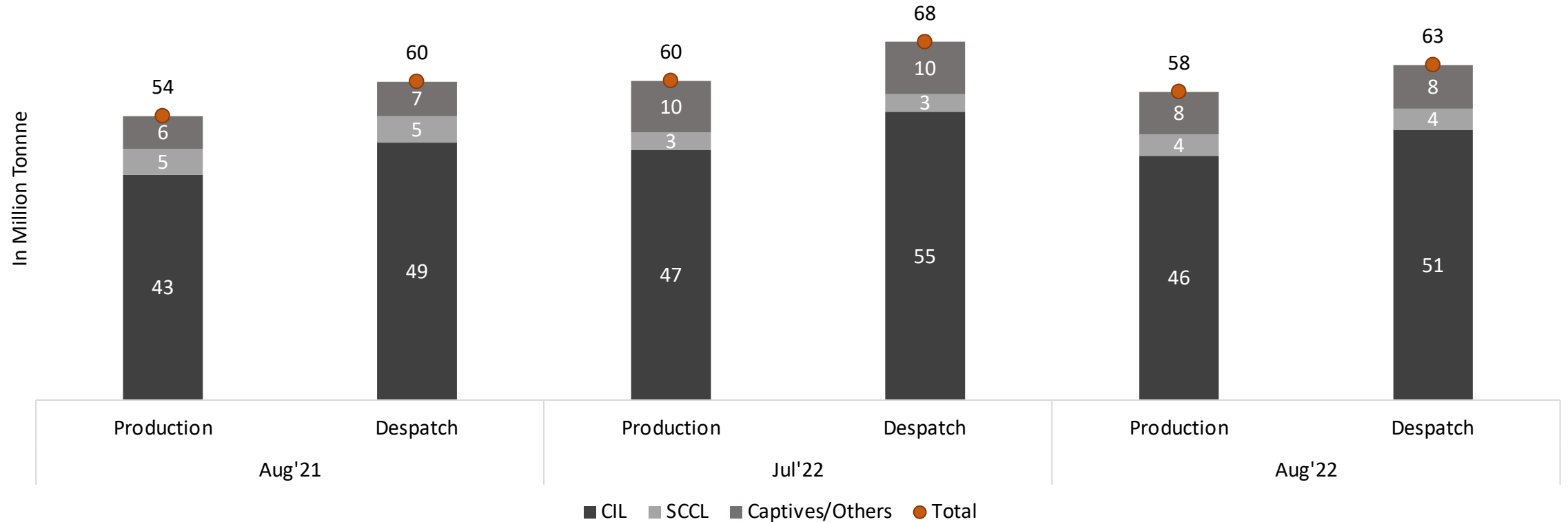
Sources: CEA, MoSPI

Note: The capacity and generation share in the state are based on the plant geographical location and do not represent the actual state contracts/power procurement.





Monthly Coal Statistics

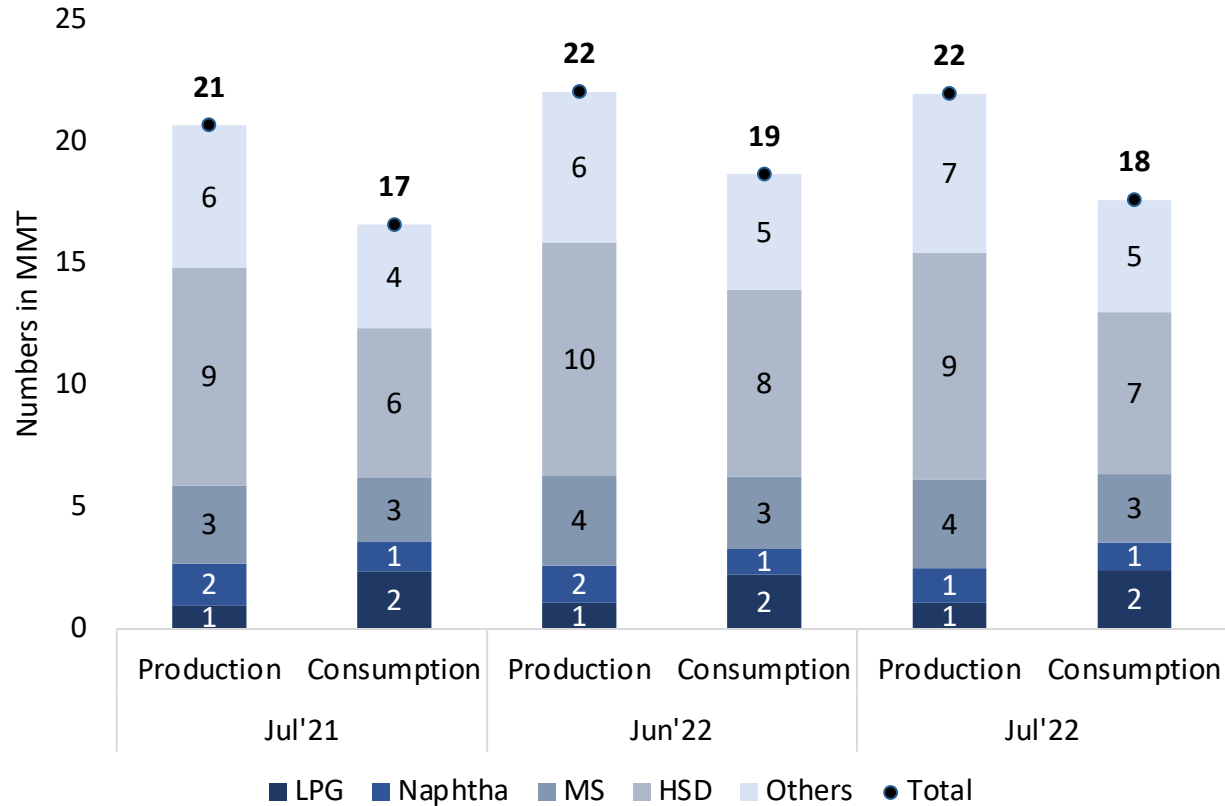


- ❖ India's coal production increased in Aug'22 (58 MT) by 9% as compared to Aug'21 (54MT). Similarly, the coal despatch increased by 5% in August this year as compared to Aug'21.



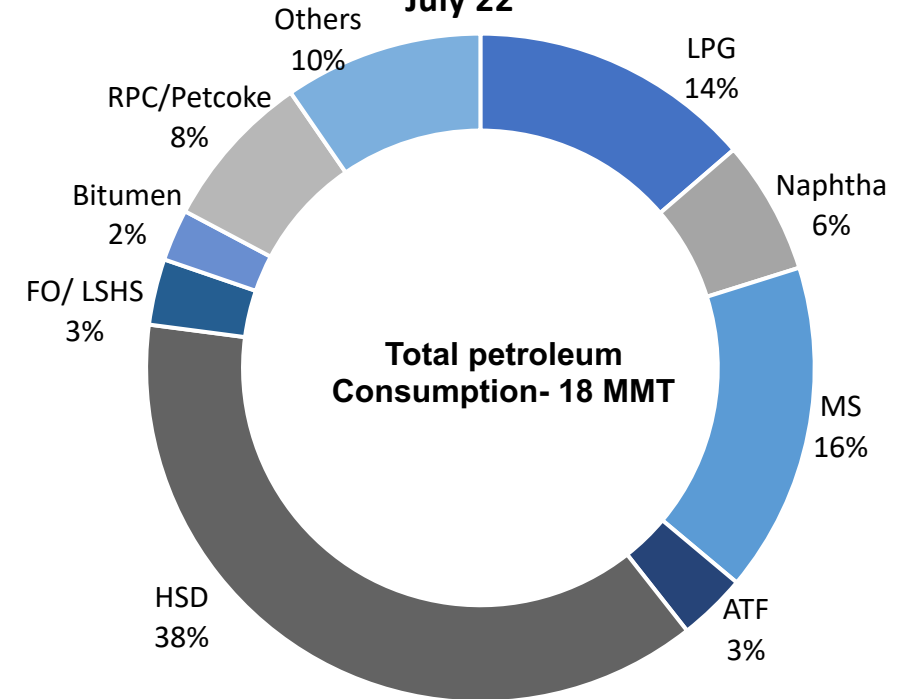
Monthly Petroleum Products Market Scenario (1/2)

Petroleum Product-wise Production & Consumption (MMT)



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

Consumption share of Petroleum Products in July'22



Others include SKO, LDO, Lubes, and Others

Abbreviations

ATF-Aviation Turbine Fuel

FO- Furnace Oil

HSD- High-Speed Diesel

LDO- Light Diesel Oil

MS- Motor Spirit (Petrol)

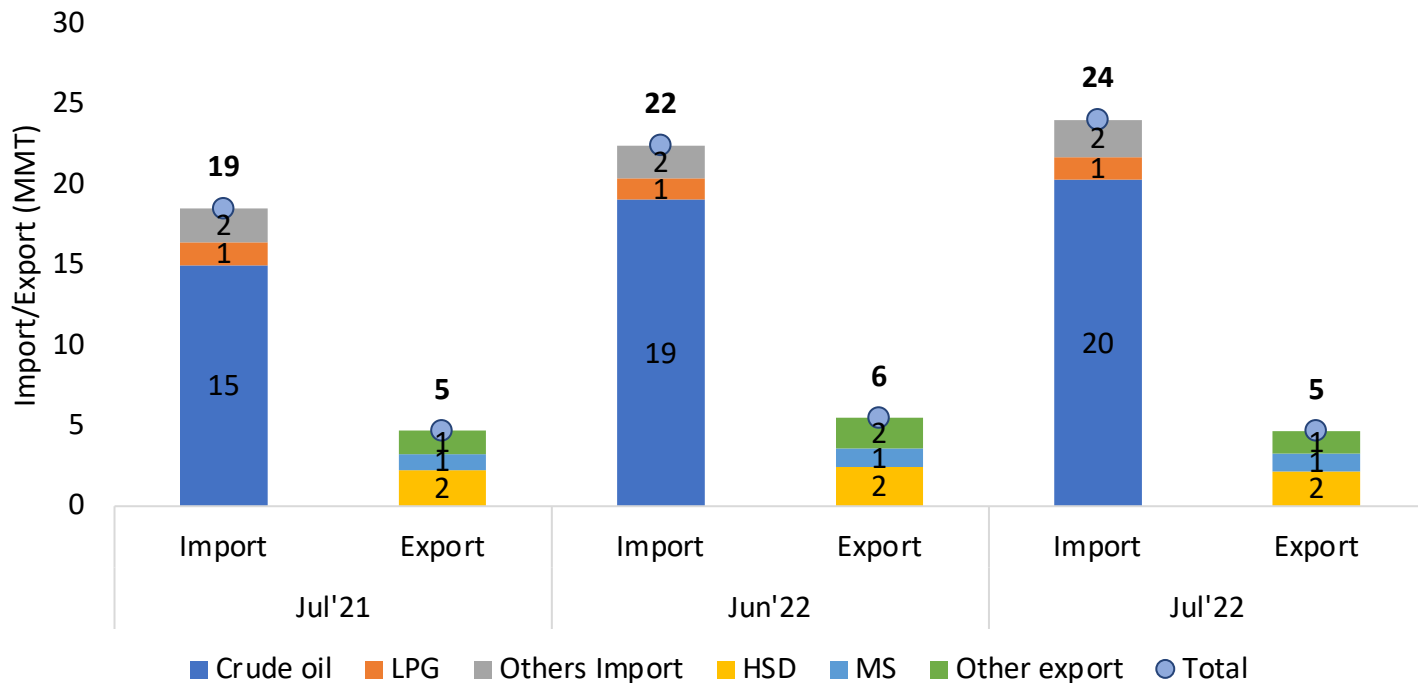
SKO- Superior Kerosene Oil

LSHS- Low Sulphur Heavy Stock LPG- Liquefied Petroleum Gas



Monthly Petroleum Products Market Scenario (2/2)

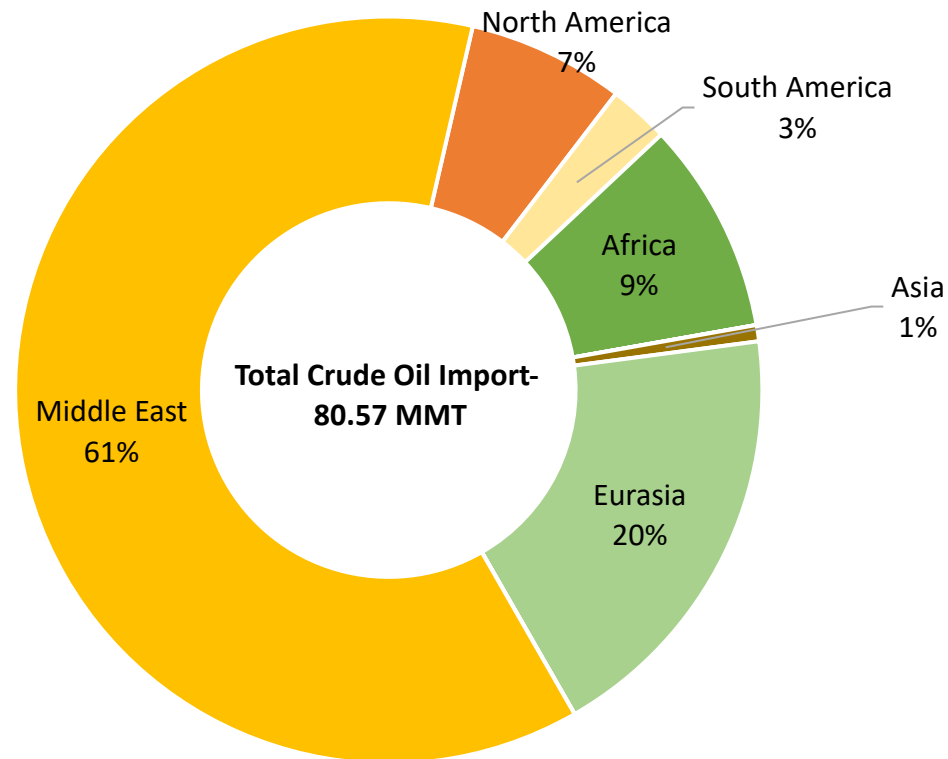
Petroleum Product-wise Import and Export (MMT)



*Other Imports include Naphtha, MS, ATF, SKO, HSD, LDO, Lubes, FO, Bitumen, pet coke, and Others.

*Other Exports include LPG, Naphtha, ATF, SKO, Lubes, FO, Bitumen, pet coke, and Others.

Country wise share in Import of Crude Oil during April-July 2022



- Crude oil imports increased by 35.4% and 21.3% during Jul'22 and Apr-Jul'22 respectively as compared to the corresponding period of the previous year
- Crude oil imports from OPEC countries decreased to 64.1% of total imports during Apr-Jul'22 as compared to 71.6% during Apr-Jul'21.



Key Highlights or Announcements of August'22

1. India has submitted the [updated Nationally Determined Contribution \(NDC\)](#) to UNFCCC. It aims to:
 - achieve 50% of its cumulative electric power installed capacity from non-fossil fuel energy sources by 2030
 - 45% reduction in the GDP's emissions intensity from its level in 2005
 - Include a mass movement for LIFE– 'Lifestyle for Environment': a healthy and sustainable way of living based on traditions and values of conservation and moderation. ([PIB Press](#))
2. The Energy Conservation (Amendment) Bill 2022 was passed in Lok Sabha on 8th August 2022. The bill focuses-
 - to establish Carbon Markets
 - to mandate the use of non-fossil sources, including Green Hydrogen, Green Ammonia, Biomass, and Ethanol for energy and feedstock in designated consumers (DCs)
 - enhancing the scope of the Energy Conservation Building Code (ECBC) by adding sustainability in various aspects.
 - to amend the penalty provision for violation of energy or fuel consumption standards for the new entities', vehicles (penalty per unit of vehicles sold), vessels, industrial units, buildings or establishments.
 - Further strengthening the role of state government in promoting energy efficiency.



Key Highlights or Announcements of August'22

3. NTPC's Vindhyachal Thermal Power Plant Unit 13 (500 MW) has begun capturing **20 tonnes of CO2 per day** from the flue gas stream using carbon capture technology.
 - NTPC is also constructing a hydrogen production unit that will use Proton Exchange Membrane electrolyzers to produce 2 tonnes of green hydrogen daily.
 - Consequently, **10 tonnes of green methanol** will be produced per day **using 20 tonnes of CO2 and 2 tonnes of hydrogen.** ([NTPC](#)) ([News Article](#))

4. The government of Uttar Pradesh has issued the **draft Solar Energy Policy 2022**, which aims to achieve a target of 22 GW (utility scale, rooftop, and DRE) of solar power projects by year 2027.
 - The policy proposed setting up of 20 solar cities with 10 lakh residential households with solar rooftop installations across Uttar Pradesh in the next 5 years.
 - For the disbursement of state subsidy for the solar rooftop plant, a portal will be integrated with the national portal for direct beneficiary transfer of subsidy (DBT), and the DISCOM portal will also be integrated with the UPNEDA portal.
 - 30,000 youth will be trained as Surya Mitra according to the training Curriculum of U.P. skill development mission & National Institute of Solar Energy. These Surya Mitra will be linked to Sewa Portal to ensure availability for citizen service.



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