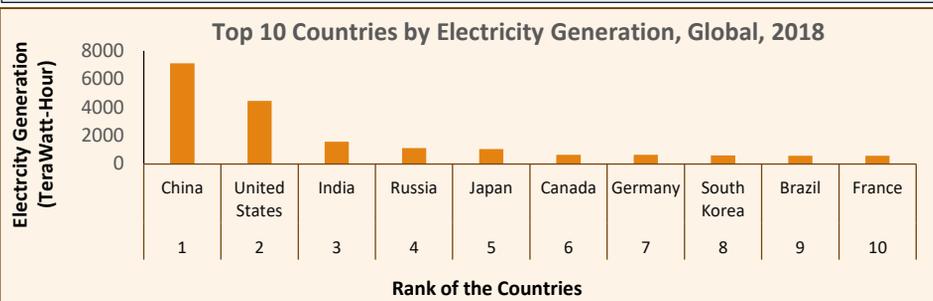


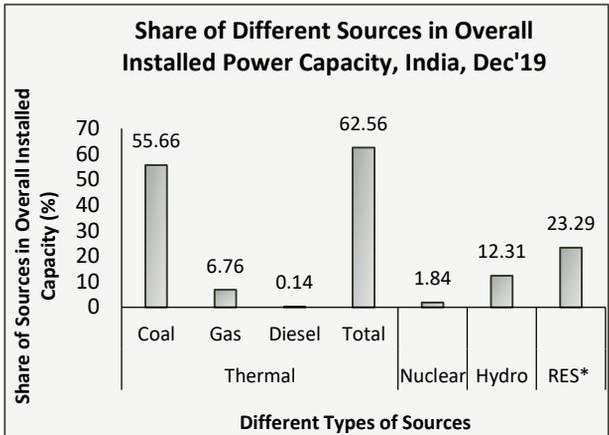
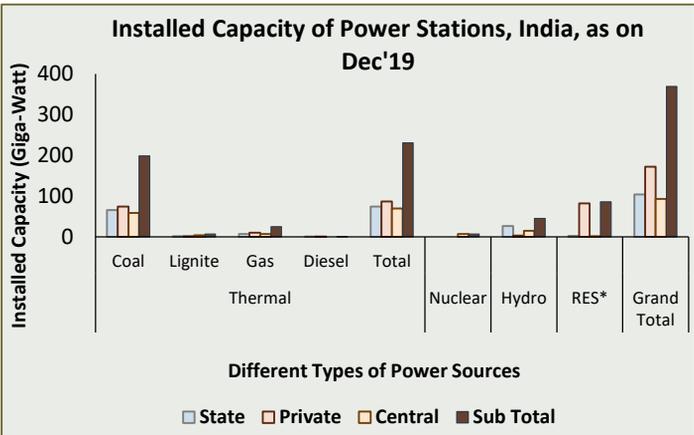
Sector Review: Power, 2019

- Power, the crucial component of Infrastructure plays a significant role for the economic growth of any country.
- The power industry in India is quite diversified with the various ranges of power generation sources.
- In 2018, India secured its position as the 3rd largest electricity producer globally.

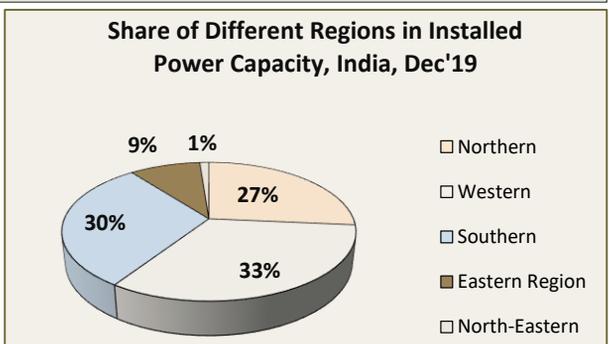
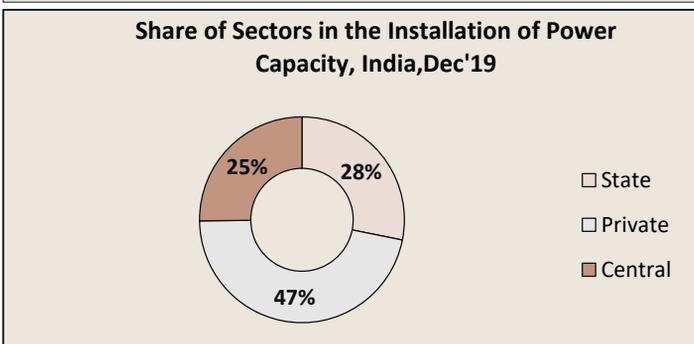


- The electricity generation capacity of India increased at a CAGR **6.54%** between 2008 to 2018.
- In 2018, India's share in Asian and Global electricity generation were **12.72%** and **5.87%** respectively.

Snapshot of Indian Power Sector as on December, 2019



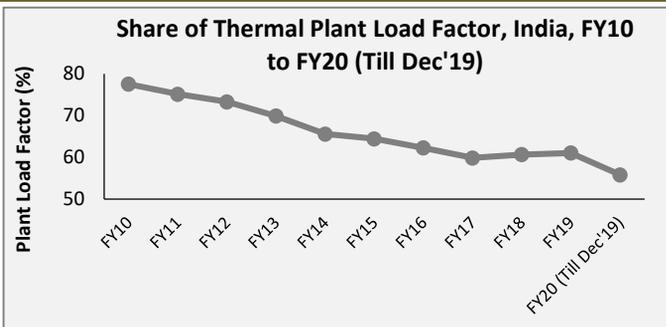
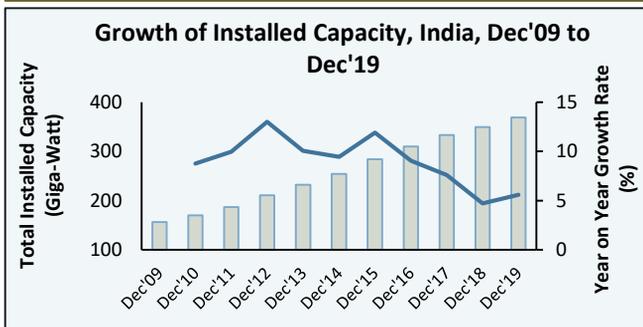
RES: Renewable Energy Sources



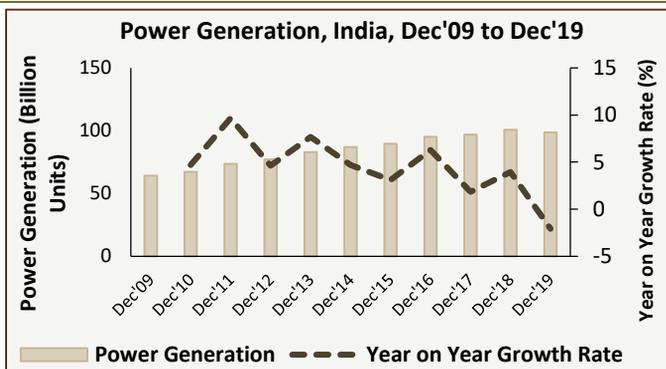
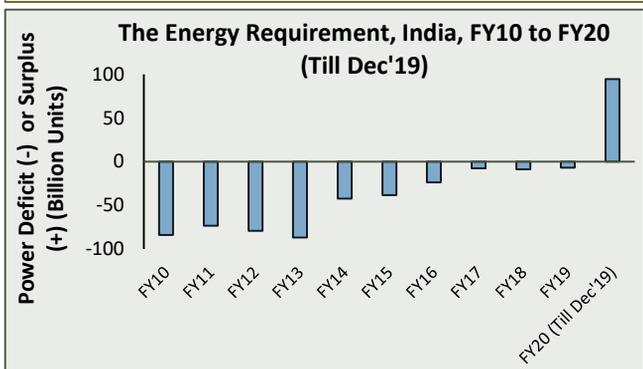
- As on Dec'19, India has an installed power capacity of **368.79 Giga-Watt (GW)**.
- The share of thermal power has been maximum in the overall power production with **62.56%**. Moreover, the share of coal from the thermal power has the highest share among the all the other sources of installed power capacity.
- However, in spite of having greater share, the yearly growth of the coal sector has reduced after the emerging need of switching to renewable and eco-friendly sources for power generation.
- The installation of the Thermal power capacity has increased at the CAGR of **8.73%** between Dec'09 to Dec'19, whereas the installed capacity of the Renewable energy sources has grown at the CAGR of **18.89%** between the same period.
- On the sectoral basis, the involvement of the State, Private and the Central has increased at the CAGR of **2.85%**, **19.97%** and **6.42%** respectively between Dec'09 to Dec'19. The rapid expansion of the private sector has helped to grow its share from **17.85%** to **46.69%** during the mentioned time period. Whereas the shares of state and central government which were **50.24%** and **31.91%** in Dec'09 reduced to **28.15%** and **25.16%** respectively in Dec'19.
- On the regional basis, the share of western part of India has always been maximum in the overall installed power capacity of the country. Installation of power capacity in India has grown quite significantly in Northern, Southern and Western regions with the CAGR of **9.21%**, **9.93%** and **9.47%** respectively between Dec'09 to Dec'19.

Current Status of the Power Industry

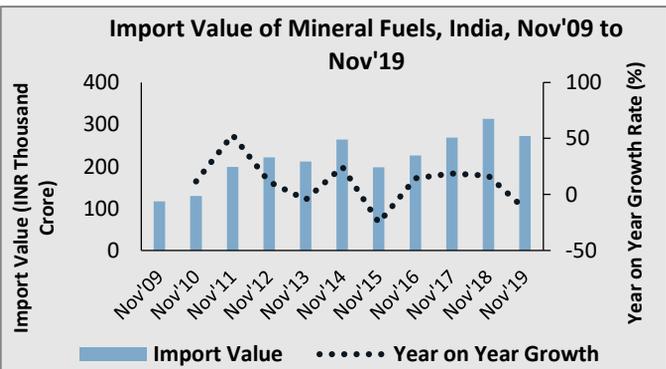
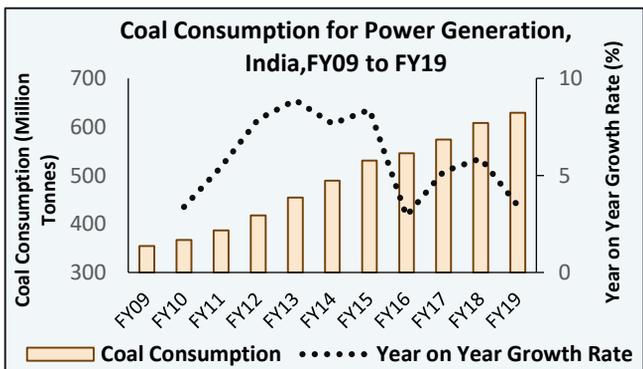
- Though, the installed power capacity of India has grown at the CAGR of **8.98%** between Dec'09 to Dec'19, but the yearly expansion rate has been declined. The Year on Year growth rate which touched the value of **13.02%** in Dec'12 has reduced to **5.58%** in Dec'19.
- The share of Plant Load Factor (the average power production level by a plant compared to its capacity) of the thermal sector has also declined from **77.5%** to **61.07%** between FY10 to FY19.



- The deteriorating performance of the mentioned factors states a situation of overall downfall in the Indian Power industry in the current period.
- The situation can be best understood by analysing the movement of a few more crucial factors associated with the power industry.



- The energy requirement used to have a huge gap with its availability in past. This is why the power deficit level also used to be high. However, with the rising power generation, the deficit got lowered with time.
- Between FY10 to FY19, the power deficit has declined at the CAGR of **24.04%**. The occurrence of rising power production and falling power demand simultaneously have reduced the power deficit.
- In spite of having a CAGR of **4.4%** between Dec'09 to Dec'19, the yearly growth of the power generation has also reduced. The year on year growth of the power production which was **9.68%** in Dec'11 has decreased to **-2.06%** in Dec'19.



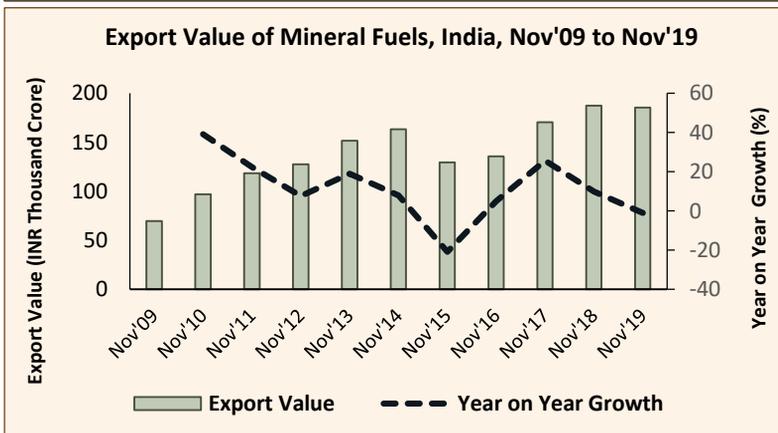
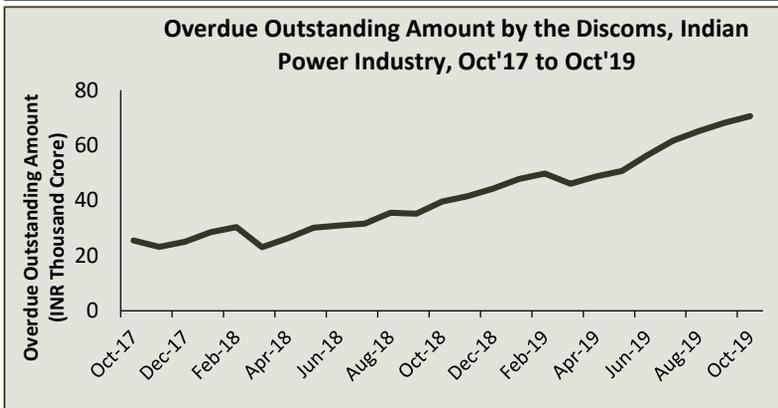
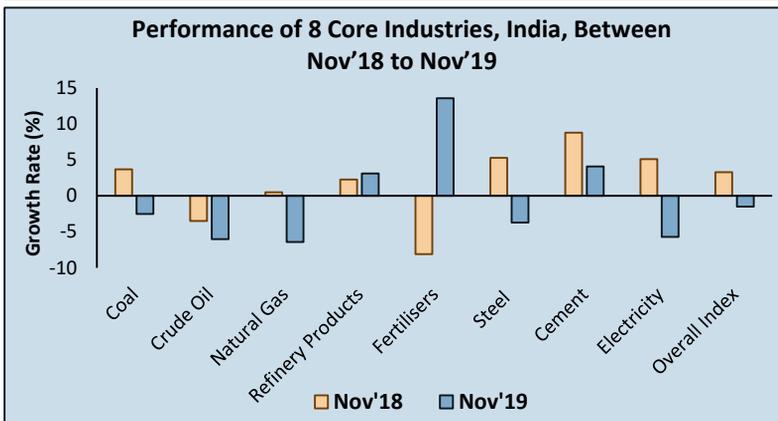
- The yearly growth of the coal consumption for the purpose of power generation which was **8.87%** in FY13 has reduced to **3.44%** in FY19.
- Moreover, the Year on Year growth of import value of the mineral fuels(which includes different types of coal) which was **53.15%** in Nov'11 has declined to **-13.2%** in Nov'19.



Reasons Behind the Stress

- As mentioned earlier, power is a key component of any country's infrastructure. Without the required flow of power, the proper development of the country is absolutely impossible.
- The current scenario of the Indian Power industry not only shows its poor performance but also lack of demand.

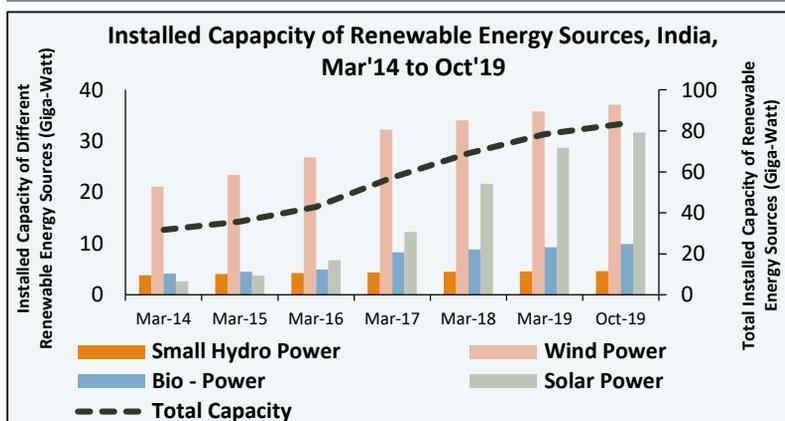
Reason behind Falling Electricity Demand



- According to the latest released data, India is growing at its slowest pace in the last five years.
- In FY19, the economy had grown by **6.1%** and in the Q2 FY20 it expanded by just **4.5%**.
- India's core sector, which accounts for **40.27%** in the total industrial output and includes eight crucial segments of infrastructure contracted by **1.5%** in Nov'19 compared to **3.3%** growth in Nov'18.
- With the decelerated manufacturing activities, the demand of the power has significantly fallen down.
- Power Consumption in the most Industrialized states like Gujarat and Maharashtra also dropped by **18%** and **21%** respectively in Oct'19.
- The outcome of the continuous power demand slowdown from the industrial sector are better felt by the Power Distribution Companies (Discoms).
- The payment of the power tariffs from the industrial and commercial organizations are much greater than the tariffs of households and the agricultural sector.
- Hence, falling or closing down of manufacturing activities are crucial reasons behind lesser cashflows, loss and rising pile of debts to the discoms.
- The overdue outstanding amount of the power discoms have risen at the CAGR of **176.69%** between Oct'17 to Oct'19.
- The export of the mineral fuels from India to the other countries has also fallen down because of the rising global need of switching to renewable energy.
- In 2019, the global power generation from coal fell down by **3%**. This is why, the yearly growth of the mineral fuels export from India which was **39.18%** in Nov'10 dropped to **-1.08%** in Nov'19.

Recommendations

- A large range of problems in the power sector can be handled by switching to the renewable or low carbon sources of energy.
- Between Mar'14 to Mar'19, the total installed capacity of Renewable Energy Sources has increased at the CAGR of **19.85%**. Among the different sustainable sources for power generation, the installed capacity of solar energy has increased remarkably with the CAGR of **34.55%** during the mentioned time period. The share of it which was **8.4%** in Mar'14 grew to **38.01%** in Oct'19.
- Choosing the solar energy over the thermal sources will not only reduce the carbon emission but the average tariff rates of solar power are much lower than the thermal power. Besides, exporting such eco-friendly energies or the associated products will boost the economy. Moreover, purchasing low cost green energy will also be helpful for the discoms to maintaining a healthy balance sheet.
- However, the lack of infrastructure, lesser portion of investment and turmoil regarding the domestic industry protection from the expansion of cheap foreign solar products in the Indian market are actually hindering the proper growth of the solar and other types of renewable energy sector.
- Hence, proper norms regarding dumping or anti-dumping duties need to be implemented and power generation from renewable sources should be increased in order to increase the supply to the grid.



Comparison of Tariffs in 2019

Thermal Power

➤ Average Tariff: INR 3.05/Unit

Solar Power

➤ Average Tariff: INR 2.62/Unit

- The charges of electricity for the farmers are highly subsidised. The reduction in their tariff rates takes place at the cost of non-agricultural businesses. This process is known as Cross Subsidization process which needs to be controlled. Sometimes, it affects the tariff rates of the households too.
- Higher tariff format not only increases the payment burden to the industrial sector but delay or failure of payment from the industries also cause rising amount of loans.
- Hence, a balanced tariff format needs to be structured. Competitive bidding procedures need to be encouraged for fixing standard tariff rates.

Range of Energy Charges among the Different Groups of Consumers in Delhi, India in FY20

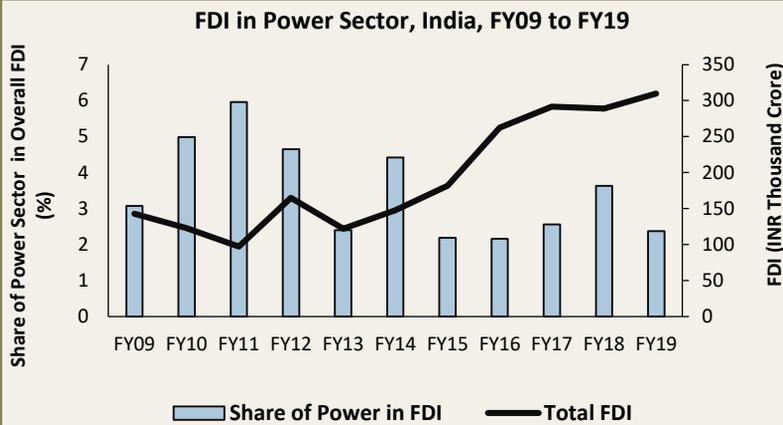
Types of Consumer	Energy Charges				
	0-200 Units	201-400 Units	401-800 Units	801-1200 Units	>1200 Units
Households/ Domestic	INR 3/kWh	INR 4.5 /kWh	INR 6.5 /kWh	INR 7 /kWh	INR 8 /kWh
Industrial	7.75 Rs./kVAh				
Agriculture	1.50 Rs./kWh				

Note: kWh or Kilo Watt Hours is the units of active energy consumption. This unit of measurement is used for domestic loads. kVAh is kilo Volt Ampere hours. This unit of measurement is used in industries for reactive energy consumption.

- When the demand is significantly lower from the industrial sector, then proper infrastructure and electrification system should be developed for supplying the power in the rural and other remote areas (the places which do not get power regularly or suffer from severe power crisis).
- 100% installation of smart meteres (devices for recording the flow/consumption of electricity) for an efficient management of electricity flow, consumption and billing across the country is needed. Incorporating the tool in the power sector will enhance the convenience of customers and reduce the stressed condition of the discoms.

Government Initiatives

- Government has plans to establish renewable energy capacity of **500 GW** by 2030.
- In order to give relief to power generation companies, the Centre has enforced a payment security mechanism where discoms are required to open **Letters of Credit (LoC)** for getting power supply.
- The current scenario of India requires a considerable amount of private investment to make power distribution feasible.



- FDI is important as India would require huge investments in the coming years for boosting the infrastructure growth.
- However, the yearly growth of the Foreign Direct Investment (FDI) in power sector which was **40.07%** in FY10 fell to **-30.01%** in FY19.
- Besides, the share of FDI in power sector which was **5.96%** in FY11 has also fallen to **2.37%** in FY19.
- Hence, a strong regulatory framework for attracting more FDI is required.

- Proposal of “One Nation, One Grid” with an agenda of supplying power at affordable rates across the states.
- High-Level Empowered Committee (HLEC) on retirement of old & inefficient plants, and addressing low utilisation of Gas plant capacity due to scarcity of Natural Gas, are said to be taken up for implementation.
- The performance of the scheme Ujjwal DISCOM Assurance Yojana (UDAY) launched in 2015 is said to be examined and their performance will be improved based on that.
- Central and State governments have also plans for working together for removing barriers like cross subsidy surcharges, undesirable duties on open access sales or captive generation for Industrial and other bulk power consumers.
- By 2022, every single rural family, except those who are unwilling to take the connection will have an electricity and a clean cooking facility through the schemes like Ujjwala and Saubhagya Yojana.



Source: Central Electricity Authority of India, Ministry of Power, BP Statistical Review 2019, Ministry of Commerce, PRAAPTI, Ministry of Statistics, Delhi Electricity Regulatory Commission, Economic Times, LSI Research