



Capital
— SPROUT —

NEWSLETTER
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POWER SECTOR



The Chairman's Message



Greetings from Capital Sprout!

It gives me pleasure to share with you the Sep-23 issue of Capital Sprout's Wealth Bulletin. This month's bulletin is about the Power and Energy Sector and how this industry has an impact on the Capital market and the economy.

Electricity is critical to modern economic activity and is an essential input to many public services. The power sector is an unsung hero of all the economic and technological developments the world has seen during the last two decades. Electricity occupies the same place in the Economy of any nation as what Brain occupies the space in Human body. It is impossible to visualize today's world without the existence of power.

In spite of huge efforts being carried out across the world to achieve 100 % electrification, more than 800 million people lack even basic access to electricity services, and in many parts of the world, the power supply is limited and highly unreliable. So it opens up a huge scope in the Power sector for investors & businessmen to invest & contribute to the important national development activity.

The global power generation market size was estimated at USD 1.94 trillion in 2023 and it is expected to hit around USD 3.9 trillion by 2032, growing at a CAGR of 8.04% during the forecast period from 2023 to 2032.

India is the 3rd largest producer of electricity in the world. Electric energy consumption in agriculture was recorded as being the highest (17.89%) worldwide. The per capita electricity consumption is low compared to most other countries despite India having a low electricity tariff. India's power sector is diversified as India is using both Conventional and non-conventional sources for power generation.

Attempts are made to understand & analyze how Power sector's importance in the development of a Nation & economy and its impact on Capital market facts and figures. I hope that readers will find this bulletin valuable.

CA DR Rajesh Khandol

POWER SECTOR

Importance In Global Economy

Power is among the most critical components of infrastructure, crucial for the economic growth and welfare of nations. The existence and development of adequate power infrastructure are essential for the sustained growth of the economy. It is the wheel that drives all economic activities.

The world is marching towards automation and digitalization. Electricity is an elementary tool for all these modern technology.

The terminology “Energy” is a wider term. Different phases of Energy are

- (i) Generation of Electricity
- (ii) Transmission of Electricity
- (iii) Distribution of Electricity

All the above phases of Electricity assume greater significance and importance on their own. If anyone out of the above phase does not perform, the entire Power and electricity sector fails even though the other 2 phases perform well.

Both the Government and private sectors are participants in Generation, Transmission & Distribution in any major country. In earlier times, Generation and transmission were the monopolies of the Government but due to increasing demand for power, the non-optimum utilization of resources of the Public sector forced private sectors to enter into the Generation and transmission of power.

The power grid where the balancing of power inflows & outflows is managed also assumes greater importance. It keeps excess / shortage of electricity in check for the whole country

Power/ Energy Sector- Global

As said earlier, the world is changing rapidly with the adoption of modern technology and it is not possible without Energy in the form of Electricity.

The global electricity consumption in 2022 was 24,398 terawatt-hours (TWh)*, almost exactly three times the amount of consumption in 1981 (8,132 TWh). China, the United States, India and Japan accounted for more than half of the global share of electricity consumption.

*Note: 1 TWh = 1,000 GWh = 1,000,000 MWh = 1,000,000 000 kWh

30 countries, which represent about 76% of the world's population, 84% of the world's GDP, and 85% of the world's electricity generation

Source of Power Generation

Non renewable	Renewable
Fossil fuel oil	Wind Energy
Coal Thermal Power	Solar Energy
Nuclear	Water- Hydro Power
	Geo Thermal

The entire world is moving towards a Renewable source of energy as Non-renewable sources are getting exhausted fast & regeneration of source is not possible.

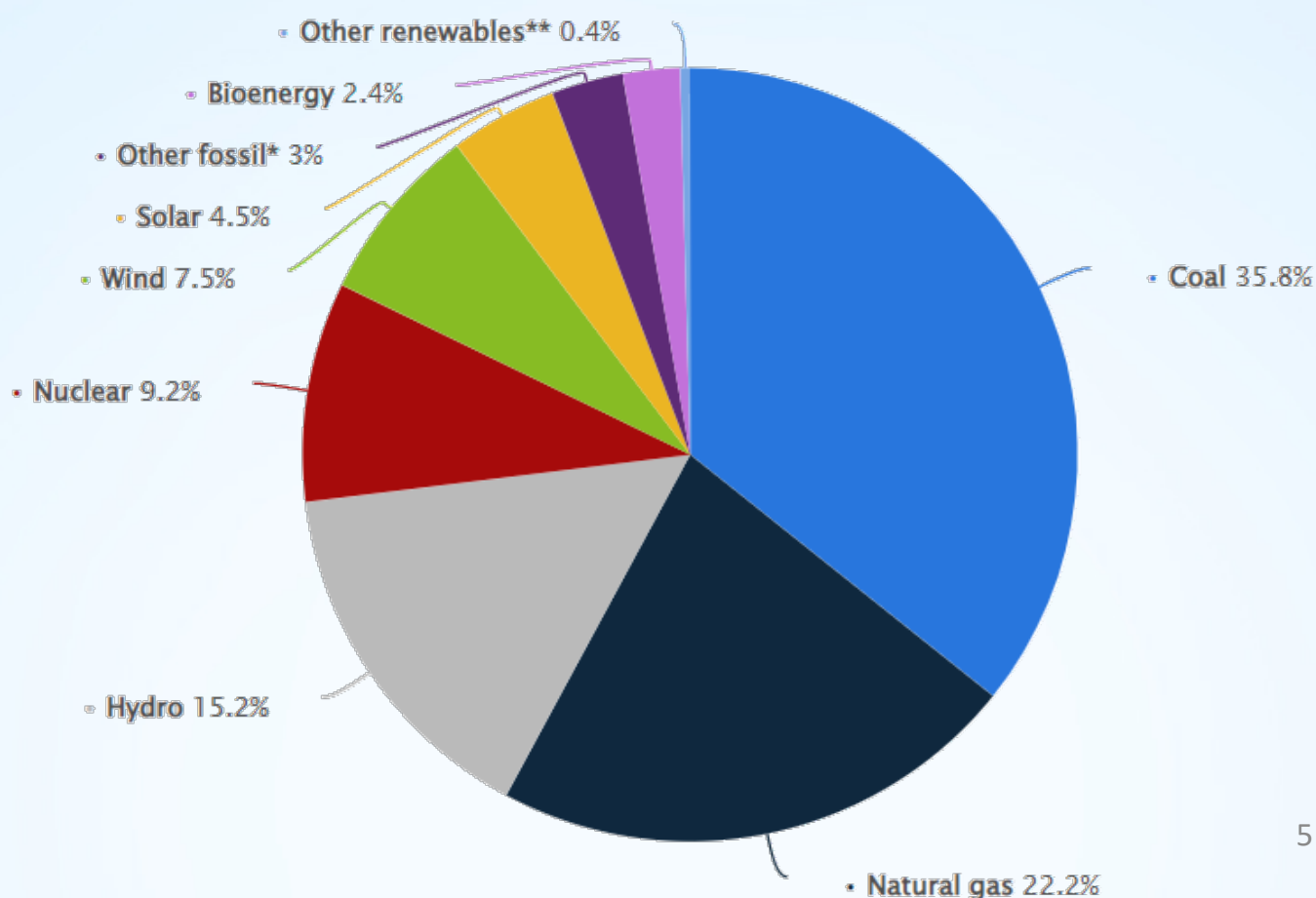


Key Electricity Generation & Consumption Data

Country	Electricity Production (twh) (2022)	Electricity Consumption (twh) (2022)
China	8,833	8,090
United States	4,510	4,082
India	1,802	1,392
Russia	1,165	979
Japan	1,063	939
Brazil	668	570
Canada	657	577
South Korea	625	568
Germany	578	490
France	473	425
Saudi Arabia	433	346
Iran	353	316

Note : 1 Twh (Terawatt Hour) = 1,000 Gwh = 1,000,000 Mwh = 1,000,000 000 Kwh

Distribution of electricity generation worldwide in 2022, by energy source



Countries Where Share Of Renewable Energy Is Higher Than Non-renewable Energy

Country	Share Of Renewable Energy In Global Power Mix	Share Of Wind & Solar In Renewal Energy
Norway	98.50 %	10.20 %
Brazil	89.20 %	16.40 %
New Zeland	86.60 %	26.20 %
Colombia	75.10 %	0.70 %
Canada	68.80 %	6.80 %
Sweden	68.50 %	20.50 %
Germany	44.40 %	32.50 %
China	30.60%	13.50%
France	25.50 %	12.50%
United States	22.20 %	29.00 %
India	21.90 %	10.20 %

Above table clearly shows that Countries like Norway, Brazil, and New Zeland generates majority of power from Renewable Energy sources & countries like China, India, France & USA are still dependent upon Fossil fuel





Power/ Energy Sector India

India's power sector is one of the most diversified in the world. Sources of power generation range from conventional sources such as coal, lignite, natural gas, oil, hydro and nuclear power, to viable non-conventional sources such as wind, solar, agricultural and domestic waste.

India is the third largest producer of electricity in the world, with an installed power capacity of 416.59 GW as of April 30, 2023. During the fiscal year (FY) 2022–23, the total electricity generation in the country was 1,844 TWh, of which 1,618 TWh was generated by utilities. The gross electricity consumption per capita in FY-2023 was 1,327 kWh.

India was ranked 4th in Wind Power capacity and solar power capacity and 4th in renewable power installed capacity, as of 2021.

Total FDI inflows in the power sector reached US\$ 16.57 billion between April 2000 and December 2022.

Government Policies & Initiatives

The Government of India has identified the power sector as a key sector of focus to promote sustained industrial growth. Some initiatives by the Government to boost the Indian power sector are as below:

- ❖ In the Union Budget 2022-23, the government allocated US\$ 885 million (Rs. 7,327 crore) for the solar power sector including grid, off-grid, and PM-KUSUM projects.
- ❖ As of August 24, 2022, over 36.86 crore LED bulbs, 72.18 lakh LED tube lights and 23.59 lakh energy-efficient fans have been distributed across the country, saving around 48,411 million kWh per year and around Rs. 19,332 crore (US\$ 2.47 billion) in cost savings.
- ❖ The Government is focusing on achieving the target of “Power to all” “Jyotigram Yojna”, “Pradhan Mantri Sahaj Bijli Har Ghar Yojana”, “UDAY”, “UJALA” etc All these programs are running effectively



Synopsis of India's Power Sector

Installed capacity	4,24,288 MW
Total power generated units	2022-23 – 1,624.65 Billion Units (Growth Of 8.29 % as compared to 2021-22)
Installed capacity source wise	Fossil Fuel 56.20 % Non Fossil Fuel 43.80 %
Fossil fuel	Coal 50.20 % Gas 5.90 % Diesel 0.10%
Non-fossil fuel	Solar 17 % Hydro 11 % Wind 10% Others 4 %
No of thermal power plants (coal based)	269 Thermal Power Plants 197 Hydro Power Plants 022 Nuclear Power Plants
FDI inflow in power sector in FY 2022-23	1,19,004 Million USD
Residential sola roof top capacity	Estimated 3.2 GW in FY 2022-23
Solar power statistics	Street Lighting 7,15,029 Home Lighting 17,21,343 Stand Alone Power Plant 2,14,565
World's largest solar park	Bhadla Solar Park Rajsthan Spread In 14,000 Acres 56 Square Kilometers Installed Capacity : 2,245 Mega Watt





Key Statistics Of Top Power Sector & Related Companies

As on 10-10-2023

Name	CMP Rs.	Market Cap (In Crore)	P/E Ratio	Profit Growth CAGR 5 Years	Sales Growth CAGR 5 Years	Stock Price CAGR 5 Years
NTPC Ltd	236	2,28,939	12.80	9%	15%	12%
Power Grid Corporation of India Ltd	198	1,84,107	12.10	26%	9%	13%
Tata Power Company Ltd	254	81,194	24.20	45%	15%	32%
JSW Energy Ltd	408	67,086	56	98%	5%	47%
NHPC Ltd	52.30	52,546	13.5	9%	6%	17%
Coal India Ltd	303	1,86,921	6.87	32%	10%	2%
Adani Energy Solutions Ltd	785	87,571	71	2%	28%	39%



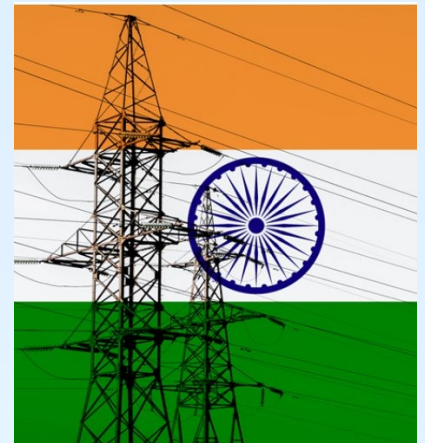
Conclusion

The electricity sector industry in India has evolved significantly to provide a wide range of opportunities across the value chain, in both, the regulated as well as deregulated businesses. India's power market is the world's **5th largest** in terms of generation capacity and the **3rd largest** in terms of network. The country is marching ahead towards Renewable sources for power generation.

Solar, Wind, and Water these natural resources are used more and more for power generation. Solar is a crucial segment that will contribute significantly to the national target of achieving zero emissions.

So India is ready to **FUEL** the **World's Power and Energy Sector**. The country has all the capabilities to dominate the World's power sector. The international power grid concept was invented & initiated by India. Countries like India, the UK Japan have agreed to this visionary concept.

With all the prominent statistics, available resources, and capabilities, it is nothing wrong to say that India is ready to lighten up the Map of the entire world.



Performances



Equity Market

Indices	01 st Sept, 2023	30 th Sept, 2023	High	Low
BSE S&P SENSEX	64,855.51	66,151.65	67,927.23	64,818.37
NIFTY 50	19,258.00	19,276.25	20,222.45	19,255.70

Mutual Fund

AUM Data of Mutual Fund for the Month of September 2023

(INR. In Lakh Crore)

Particulars	AUM As On 31-08-2023	Fresh Fund Mobilize During Sept – 23	Redemption During Sept – 23	AUM As On 30-09-2023
Total AUM of all mutual funds scheme	46.94	8.88	9.52	46.30
AUM of equity oriented (growth) schemes	18.94	0.42	0.28	19.08

Source: Association of Mutual Fund of India (AMFI)

Performances

SIP Contribution

(INR. In Crore)

Year	SIP Contribution	SIP AUM
Sept-2023	16,042	8,70,363

FII & DII Inflow/Outflow Position

FII's selling in the month of September-23 is (-0.27) Lakh.
DII's Buying in the month of September-23 is 0.20 Lakh.

Inflow/Outflow position in the month of September 2023

FII /DII	Gross Purchase	Gross Sale	Net
FII	2.29Lakh	2.55Lakh	- 0.27Lakh
DII	1.84 Lakh	1.64Lakh	0.20Lakh

