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INDUSTRY OUTLOOK

POWER SECTOR IN INDIA: TRENDS AND PROSPECTS

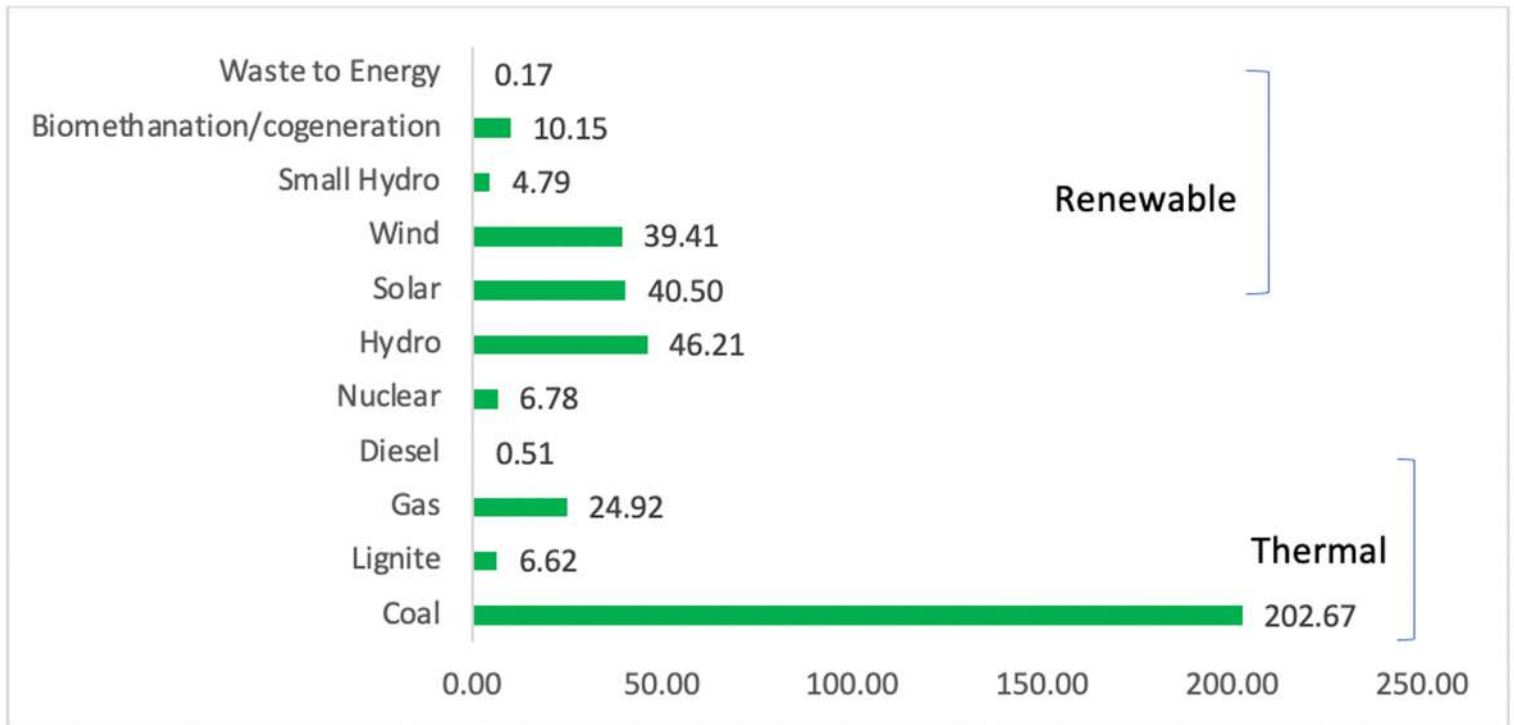
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Introduction

Power is one of the most critical components of infrastructure crucial for the economic growth and welfare of nations. In India, the sources of power generation range from conventional sources, such as, coal, lignite, natural gas, hydro and nuclear power to viable non-conventional sources, such as, wind, solar, biomass etc. The following figure (Figure 1) gives the power generation of the country from different energy sources.



Figure 1: All India Installed Power Capacity (in GW)



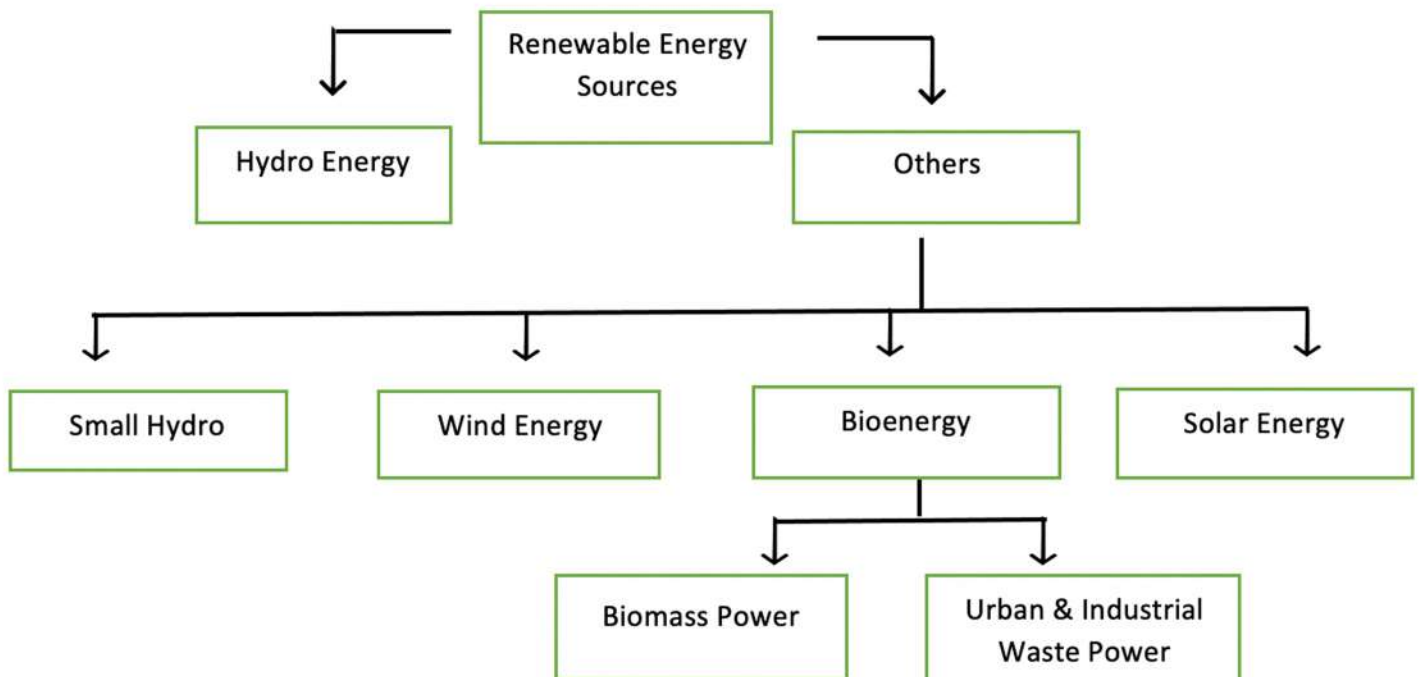
Source: Central Electricity Authority (CEA), MONGABAY India

<https://india.mongabay.com/2021/05/graphs-a-long-road-to-2030-for-indias-import-heavy-solar-power-sector/>.

Note: Reported figures are till 30th April 2021.

In recent times, the need to shift to renewable sources of energy has been felt due to its cheap, more accessible, and more environment friendly nature, to mention a few. A flowchart for various types of renewable energy (RE) is given below (Figure 2) for brevity.

Figure 2: Renewable Energy Sources



As of January 2021, India had an installed renewable energy capacity of 92.54 GW. [1] India has set an ambitious target to achieve 175 GW of renewable capacity by 2022 and to increase it up to 450 GW by 2030. A snapshot of the renewable energy sector is given below (Table 1).

Table 1: India's Renewable Energy (RE) Sector Snapshot

Year	Installed RE Capacity (in GW)	Percentage Share in Total Installed Capacity	Generation from RE Sources (in BU)	Total Generation from all Sources (in BU)	Percentage Share of RE in Generation
2014-15	39.55	14.36	61.78	1110.18	5.56
2015-16	46.58	15.23	65.78	1172.98	5.60
2016-17	57.90	17.68	81.54	1241.38	6.56
2017-18	69.77	20.24	101.83	1303.37	7.81
2018-19	78.31	21.95	126.76	1375.96	9.21
2019-20	87.07	23.52	138.32	1390.93	9.95
2020-21	92.54	24.53	111.92	1017.81	11.00
	(Till Jan'21)	(Till Jan'21)	(Till Dec'20)	(Till Dec'20)	(Till Dec'20)

Source: Ministry of New and Renewable Energy (MNRE), Annual Report, 2020-21.

Available at https://mnre.gov.in/img/documents/uploads/file_f-1618564141288.pdf

Note - BU means billion units. GW means Gigawatt.



Globally, India stands 4th in RE power capacity, 4th in Wind power, and 5th in Solar Power capacity.[2] Moreover, India ranked 6th in the list of countries to make significant investments in clean energy by allotting \$90 billion between 2010 and second half of 2019.[3] According to the Union Budget 2021-22, 139 GW of installed capacity and 1.41 lakh circuit km of transmission lines were added, and 2.8 crore households were connected in the past six years. [4]

Government Initiatives

In a new relief package announced on 28 June 2021,[5] the GoI has allocated ₹ 3.03 lakh crore for Reform-Based Result-Linked Power Distribution Scheme. In this regard, the Union Budget 2021-22 has announced - revamped Reforms-Based, Result-Linked power distribution scheme of financial assistance to DISCOMS for infrastructure creation, up-gradation of system, capacity building and process improvement. It aims at state specific intervention.

The new scheme has aimed at providing assistance for installation of 25 crore smart meters, 10,000 feeders, 4 lakh km of LT overhead lines. Ongoing works of IPDS, DDUGJY and SAUBHAGYA will also be merged in the scheme. Total outlay for the scheme is ₹3,03,058 crore, out of which the Central Government's share will be ₹97,631 crore. States have been allowed additional borrowing for four years upto 0.5 per cent of Gross State Domestic Product annually (₹ 1,05,864 Crore for 2021-22) subject to carrying out specified power sector reforms. [6]



The government during the Paris Agreement pledged to generate 40 per cent of its power from non-fossil fuels by 2030. In line with this, the government also set targets to achieve 175 GW of power from renewable sources by 2022 – including 100 GW from solar, 60 GW from wind, 10 GW from Bio and 5 GW from small hydro. The table below (Table 2) lays out the targets and corresponding installed capacity achieved so far.

From Table 2, it is evident that only about 53 per cent of the target has been achieved if one looks at the total installed capacity to total target. This implies that there is still a long road to traverse and that too quickly.

The Ministry of New and Renewable Energy (MNRE) has decided to implement a National Programme on Solar PV Manufacturing involving Production Linked Incentive (PLI) to enhance domestic manufacturing capacity of High Efficiency Solar PV Modules, for which the Cabinet has given approval on 11th November 2020 and allocated an amount of ₹4,500 crore to be spent over a period of five years. [7]

Table 2: Renewable Energy Target (2022) and Installed Capacity

	Target 2022	Installed Capacity	Under Implementation	Tendered	Total Installed/Pipeline
Solar	100.00	38.79	36.03	23.87	98.69
Wind	60.00	38.68	8.68	1.20	48.56
Bio	10.00	10.31	0.00	0.00	10.31
Small Hydro	5.00	4.76	0.44	0.00	5.20
Wind Solar Hybrid	0.00	0.00	2.55	0.00	2.55
Round the clock (RTC)/ Assured peak Power Supply	0.00	0.00	1.60	2.50	4.10
Total	175.00	92.54	49.30	27.57	169.41

Source: Standing Committee on Energy (2020-21).

Available at http://164.100.47.193/lssccommittee/Energy/17_Energy_17.pdf

Note - as of 31st January 2021.

Countries welcome international co-ordination. A Memorandum of Understanding (MoU) between India and French Republic in the field of renewable energy cooperation was signed in January 2021.[8] An additional capital infusion of ₹1,000 crores to Solar Energy Corporation of India and ₹1,500 crores to Indian Renewable Energy Development Agency was allocated in the Union Budget 2021-22.

Additionally, the Union Cabinet has approved the investment of ₹5281.94 crore for 850 MW Ratle Hydro Electric Project located on river Chenab, in Kishtwar district of Union Territory of Jammu and Kashmir, by a new Joint Venture Company to be incorporated between National Hydroelectric Power Corporation and Jammu & Kashmir State Power Development Corporation Ltd. The construction activities of the Project will result in direct and indirect employment to around 4000 persons and will contribute to overall socio-economic development of the Union Territory of Jammu and Kashmir.[9] Further, the government is running a National Renewable Energy Fellowship (NREF) Scheme under which support is provided to students and scholars for pursuing higher studies. [10]

The complex and multi-layered issue of the losses of Distribution Companies (“Discoms”) has evoked discussion and debate across the development spectrum. It may, however, be noted that the Government of India (GoI) has taken many initiatives to address the structural issues plaguing the health of Indian Power Distribution Companies (DISCOMs). This includes initiation of the Liquidity infusion scheme tied to reform action plans to reduce losses; and allowing additional borrowing permissions to the extent of 0.05% of the State GSDP each linked to reduction of Aggregate Technical & Commercial (AT&C) losses and Average Cost of Supply (ACS)-Average Revenue Realised (ARR) gap. [11]

The “Green Tariff” Initiative

The Union Government is working on a 'green tariff' [12] policy that will help electricity distribution companies (discoms) supply electricity generated from clean energy projects at a cheaper rate as compared to power from conventional fuel sources such as coal. If a large corporate looking to procure only green power, the available option is to “contract such power from a clean energy developer” as has been the case in the commercial and industrial (C&I) segment, with distributed renewable energy generation attracting strong investor interest.

Once the mechanism becomes active, discoms can exclusively buy green electricity and supply it at 'green tariff', which will be the weighted average tariff of green energy that the consumer will pay instead of the current practice where discoms purchase renewable energy as part the renewable purchase obligations (RPO). This 'green tariff' will be slightly lower than the tariff from conventional fuel sources, and an industry can get only green power from a developer with an open access applications allowing large users of energy, typically those who consume over one megawatt of power, to buy it from the open market, instead of depending on a more expensive grid.

Industry Risk

Like all other industries, COVID has reduced the pace of growth of the power sector as well. But there are other issues as well that the industry is grappling with other than COVID. Since the 2022 target of 175 GW covers more than 57 per cent for solar energy, it is important for the solar sector to function smoothly. For example, the Indian solar industry relies heavily on imports of important components, such as, solar cells, modules and solar inverters. Every year, the industry ends up spending billions on imports. According to the Indian government's data, in 2019-20, India imported solar wafers, cells, modules and inverters worth \$2.5 billion. Higher reliance on imports is not in line with the 'Atmanirbhar' vision of the current government therefore a need to build native capacities. A step towards it has been taken by imposing a basic custom duty of 25 per cent on solar cells and 40 per cent on solar modules.

Other industry blue that the sector is witnessing is the cancellation or renegotiation of the renewable energy projects by state governments in order to get low bids in the re-auction process. This has debilitating effects on the confidence of the players who may resist from any future investments. A glimpse of the already falling investments is shown in the figure below (Figure 3).

Figure 3: Investment in Renewable Energy Capacity (\$ bn)



Source: Renewables 2021 Global Status Report.

Available at <https://www.ren21.net/reports/global-status-report/>

The Way Forward

The renewable energy potential of India has been estimated at approximately 900 GW comprising 750 GW for solar, 102 GW for wind, 25 GW for bio and 20 GW for small hydro. Therefore, in order to leverage the benefits of renewable energy in the form of more access, cheap, and its environment friendly nature, it is important that the sectoral players work it out in a judicious and time bound manner (to achieve the targets in the given deadlines) be it developing in-house capacities to reduce the reliance on imports, and not just raising the custom duty, or by not hampering the confidence of players by repeatedly going for auctions in order to get a cheaper deal. The renewable energy sector is the future and thereby reducing the reliance on conventional sources of energy like thermal and oil is of utmost importance given the limited resource base of nature and the global call for efforts so save the earth and to bring about broad-based sustainable development.

ENDNOTES

1. Standing Committee on Energy 2020-21. The Committee note that India has made a pledge that by 2030, 40 percent of her installed power generation capacity shall be from clean energy sources.
2. Annual Report 2020-21. Ministry of New and Renewable Energy.
3. India Brand Equity Foundation (IBEF, Power, March 2021).
4. Ibid.
5. "Rs 3.03 lakh crore for Reform-Based Result-Linked Power Distribution Scheme" (28 June 2021) PIB Press Release.
6. Ibid.
7. See https://mnre.gov.in/img/documents/uploads/file_f-1619672166750.pdf for details. Union Budget 2021 set an outlay of ₹1,97,000 crore for PLI schemes over the next five years spanned over 13 sectors.
8. "Cabinet approves Memorandum of Understanding between India and France on Renewable Energy Cooperation", Press Release (3rd March 2021). Available at <https://pib.gov.in/PressReleasePage.aspx?PRID=1702152>
9. "Cabinet approves the Investment Proposal of ₹5281.94 crore for 850 MW Ratle Hydro Power Project", Press Release (20th January 2021). Available at <https://pib.gov.in/PressReleasePage.aspx?PRID=1690419>
10. Annual Report (2020-21), Ministry of New and Renewable Energy.
11. "FINANCIAL AND STRUCTURAL ISSUES PLAGUING POWER DISCOMS"(23 March 2021), RAJYA SABHAUNSTARRED QUESTION NO.3172, Ministry of Power <https://pqars.nic.in/annex/253/Au3172.pdf>
12. "India working on a green tariff policy" (30 June 2021) Livemint <https://www.livemint.com/industry/energy/india-working-on-a-green-tariff-policy-11624353691425.html>
13. This comes in the backdrop of India's solar and wind power tariffs hitting an all-time low of ₹1.99 per unit and ₹2.43 per unit respectively. India is running the world's largest clean energy programme to achieve 175 gigawatt (GW) of renewable capacity, including 100GW of solar power by 2022.
14. "A long road to 2030 for India's import-heavy solar power sector", Mongabay India (21st May 2021). Available at <https://india.mongabay.com/2021/05/graphs-a-long-road-to-2030-for-indias-import-heavy-solar-power-sector/>
15. Ibid.
16. "As States Back Out of Solar Contracts, India's Green Energy Targets at Jeopardy", The Wire (14th June 2021). Available at <https://thewire.in/energy/as-states-back-out-of-solar-contracts-indias-green-energy-targets-at-jeopardy>
17. To boost investment in Renewable Energy sector, Government has taken various measures including permitting Foreign Direct Investment (FDI) up to 100 percent. See Standing Committee on Energy (2020-21) report for details.
18. As per the IBEF report on renewable energy (2021).

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