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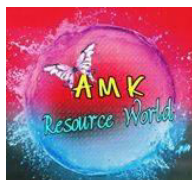
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Power Plants

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Power Plants

Nuclear Power Plants in India

Nuclear power is the fourth-largest source of electricity in India after thermal, hydroelectric and renewable sources of electricity. Nuclear Power Corporation of India Limited (NPCIL) is a Public Sector Enterprise under the administrative control of the Department of Atomic Energy (DAE), Government of India. The Headquarters of NPCIL is located in Mumbai, Maharashtra.

NPCIL is presently (As of Sept 2017) operating 22 commercial nuclear power reactors with an installed capacity of 6780 MW and another 8 reactors under various stages of construction totaling 6200 MW capacity. Tarapur Atomic Power Station is the first Nuclear Power station in India. France derives about 75% of its electricity from nuclear energy.

- Nuclear Power Plants requires relatively small area and produce a large amount of electricity in a relatively small space.
- They contribute to national energy security and ensure stable electricity supply nationwide.
- Nuclear power plants are designed to operate continuously for long period of time. They can run about 540 days before they are shut down for refueling.

List of Indian Power Plants – Nuclear

S. No.	Nuclear Power Plant	Location	Capacity (MW)
1	Narora Atomic power plant	Uttar Pradesh	440
3	Tarapur Atomic power plant	Maharashtra	1400
4	Kakarpar Atomic power plant	Gujarat	440
6	Kaiga Atomic power plant	Karnataka	880
7	Kudankullam Atomic power plant	Tamil Nadu	1000
9	Rawatbhata Nuclear power plant	Kota, Rajasthan	1180
10	Kalpakkam Nuclear power plant	Tamil Nadu	440

List of Upcoming Nuclear Power Plants

S. No.	Nuclear Power Plant (Under Construction)	Location	Capacity (MW)
1	Kakarpar Atomic power plant (Unit – 3)	Gujarat	1400
2	Kudankullam Atomic power plant (Unit – 2)	Tamil Nadu	1000
3	Rawatbhata Nuclear power plant (Unit – 7)	Kota, Rajasthan	1400

List of Planned Nuclear Power Plants

S. No.	Planned Nuclear Power Plant	Location	Capacity (MW)
1	Gorakhpur Nuclear power plant	Haryana	2800
2	Chutka Nuclear power plant	Madhya Pradesh	1400
3	Mahi Banswara Nuclear power plant	Rajasthan	1400
4	Kaiga Nuclear power plant	Karnataka	1400
5	Kalpakkam Nuclear power plant	Tamil Nadu	1000
6	Kudankullam Nuclear power plant	Tamil Nadu	2000
7	Jaitapur Nuclear power plant	Maharashtra	9900
8	Kovvada Nuclear power plant	Andhra Pradesh	9564
9	Mithi Viridi (Viradi) Nuclear power plant	Gujarat	6600

Hydropower

Hydropower is one of the oldest and widely used renewable sources of energy. India is the 7th largest producer of hydroelectric power in the world and also ranks 3rd worldwide by its total number of dams.

Advantages of Hydroelectric Power:

- Fuel is not burned so there is minimal pollution.
- Water to run the power plant is provided free by nature.
- Hydropower plays a major role in reducing greenhouse gas emissions.
- Relatively low operations and maintenance costs.
- The technology is reliable and proven over time.
- It's renewable – rainfall renews the water in the reservoir, so the fuel is almost always there.

Statewise Indian Power Plants – Hydroelectric

S. No.	Hydro Electric Power Plant	Location
1	Koyna Hydro Electric Power plant	Maharashtra
2	Hirakund Hydro Electric Power plant	Odisha
3	Idukki Hydro Electric Power plant	Kerala
4	Nagarjuna Hydro Electric Power plant	Andhra Pradesh
5	Tehri Hydro Electric Power plant	Uttarakhand
6	Bhakra Nangal Hydro Electric Power plant	Himachal Pradesh
7	Sardar Sarovar Hydro Electric Power plant	Gujarat
8	Nathpa Jhakri Hydro Electric Power plant	Himachal Pradesh
9	Srisaillam Hydro Electric Power plant	Andhra Pradesh
10	Indirasagar Hydro Electric Power plant	Madhya Pradesh
11	Sharavathi Hydro Electric Power plant	Karnataka
12	Dehar Hydro Electric Power plant	Himachal Pradesh
13	Kalinadi Hydro Electric Power plant	Karnataka

14	Teesta Hydro Electric Power plant	Sikkim
15	Baira – Siul Hydro Electric Power plant	Himachal Pradesh
16	Salal Hydro Electric Power plant	Jammu and Kashmir
17	Machkund Hydro Electric Power plant	Andhra Pradesh, Orissa
18	Balimela Hydro Electric Power plant	Odisha
19	Subarnarekha Hydro Electric Power plant	Jharkhand
20	Shivanasamudra Hydro Electric Power Plant	Karnataka
21	Loktak Hydro Electric Power plant	Manipur
22	Rihand Hydro Electric Power plant	Madhya Pradesh, Uttar Pradesh
23	Rangit Hydro Electric Power plant	Sikkim
24	Bansagar Hydro Electric Power plant	Madhya Pradesh
25	Uri Hydro Electric Power plant	Jammu and Kashmir

- India has an installed capacity of more than 329.23 GW
- India is the world's third largest producer and fourth largest consumer of electricity.
- India's first power generation company was the private Calcutta Electric Supply Corporation (CESC) started in 1899.
- NTPC Limited is India's biggest power generator with over 51,676 MW capacities.
- Vindhyachal Thermal Power Station in Madhya Pradesh, a coal-based power plant owned and operated by NTPC, with an installed capacity of 4,760MW, is currently the biggest thermal power plant in India.

Thermal Power Plants

Thermal power station is a power plant in which heat energy is converted to electric power. In most of the places in the world, the turbine is steam-driven. In such power stations, water is heated which then turns into steam and spins a steam turbine. This rotational moment in future converted into energy which drives an electrical generator.

Thermal power is the largest source of power in India. There are different types of Thermal power plants based on the fuel used to generate the steam such as coal, gas, and Diesel. About 65% of electricity consumed in India is generated by thermal power plants.

- Thermal power plants mainly require a large amount of water as a coolant, so usually all power plants are situated near the rivers.
- The main factors which are responsible for the location of thermal power stations are proximity to a water supply for coolants, proximity to raw materials, major cities for efficient power transmissions and better connectivity depending upon power consumption.

Major Indian Power Plants – Thermal

S. No.	Thermal Power Plant	Location
1	Mundra TPS	Kutch, Gujarat
2	Vindhyachal TPS	Singrauli, Madhya Pradesh
3	Talcher Super TPS	Angul, Odisha
4	Sipat TPS	Bilaspur, Chattisgarh
5	Korba Super TPS	Chattisgarh

6	Rihand TPS	Sonebhadra, UP
7	Jharsuguda TPS	Odisha
8	Tiroda TPS	Maharashtra
9	Anpara TPS	Uttar Pradesh
10	Barauni TPS	Bihar
11	Bellary TPS	Karnataka
12	Durgapur TPS	West Bengal
13	Sikka TPS	Gujarat
14	Satpura TPS	Madhya Pradesh
15	Singrauli Super TPS	Uttar Pradesh
16	Wanakbori TPS	Gujarat

Detailed List of Indian Power Plants Statewise – Thermal

S. No.	Thermal Power Plant	Location
1	Bakreswar Thermal Power Station Bandel Thermal Power Station Durgapur Thermal Power Plant Durgapur Thermal Power Station Farakka Super Thermal Power Station Kolaghat Thermal Power Station Mejia Thermal Power Station Sagardighi Thermal Power Station Santaldih Thermal Power Station	West Bengal
2	Anpara Thermal Power Station Auraiya Thermal Power Station Feroz Gandhi Unchahar Thermal Power Plant Harduaganj Thermal Power Station National Capital Thermal Power Plant Obra Thermal Power Station Panki Thermal Power Station Pariccha Thermal Power Station Rihand Thermal Power Station Rosa Thermal Power Station Singrauli Super Thermal Power Station Tanda Thermal Power Plant	Uttar Pradesh
3	Anta Thermal Power Station Barsingsar Lignite Power Plant Chhabra Thermal Power Plant Giral Lignite Thermal Power Station Rajwest Lignite Power Plant Suratgarh Super Thermal Power Station VS Lignite Power Plant	Rajasthan
4	Ennore Thermal Power Station Mettur Thermal Power Station Neyveli Thermal Power Station North Chennai Thermal Power Station Tuticorin Thermal Power Station	Tamil Nadu
5	Guru Hargobind Thermal Power Plant Guru Gobind Super Thermal Power Station	Punjab

6	Amravati Thermal Power Plant Bhusawal Thermal Power Station Chandrapur Super Thermal Power Plant Khaperkheda Thermal Power Station Koradi Thermal Power Station Nashik Thermal Power Station Paras Thermal Power Station Parli Thermal Power Station Tirora Thermal Power Plant Trombay Thermal Power Station	Maharashtra
7	IB Thermal Power Plant Jharsuguda Thermal Power Plant Hirakud Captive Power Plant Talcher Super Thermal Power Station Vedanta Aluminum Company Captive Power Plant	Odisha
8	Amarkantak Thermal Power Station Dada Dhuniwale Thermal Power Station Sanjay Gandhi Thermal Power Station Sant Singaji Thermal Power Plant Satpura Thermal Power Station Vindhyachal Super Thermal Power Station	Madhya Pradesh
9	Bellary Thermal Power Station Raichur Super Thermal Power Station Udupi Thermal Power Plant	Karnataka
10	Bokaro Thermal Power Station Chandrapura Thermal Power Station Patratu Thermal Power Station	Jharkhand
11	Gorakhpur Atomic Super Thermal Power Station Deenbandhu Chottu Ram Super Thermal Power Station	Haryana
12	Gandhinagar Thermal Power Station Jhanor-Gandhar Thermal Power Station Kawas Thermal Power Station Kutch Lignite Thermal Power Station Mundra Thermal Power Plant Sabarmati Thermal Power Station Sikka Thermal Power Station Surat Lignite Thermal Power Station Ukai Thermal Power Station Wanakbori Thermal Power Station	Gujarat
13	Badarpur Thermal Power Plant Indraprastha Power Station Rajghat Power Station	Delhi
14	Bhilai Expansion Power Plant Korba Super Thermal Power Plant Sipat Thermal Power Plant Dr Shyama Prakash Mukharjee Thermal Power Plant Hasdeo Thermal Power Station Jindal Megha Thermal Power Plant	Chattisgarh
15	Barauni Thermal Power Station	Bihar

	Kahalgaon Super Thermal Power Station Muzaffarpur Thermal Power Plant Barh Super Thermal Power Station Nabinagar Super Thermal Power Station	
16	Simhadri Super Thermal Power Plant Sri Damodaram Sanjeeviah Thermal Power Station NTPC Ramagundam Dr. Narla Taatarao Thermal Power Station	Andhra Pradesh

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