



Jaitapur Nuclear Reactors: Maharashtra

Why in News

Recently, the Centre has given **in-principle (first step) approval for setting up of six nuclear power reactors** at Jaitapur in Maharashtra.

- The Jaitapur Project is a **key component of the strategic partnership** between [India and France](#).

Nuclear Power

- **About:**
 - Nuclear power is **clean and environment friendly**, apart from having a “huge potential to ensure the country’s long-term energy security on a sustainable basis.
 - The nuclear power plants have so far generated about **755 billion units of electricity**, saving about 650 million Tonnes of [CO₂ emission](#).
- **Contribution in Achieving Net Zero:**
 - [Net zero targets](#) are expected to be **met through a combination of various clean energy sources**, including nuclear power.
 - The present nuclear power capacity of **6,780 MW is expected to be increased to 22,480 MW by 2031** on completion of projects.

Key Points

- **About:**
 - Jaitapur would be the **world’s most powerful nuclear power plant**. There would be six state-of-the-art **Evolutionary Power Reactors** with an installed capacity of 9.6 GWe that will produce low carbon electricity.
 - The six nuclear power reactors, which will have a **capacity of 1,650 MW each**, will be set up with technical cooperation from France.
 - It would **provide electricity to seven crore households**. That’s huge. It’s a complex project. Both countries are dedicated to reaching an agreement.
 - This project will **embody the strong partnership between India and France**, a commitment to low carbon future, and will directly benefit Maharashtra with thousands of local jobs
- **Status of Nuclear Energy in India:**
 - India has consciously **proceeded to explore the possibility of tapping nuclear energy** for the purpose of power generation.
 - In this direction a [three-stage nuclear power programme](#) was formulated by Homi Bhabha in the 1950s.
 - The **Atomic Energy Act, 1962** was framed and implemented with the set objectives of using two naturally occurring elements [Uranium and Thorium](#) having good potential to

- be utilised as nuclear fuel in Indian Nuclear Power Reactors.
- Other measures taken to **enhance the generation from nuclear power plants:**
 - Administrative approval and financial sanction for **10 indigenous 700 MW Pressurised Heavy Water Reactors (PHWR).**
 - PHWR is a **nuclear power reactor**, commonly using **unenriched natural uranium as its fuel**. It uses heavy water (Deuterium oxide D₂O) as its coolant and moderator.
 - Presently, India has **22 operating nuclear power reactors**, with an installed capacity of 6780 MegaWatt electric (MWe).
 - Among these eighteen reactors are Pressurised Heavy Water Reactors (PHWRs) and four are Light Water Reactors (LWRs).
 - The **Atomic Energy Act 1962 has also been amended** to enable joint ventures of public sector companies to set up nuclear power projects.

Nuclear Power plants in Operation	Nuclear Power Plants under Construction	Planned Nuclear Power Plants
<ul style="list-style-type: none"> ▪ Rawatbhata (Rajasthan) ▪ Tarapur (Maharashtra) ▪ Kudankulam (Tamil Nadu) ▪ Kakrapar (Gujarat) ▪ Kalpakkam (Tamil Nadu) ▪ Narora (Uttar Pradesh) ▪ Kaiga (Karnataka) 	<ul style="list-style-type: none"> ▪ Kakrapar 3&4 (Gujarat) ▪ Rawatbhata (Rajasthan) ▪ Kudankulam 3&4 (Tamil Nadu) ▪ Kalpakkam PFBR (Tamil Nadu) 	<ul style="list-style-type: none"> ▪ Jaitapur (Maharashtra) ▪ Kovvada (Andhra Pradesh) ▪ Mithi Virdi (Gujarat) ▪ Haripur (West Bengal) ▪ Gorakhpur (Haryana) ▪ Bhimpur (Madhya Pradesh) ▪ Mahi Banswara (Rajasthan) ▪ Kaiga (Karnataka) ▪ Chutka (Madhya Pradesh) ▪ Tarapur (Maharashtra)

Source: IE

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