India to install 40-50 small modular nuclear reactors to reach net-zero emission by 2070, claims Tata Consulting Engineers' CEO

To create the Bharat Small Modular Reactor, the Department of Atomic Energy and Tata Consulting Engineers are redesigning the PHWRs

Written by **FE Online**

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The goal is to achieve a high level of standardisation so that the reactor can be easily deployed (Representational Image: Reuters)

India plans to install 40–50 small modular nuclear reactors, primarily to replace captive thermal power facilities in order to reach net-zero emissions by 2070.

According to a senior industry official (as shared to PTI), the 220-MWe Pressurised Heavy Water Reactor (PHWR) is currently undergoing redesign through the use of 3D design platforms. "We are going to take the old design of the PHWR and then reconfigure and redesign it to be modular, scalable and safety-aligned to post-Fukushima standards," Amit Sharma, managing director and CEO of Tata Consulting Engineers, said.

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With this, the goal is to achieve a high level of standardisation so that the reactor can be easily deployed, even in older thermal power plants that are utilised by the cement, steel, aluminium and copper industries. However, the goal, according to Sharma, was to build 40–50 small modular reactors (SMRs) in less than seven or eight years, but a high level of standardisation, safety and modularity were necessary. According to Sharma, engineers will use 3D design platforms to modify the PHWR, which were not accessible when these reactors were first developed 40 years ago.

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Finance Minister Nirmala Sitharaman declared last month during the presentation of the Union budget that the government will collaborate with business to establish Bharat Small Reactors and to conduct research and development on SMRs. She had previously declared that the government will collaborate with business to conduct research and create more advanced nuclear energy technology.

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As of now, the Nuclear Power Corporation of India has constructed two 540-MWe, two 700-MWe and sixteen 220-MWe PHWRs. By 2031-22, 14 additional PHWRs with a capacity of 700 MWe each should be operational, but at varying levels of implementation.

Meanwhile, Tata Consulting Engineers has been working on various power projects and has an 85 per cent market share in nuclear engineering services. It has been connected to the Department of Atomic Energy for many years.

Sharma further claimed that the finance minister's reference to SMRs in her budget address demonstrated her steadfast support for the energy transition.

"To be honest, the only viable long-term solution for net zero is nuclear. I think nuclear is the bet; globally, everybody recognises it," he added.

Unlike conventional nuclear reactors, which are built on-site, SMRs can be built in factories. Each device may produce up to 300 MWe of power. SMRs are a mobile and adaptable technology that can be installed in places that are inappropriate for larger reactors. In an effort to combat the consequences of climate change, SMRs are thought to be significantly and meaningfully contributing to the energy transition phase.

(with inputs from PTI)