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DAE plans to double India's nuclear power capacity by '29

Land Acquisition, Industry Support For Repetitive Component Manufacturing Key Hurdles: AK Mohanty

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TIMES NEWS NETWORK

Indore: Department of Atomic Energy (DAE) plans to nearly double the country's nuclear power capacity in the next five years, said Atomic Energy Commission chairman and DAE secretary AK Mohanty on Tuesday.

"We are expanding our nuclear reactor capacity, with units of 220 megawatt, 500 megawatt, and now 700 megawatt. These 700-megawatt reactors will continue to be integrated into our energy grid. Currently, India's total nuclear power capacity stands at approximately 8.2 gigawatts. In the next five years, we aim to nearly double this figure to close to 14 gigawatts. By 2031-32, our goal is to reach between 20 and 22 gigawatt. Our long-term vision is to achieve at least 100 gigawatt of nuclear capacity by 2047," Mohanty said during a press conference at Devi Ahilya Vishwavidyalaya.

He was in Indore to inaugurate the 35th annual general meeting of Materials Research Society of India and International Union of Materials Research Societies – International Conference in Asia (IUMRS-ICA) 2024, at DAVV.

While Mohanty emphasised that the necessary technologies and expertise were in place, he said that challenges remain in terms of land acquisition and ensuring consistent supply of components from domestic industries. "We are confident about our technology, but land acquisition and industry support for repetitive component manufacturing are the key hurdles we face," he said.

Despite these challenges, the DAE is presently focused on its nuclear power expansion and development of advanced reactor technologies, including small modular reactors (SMRs) and high-temperature reactors.

These advanced reactors are expected to not only provide efficient power generation but also serve as solutions for industries requiring dedicated energy sources. The concept of "captive nuclear power plants" is gaining traction, where small reactors could be deployed in sectors like cement and steel manufacturing to provide exclusive energy solutions.

Mohanty also underscored the promising intersection of nuclear energy and green hydrogen production. "Nuclear energy can provide both green electricity and high-temperature steam, both of which are essential for producing carbon-free hydrogen," he said. The DAE is actively exploring methods such as electrolysis and chemical reactions to produce hydrogen without carbon emissions, contributing to India's growing hydrogen economy.

The ongoing collaboration between DAE and various academic institutions was also a key point of discussion during the conference. Through the UGC-DAE Consortium, students and researchers from across India have the opportunity to engage with state-of-the-art facilities and contribute to ground-breaking research in fields like nuclear physics, material science, and energy systems. Mohanty said that more than 500 students are currently benefiting from such collaborations at institutions like Indore's RRCAT, which actively participate in DAE-led research initiatives.

The event, organised by UGC-DAE Consortium for Scientific Research (UGC-DAE CSR), Indore, will run till Dec 6. Around 700 delegates from across the globe gathered at the event.

The inaugural session was presided over by Prof Mamidala Jagadesh Kumar, chairman, UGC, with Mohanty as chief guest. Prof. Indranil Manna, President of Indian National Academy of Engineering, was the guest of honour.

MORE ON DAE LIST

Dignitaries release Abstract Book during the event organised by UGC-DAE Consortium for Scientific Research at DAVV on Tuesday

INDUS-3 Synchrotron Light Source Project

DAE is working on the next-generation INDUS-3 synchrotron light source project at Raja Ramana Centre for Advanced Technology, which is aimed at advancing research in material science. "The project is still in its planning phase. The detailed project reports are being prepared, and once finalised, funding will be sought for its development. Such complex projects can take up to 10 years or more to come to fruition," DAE secretary AK Mohanty said.

Laser Interferometer Gravitational-Wave Observatory

It involves construction of a significant research facility in Hingoli, Maharashtra. The site will host Laser Interferometer Gravitational-Wave Observatory (LIGO-India), a state-of-the-art observatory that aims to detect gravitational waves, which are ripples in spacetime caused by cataclysmic events like black hole mergers. This ambitious project is jointly funded by DAE and Department of Science and Technology, with international collaboration and support from institutions like the United States-based LIGO Scientific Collaboration. "We have received all the necessary approvals, and the land acquisition process was successfully completed. The project is proceeding as planned," Mohanty said.