Prime Minister's Office

PM witnesses the historic “Commencement of Core Loading” at India’s first indigenous Fast Breeder Reactor (500 MWe) at Kalpakkam, Tamil Nadu

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In spirit of Aatmanirbhar Bharat, PFBR is indigenously designed and constructed by BHAVINI with contribution from more than 200 Indian industries including MSMEs

India’s nuclear power program is aimed to meet the twin goals of energy security and sustainable development

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In a historic milestone marking entry into the vital second stage of India’s three stage nuclear program, Prime Minister, Shri Narendra Modi witnessed today, commencement of “Core Loading” at India’s first indigenous Fast Breeder Reactor (500 MWe) at Kalpakkam, Tamil Nadu.

The Hon’ble Prime Minister took a tour of the Reactor Vault and the Control Room of the Reactor. He was briefed about the salient features of this reactor.

India has developed comprehensive capabilities spanning the entire spectrum of the nuclear fuel cycle. Government had approved in 2003, the creation of Bhartiya Nabhikiya Vidyut Nigam Ltd (BHAVINI) to construct and operate India’s most advanced nuclear reactor-Prototype Fast Breeder Reactor (PFBR).

In line with the true spirit of Aatmanirbhar Bharat, PFBR has been fully designed and constructed indigenously by BHAVINI with significant contribution from more than 200 Indian industries including MSMEs. Once commissioned, India will only be the second country after Russia to have commercial operating Fast Breeder Reactor.

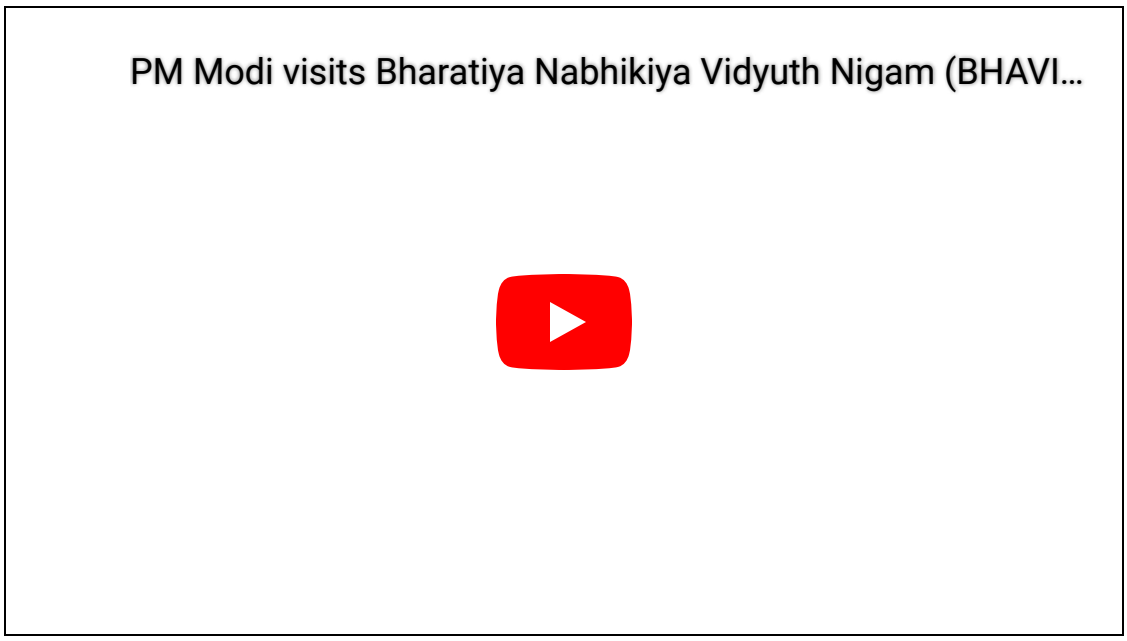
The Fast Breeder Reactor (FBR) will initially use the Uranium-Plutonium Mixed Oxide (MOX) fuel. The Uranium-238 "blanket" surrounding the fuel core will undergo nuclear transmutation to produce more fuel, thus earning the name 'Breeder'. The use of Throium-232, which in itself is not a fissile material, as a blanket is also envisaged in this stage. By transmutation, Thorium will create fissile Uranium-233 which will be used as fuel in the third stage. FBR is thus a stepping stone for the third stage of the program paving the way for the eventual full utilization of India's abundant thorium reserves.

In terms of safety, the PFBR is an advanced third generation reactor with inherent passive safety features ensuring a prompt and safe shut down of the plant in the event of an emergency. Since it uses the spent fuel from the first stage, FBR also offers great advantage in terms of significant reduction in nuclear waste generated, thereby avoiding the need for large geological disposal facilities.

Upon completion of the core loading, the first approach to criticality will be achieved, leading to generation of power subsequently.

Notably, despite the advanced technology involved, both the capital cost and the per unit electricity cost is comparable to other nuclear and conventional power plants.

The growth of the Indian nuclear power program is imperative to meet the twin goals of energy security and sustainable development. As a responsible nuclear power with advanced technology, India remains committed to expand peaceful applications of nuclear technology, both in power and non-power sector, while ensuring the security of nuclear and radiological materials.



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