

India's Nuclear Energy Ambitions: Challenges and Opportunities for a Cleaner Future

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Abstract: India's energy demands have grown exponentially over the last few decades. This is only supposed to grow further with the increasing population and stressed emphasis over digitalization. To fulfil its increasing energy demands, it is pertinent for India to look for other viable sources of energy departing from solely relying on the conventional sources. In this direction, it is quintessential for India to pursue nuclear energy as a sustainable and clean source of energy. It has the potential of fulfilling the growing demands while ensuring the accomplishment of India's global climate commitments. This paper attempts to examine the dual narrative of challenges and opportunities shaping India's nuclear energy trajectory.

There have been many significant advancements in the nuclear energy sector enhancing safety, scalability, and efficiency. It has enormous potential to help India meet its expanding energy needs, lowering its dependency on fossil fuels. Nevertheless, significant hurdles still persist, such as waste management and safety, financial and infrastructural constraints, and the most essential among them all, the need to align the domestic legal framework with the international obligations under various treaties and conventions, such as the Convention on Supplementary Compensation for Nuclear Damage, among others.

This work explores the viability of nuclear energy as a clean source of energy in India while examining the challenges and concerns. It further examines the ways in which regulatory frameworks, technological innovations, and sustainable development objectives interact to influence India's nuclear energy future..

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