



# UNIVERSITY NEWS

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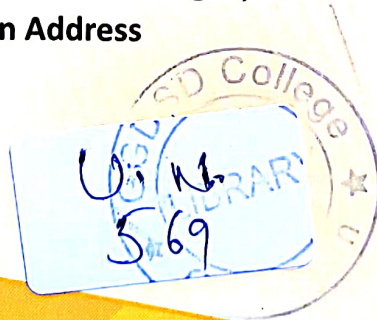
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# Path to India's Energy Independence: Challenges and Future Prospects#

Asha Pandey\* and N P Melkania\*\*

The evolution of human civilization has been intrinsically linked to energy access and utilization. From the early harnessing of fire and animal power to the modern era of electricity and sustainable fuels, energy has been a catalyst for development. Energy underpins fundamental services, such as, heating, cooling, transportation, communication, and industrial operations. Over the past four decades, global energy consumption has nearly doubled, and is expected to rise further, driven primarily by ever-increasing demand from India and China, especially. With traditional energy resources being finite, ensuring a stable energy supply has become a key public policy priority, influencing both the national agenda and international geopolitical strategies. Availability of limited domestic energy reserves compels countries to rely on imports to meet their energy needs, and India is no exception. India has spent a whopping amount of Rs 12,29,886 crore in fiscal year 2023-2024 on import of coal, gas, and oil (2021-2022) (Niti Aayog, 2025).

Energy independence is essential for a nation's economic stability, national security, and sustainable growth. A country that depends significantly on energy imports is susceptible to global price volatility, supply interruptions, and geopolitical conflicts. By diminishing reliance on foreign energy supplies via domestic production, the increase of renewable energy, and efficient resource management, a nation can protect its economy from external shocks, reduce trade imbalances, and fortify its currency. Energy self-sufficiency bolsters national security by diminishing dependence on politically risky regions for fuel procurement. Moreover, investment in renewable energy and energy-efficient technologies promotes innovation, employment, and environmental sustainability. Ultimately, attaining energy independence guarantees sustained resilience, cost-effectiveness, and a stable energy future for economic advancement and public welfare.

## India's Energy Landscape

India's electricity generation capacity has experienced substantial growth, fuelled by both conventional and renewable

*#This article is published to commemorate 'World Earth Day or Mother Earth Day' to be celebrated on April 22, 2025. The theme of the said Day for the year 2025 is "Our Power, Our Planet" with focus on "Action to Increase Global Clean Energy".*

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