

Energy security in agri

Budget fails to adequately address the twin challenges of energy security and agricultural resilience



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India, the fifth largest economy in the world, boasts a population of nearly 1.44 billion. Its energy consumption has experienced a dramatic increase, more than tripling from 2,963 terawatt hours (TWh) in 2013 to 10,123 (TWh) in 2022. This surge has made India the third-largest consumer of energy globally, as well as the third-largest emitter of carbon dioxide. As India aspires to achieve net-zero emissions by 2070, energy security emerged as a crucial priority in the 2025-26 Budget. Balancing the Nationally Determined Contributions (NDCs) made in 2022 with the ever-increasing energy demand presents a formidable challenge for the government.

India's energy landscape is predominantly reliant on fossil fuels, which account for approximately 90% of the total energy demand, with coal and oil being the primary sources. Renewable energy sources, including hydro, solar, wind and biomass contribute about 10% to the energy mix. This heavy reliance on fossil fuels has significant implications for both the environment and the economy, necessitating a strategic shift towards cleaner energy.

Energy Security Initiatives

The Union Budget allocated a substantial Rs 68,769 crore to the energy sector. This funding is aimed at supporting various initiatives designed to integrate the growing share of renewable energy. Among these initiatives is the pumped storage policy, which focuses on enhancing electricity storage capacity to facilitate energy transition and ensure energy security. The Pradhan Mantri Surya Ghar Muft Bijli Yojna is another significant project, with an investment of Rs 75,000 crore. This scheme aims to provide up to 300 units of free electricity per month to 1 crore households, reducing the financial burden on families.

These policy measures are critical for achieving the ambitious target of generating 500 gigawatt (GW) of non-fossil power and ensuring that 50% of power generation comes from these sources by 2030. The government has also shown support for private-public partnerships to increase the share of nuclear energy in the total energy mix. This includes the establishment of Bharat Small Reactors and promoting research and development in this area, marking a commendable step towards a diversified and resilient energy infrastructure. Furthermore, financial assistance is being extended to micro and small industries to help them transition to cleaner energy, thereby reducing their carbon footprint and promoting sustainable practices.

Agricultural Productivity

Agriculture remains a cornerstone of the Indian economy, providing livelihood support to approximately 42.3% of the population and contributing 18.2% to the country's GDP. One of the key priorities for Viksit Bharat is enhancing productivity and resilience in agriculture. The government aims to transform agricultural research, focusing on increasing productivity and developing climate-resilient crop varieties. This includes the promotion of natural farming, with a target of involving 1 crore farmers within the next two years. These farmers will be supported by certification and branding initiatives, ensuring that their products are recognised and valued in the market.

Financial support from Nabard for shrimp production and export is another measure aimed at diversifying income sources for farmers and boosting the agricultural sector's overall productivity. Additionally, the inclusion of farmers and their crops under Digital Public Infrastructure (DPI) is set to revolutionise the way agricultural data

is collected, managed and utilised. This digital transformation will enable better decision-making, improve access to resources and enhance the overall efficiency of the agricultural sector.

The government is also taking steps to promote self-reliance in oilseeds and develop large-scale vegetable production clusters near major consumption centres. These initiatives are crucial for reducing dependency on imports, stabilising prices and ensuring food security. By addressing the entire value chain, from production to market access, the government is laying the foundation for a more resilient and sustainable agricultural sector.

Energy Demand

Despite these positive steps, the energy security of the agriculture sector has not been adequately addressed in the union Budget. According to the Ministry of Statistics and Programme Implementation, the agriculture sector consumed 4 per cent of the total energy in 2021-22 and is the third largest consumer of electricity, accounting for 17 per cent of the total consumption. The sector's dependence on fossil fuels resulted in 158,872.35 Kiloton to Fuel Oil Equivalent (KToE) of greenhouse gas emissions in 2021. Addressing the energy demands of agriculture and promoting sustainable practices are vital for ensuring higher productivity and resilience.

The sector consumed 4% of the total energy in 2021-22 & is the 3rd largest consumer of electricity, accounting for 17% of the total consumption

The provisional growth rate of the agriculture sector declined to 1.4% in 2023-24 from 4.7% in 2022-23, primarily due to delayed and poor monsoon conditions caused by El Niño. This highlights the vulnerability of agriculture to climate change effects, necessitating the development of climate-resilient infrastructure to minimise adverse impacts on the livelihoods of nearly half of the population.

The Pradhan Mantri Kisan Urja Suraksha evam Utthan Mahabhiyan (PM-KUSUM), launched in March 2019, aims to increase farmers' incomes, provide irrigation sources and reduce the agricultural sector's dependence on diesel. As of March 31, 2024, 166 megawatts (MW) of decentralised solar capacity has been installed, and 3.26 lakh agricultural pumps have been solarised under the scheme. This initiative not only provides energy security to farmers but also contributes to reducing pollution and promoting sustainable farming practices.

India, as a major agricultural producer, requires more initiatives like PM-KUSUM to tackle the increasing energy demand and carbon emissions. These initiatives are essential for ensuring that the agricultural sector can thrive in the face of climate change and continue to support the livelihoods of millions of people.

India's journey towards energy security and sustainable agricultural practices is complex and multifaceted. There is a need for a more integrated approach that considers the interdependence of energy and agriculture.

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