

Transition to clean energy

What is the issue?

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Ensuring access to affordable, reliable, sustainable and modern energy for all is critical, but this challenge is far from being met.

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What is the present scenario?

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- The global energy system relies on fossil fuels to provide 80% of total primary energy consumption, and is responsible for about 75% of total greenhouse gas emissions.

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- The expansion of an unchanged energy system, at anything close to current levels of CO₂ intensity, would likely lead to over 40 C of global warming by the end of the century.

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What is the challenge?

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- The challenge is to **build a clean energy system** that can simultaneously expand access to modern energy services on an affordable basis and tackle the environmental challenges.

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- So, a global energy system capable of delivering **80 GJ per capita across the world but emitting no more than 20 GT of CO₂ by 2040** is needed.

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- Such a transition in the energy system will depend on simultaneously **achieving four crucial transitions:**\n

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- decarbonisation of power combined with extended electrification;

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- decarbonisation of activities which cannot be easily electrified;
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- acceleration in the pace of energy productivity improvement; and
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- optimisation of fossil fuel use within overall carbon budget constraints.
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What are the scenarios?

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- Global research shows that the cost of firm renewable electricity (renewable electricity + battery) is on a steady decline and would stabilise at around \$70 per MWh, or about Rs 5 per kWh.
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- **If this price goal is achieved**, or nearly achieved, by 2023-24, and if appropriate infrastructure to absorb large amounts of renewable energy is in place, then all new capacity addition could be based on RE.
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- On the other hand, **if this price goal is not achieved**, the growth in demand would be largely met by new coal capacity additions, with a limited number of new renewables.
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- In this low renewables scenario, an additional 115 Mw of coal capacity would come online between 2026 and 2030.
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What could be done?

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- The RE target can only be realised by focusing on multiple fronts of the RE ecosystem such as **indigenous manufacturing, project management, and grid integration**.
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- Growth in indigenous manufacturing of RE components can coincide with the growth in RE installations.
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- The focus should be on **increasing the competitiveness** of Indian manufacturers on a par with international players.

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- This can be done via incentivising development of new production technology which can reduce cost, lowering cost of finance, **long tenured loans for RE production units**, and higher allocation for R&D on RE technologies, along with industry-wide collaboration for reducing time of commercialisation.

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- The Indian grid must adapt to the new challenges of high installed base of variable RE sources.

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- The focus should be on **developing more efficient evacuation infrastructure**, forecasting infrastructure of RE, developing balancing capability and introducing market mechanisms.

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Source: Business Standard

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