



India's Energy Transition Through States

For Prelims: [Energy Transition](#), [Net-Zero Emissions by 2070](#)

For Mains: Significance of engaging states in India's energy transition, Challenges Related to India's Energy Sector, Initiatives Shaping India's Energy Transition

Why in News?

[India's energy transition](#) through states plays a crucial role in achieving national targets and fulfilling global climate commitments. The **upcoming G20 forum** presents an opportunity for the country to propose a **multiple energy pathways approach** to accommodate diverse contexts.

- India has the goal of **achieving [50% non-fossil electricity generation capacity by 2030](#) and attaining [net-zero emissions by 2070](#).**
- India's energy transition hinges on **engaging states**, as they play a vital role in the **governance of energy production and usage**.

Why do States Matter?

- **Implementing National Targets:**
 - **Tailoring Strategies to Local Contexts:**
 - The **diversity of India's states** necessitates a **localized approach** to energy transition, considering their unique contexts, resources, and development trajectories.
 - **Decentralized Implementation:**
 - While the **central government sets national goals**, states have the responsibility to implement policies and action plans at the grassroots level.
 - Their active participation is vital for translating national aspirations into on-ground realities.
- **Addressing Legacy Issues:**
 - States play a pivotal role in addressing legacy issues plaguing the [electricity sector](#). This includes **reducing high distribution losses**, improving the **reliability of power supply**, and **enhancing service quality**, which are crucial for a smooth energy transition.
- **Pioneering Policy Innovations:**
 - Laboratories of Innovation:
 - States serve as **laboratories for policy experimentation and innovation**.
 - For example, early initiatives by **Gujarat and Rajasthan on solar**, and **Maharashtra and Tamil Nadu on wind energy technologies**, have contributed significantly to renewable energy uptake at the national level.
 - Similarly, [PM KUSUM](#) is an adoption of successful State experiments on the **solarisation of agriculture at a national scale**.
 - **Influencing National Policies:**
 - Successful State-level experiments and innovative approaches in renewable energy adoption serve as influential models for the development of national policies and

frameworks.

- **Harnessing State Resources:**
 - **Leveraging Localized Resources:**
 - Each state in India possesses a unique mix of **renewable energy resources**, such as **abundant solar radiation**, **wind corridors**, and **biomass availability**. States can harness these resources to promote renewable energy generation and **transition away from fossil fuels**.
 - **Promoting Distributed Generation:**
 - States can encourage decentralized renewable energy solutions, such as rooftop solar installations and **community-based projects**, to harness their localized resources effectively and promote community participation.
- **Importance of a State-level Framework:**
 - **Comprehensive Understanding:**
 - A state-level framework provides a holistic understanding of each **state's energy transition plans, actions, and governance processes**.
 - It enables better **coordination, collaboration, and alignment between the central government and states**.
 - **Evidence-Based Policy Choices:**
 - The framework facilitates evidence-based decision-making, ensuring that **policies and interventions are based on robust analysis** of state-level preparedness, inter-linkages, and potential constraints. It promotes informed choices and efficient resource allocation.
 - **Inclusive Stakeholder Engagement:**
 - A state-level framework encourages the **active participation of stakeholders**, including **local communities, industry, and civil society**.
 - It promotes **transparency, accountability, and stakeholder ownership** in the energy transition process.

What are the Challenges Associated with States in Energy Transition?

- **Varying State Priorities:**
 - Balancing **state-specific objectives with national energy goals** can be challenging, as **states have diverse priorities** that may not always align with the overall transition agenda.
 - **India's achievements on its 2022 target for 175 GW** renewable energy offer some insights into the complexities. While it achieved a significant portion of the target, **only Gujarat, Karnataka, and Rajasthan met their individual targets**. Moreover, about 80% of the current renewable energy capacity is confined to Six states in the west and south of India.
- **Resource Constraints:**
 - Some **states face limitations** in terms of financial resources, infrastructure, and technological capabilities, which can hinder their ability to implement renewable energy projects and transition smoothly.
- **Regulatory Framework:**
 - Inconsistent or complex regulatory frameworks across states can create barriers for investors and developers, leading to delays in project implementation and slower progress in the energy transition.
- **Grid Integration:**
 - **Integrating renewable energy sources into the existing power grid** can be challenging, especially in **states with inadequate grid infrastructure**. This can result in curtailment of renewable energy generation and transmission constraints.
- **Inter-State Coordination:**
 - Coordinating efforts and sharing resources among states is critical for a **harmonized energy transition**. However, **differences in policies, priorities, and administrative processes** can create coordination challenges between states.

What are the Other Initiatives Shaping India's Energy Transition?

- [Pradhan Mantri Sahaj Bijli Har Ghar Yojana \(SAUBHAGYA\)](#).

- [Green Energy Corridor \(GEC\).](#)
- [National Smart Grid Mission \(NSGM\) and Smart Meter National Programme.](#)
- [Faster Adoption and Manufacturing of \(Hybrid &\) Electric Vehicles \(FAME\).](#)
- [International Solar Alliance \(ISA\).](#)

Way Forward

- **State Synergy:**
 - Unleash the **power of collaboration between states, forging alliances** that harness their **diverse strengths and accelerate the energy transition journey.**
- **Green Financing Express:**
 - Create **state-level green financing mechanisms that ride the wave of creativity, attract investments** and unlock funding for renewable energy projects.
- **People-Powered Revolution:**
 - Ignite a people-powered revolution, empowering individuals and communities to become ambassadors of change, driving the **energy transition from grassroots to greatness.**
- **State Trailblazers:**
 - Recognize and celebrate **state trailblazers who defy limits**, setting examples that inspire others, and propel the energy transition forward with their audacious vision and action.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. With reference to the Indian Renewable Energy Development Agency Limited (IREDA), which of the following statements is/are correct? (2015)

1. It is a Public Limited Government Company.
2. It is a Non-Banking Financial Company.

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans: (c)

Mains

Q. "Access to affordable, reliable, sustainable and modern energy is the sine qua non to achieve Sustainable Development Goals (SDGs)". Comment on the progress made in India in this regard. (2018)

Source: TH