Indian Economy · GS - III

Round-the-clock renewable energy procurement represents an important transition from intermittent renewable generation towards reliable clean power. Examine its significance and the challenges involved in scaling it up in India.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 21/11/2026	GS - III	Indian Economy

MARKS	WORD LIMIT
15	~250 words

Answer Hint

Renewable energy transition, RTC power, solar-wind hybrid, energy storage, grid stability, long-term PPAs, DISCOM finances, transmission infrastructure, energy security

Model Answer

Introduction

India's renewable energy transition increasingly requires reliable electricity rather than merely expanding installed solar and wind capacity. The 25-year, 1,750 MW RTC renewable power agreement awarded to an Adani subsidiary by West Bengal's power distribution utility illustrates this emerging procurement model.

Significance of RTC Renewable Power

1. **Energy security:** Diversifies electricity sources and reduces dependence on imported fossil fuels.
2. **Grid reliability:** Integrates renewable generation with storage and complementary energy sources to provide more predictable supply.
3. **Decarbonisation:** Helps reduce dependence on coal-based electricity and supports India's climate commitments.

4. **Investment mobilisation:** Long-term PPAs provide revenue visibility and encourage private investment.
5. **Industrial competitiveness:** Reliable clean electricity can support industries seeking to reduce their carbon footprint.

Key Challenges

- **Intermittency:** Solar and wind generation fluctuate with weather and time of day.
- **Storage costs:** Battery systems and pumped-storage projects require substantial capital investment.
- **Transmission constraints:** Renewable-rich regions require stronger interstate transmission networks.
- **Financial viability:** DISCOM payment delays and tariff-related risks can affect project sustainability.
- **Regulatory coordination:** Hybrid procurement requires effective scheduling, forecasting and grid management.

Way Forward

India should promote competitive procurement, domestic storage manufacturing, grid modernisation, flexible power markets and financially viable DISCOMs.

Conclusion

RTC renewable power can bridge the gap between clean energy generation and dependable electricity supply. Its success will depend on integrating storage, transmission and market reforms with long-term renewable energy planning.

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