Environment & Ecology · GS - III

Examine the role of renewable energy procurement in India's clean energy transition. Discuss the major challenges in integrating large-scale renewable energy capacity into the electricity grid.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 22/10/2026	GS - III	Environment & Ecology

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Renewable energy procurement; Solar Energy Corporation of India; energy transition; grid integration; intermittent generation; transmission infrastructure; energy storage; competitive bidding; tariff discovery; energy security

Model Answer

Introduction

Renewable energy procurement enables electricity buyers to source power from clean energy projects. Large-scale procurement can accelerate India's energy transition while reducing dependence on fossil fuels.

Significance

- **Decarbonisation:** Solar and wind power can reduce emissions associated with electricity generation.
- **Energy security:** Domestic renewable resources can diversify India's energy mix and reduce exposure to imported fossil-fuel price shocks.
- **Investment:** Competitive bidding can attract developers and encourage innovation.
- **Economic opportunities:** Renewable projects can support employment, manufacturing and regional development.

Major Challenges

- **Intermittency:** Solar and wind generation fluctuate with weather conditions.
- **Grid connectivity:** Transmission infrastructure may not be available where renewable resources are concentrated.
- **Storage costs:** Batteries and other storage technologies require investment.
- **Financial viability:** Tariff uncertainty, delayed payments and project delays can affect developers.
- **Land and environmental concerns:** Projects may face land-acquisition difficulties and ecological impacts.

Way Forward

India should expand transmission networks, strengthen interstate power trading, deploy storage, improve forecasting and maintain transparent bidding procedures. Distribution companies must also improve financial health and payment discipline.

Conclusion

Renewable energy procurement can accelerate clean electricity deployment, but its success depends on reliable grids, viable projects and coordinated planning across the power sector.

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