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MAGAZINE NOTES

Green Technologies for India's Sustainable Future

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ENVIRONMENT

ECONOMY

GS3

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Green Technologies for India's Sustainable Future

■ Yojana Chapter 3 · 2 min read ·

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The energy chapter's headline: India crossed **50 percent non-fossil installed power capacity in January 2026** (about 272 GW, roughly 51.5 percent of the total), meeting its 2030 NDC commitment four years early. The chapter reads this as proof that the transition's constraint has shifted from generation to **storage, grid flexibility and industrial decarbonisation**.

WHERE THE CAPACITY CAME FROM

- **Solar:** 107+ GW ground-mounted plus 24+ GW rooftop
- **Nuclear's reopening:** the **SHANTI Act 2025** amends the Atomic Energy Act 1962 and permits up to **49 percent FDI in nuclear power**; capacity targeted to grow from 7.5 GW to **22 GW by 2031**
- **Green hydrogen:** National Green Hydrogen Mission targets **5 MMT annual production by 2030** with a Rs 19,744 crore outlay

THE STORAGE PROBLEM

METRIC	FIGURE
Storage needed by 2026-27	16.13 GW / 82.37 GWh
Estimated investment	~Rs 1.5 lakh crore
Pumped hydro potential	96.5 GW
Battery storage cost trend	Down ~90 percent since 2010

Without storage, midday solar surplus and evening deficit destabilise the grid; the chapter treats storage as the real 2030 frontier.

DEMAND-SIDE AND MARKET INSTRUMENTS

- **PAT scheme:** 27.07 MTOE cumulative energy savings across 1,046 designated consumers

- **CCTS 2023:** domestic carbon market, designed to link with Paris Agreement Article 6 mechanisms
- **PM-KUSUM:** 34,800 MW solarisation target for agriculture
- **Per Drop More Crop:** micro-irrigation across 95+ lakh hectares (energy-water nexus)

MAINS ANGLE

Achievement with caveats: capacity share is not generation share; coal still dominates actual electricity supplied. **Way forward:** time the SHANTI-era nuclear build-out with SMR technology choices, front-load storage auctions, and use CCTS revenue to fund just-transition packages in coal districts.

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CAPACITY MILESTONES:

Non-fossil installed capacity: ~272 GW, ~51.5 percent of total (January 2026), NDC 2030 target met early

Solar: 107+ GW ground-mounted, 24+ GW rooftop

LAW AND MISSIONS:

SHANTI Act 2025: amends Atomic Energy Act 1962, up to 49 percent FDI in nuclear; 22 GW by 2031

National Green Hydrogen Mission: 5 MMT by 2030, Rs 19,744 crore

STORAGE AND EFFICIENCY:

Storage need by 2026-27: 16.13 GW / 82.37 GWh (~Rs 1.5 lakh crore); pumped hydro potential 96.5 GW

PAT: 27.07 MTOE saved, 1,046 designated consumers; PM-KUSUM 34,800 MW; Per Drop More Crop 95+ lakh ha

Sources: [Yojana / Publications Division](#), [Ministry of New & Renewable Energy](#)



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