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India Ranks 3rd Globally in Renewable Energy Capacity — 283 GW Milestone

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WHY IN NEWS

India's total installed non-fossil fuel power capacity reached **283.46 GW** as of March 31, 2026 — securing India the **3rd position globally** in renewable energy capacity, surpassing Brazil and ranking behind only China and the United States. India added a record **55.3 GW** of new capacity in FY 2025–26 alone.

India's rise to third place in global renewable energy is not merely a statistical achievement — it represents a structural transformation of the country's power sector. For the first time, renewables contributed **51.5% of peak electricity demand**, crossing the majority threshold that UPSC syllabi have discussed as a theoretical future target for over a decade.

INDIA'S RENEWABLE ENERGY CAPACITY — KEY NUMBERS

METRIC	FIGURE
Total non-fossil capacity (March 31, 2026)	**283.46 GW**
Annual capacity addition (FY 2025–26)	**55.3 GW** (record)
Rooftop solar contribution	8.7 GW
Peak electricity demand met by RE	**51.5%**
Global rank	**3rd** (behind China, USA)
Previous rank	4th (behind Brazil)

SOURCE-WISE BREAKDOWN (APPROXIMATE, FY26)

SOURCE	INSTALLED CAPACITY
Solar (utility-scale)	~175 GW
Wind	~55 GW
Rooftop Solar	~8.7 GW
Hydro (large)	~47 GW
Nuclear	8.78 GW
Biomass/Small Hydro/Other	~11 GW

INDIA'S RENEWABLE ENERGY TARGETS

National Targets

TARGET	DETAIL
500 GW non-fossil capacity by 2030	Paris Agreement NDC (Nationally Determined Contribution)
50% electricity from non-fossil sources by 2030	NDC target
Net Zero by 2070	Long-term climate commitment (COP26, Glasgow)
100 GW nuclear capacity by 2047	Vision for nuclear energy expansion

Why 2030 Target Demands Urgency

At the current pace of ~55 GW/year, India needs to add ~215 GW more in four years (by 2030). This will require solving grid stability challenges, battery storage scaling, transmission infrastructure, and land acquisition constraints — all UPSC-relevant governance challenges.

CHALLENGES AHEAD

Grid Integration and Storage

- Intermittent solar/wind power requires battery storage or hydro-pumped storage to balance supply
- India's current battery storage capacity is a fraction of what is needed to back 51% renewable penetration

Transmission Infrastructure

- Renewable generation is concentrated in Rajasthan (solar), Gujarat (solar+wind), Tamil Nadu (wind), while consumption centres are in northern industrial states
- The Green Energy Corridor project aims to address this mismatch

Land and Social Issues

- Large solar parks require substantial land — frequently contested in tribal and agricultural areas
- Rajasthan's solar parks have seen farmer protests over inadequate compensation under the LARR Act

Manufacturing Dependence

- India still imports ~70% of solar PV cells/modules from China
- PLI Scheme for solar PV manufacturing aims to reduce this dependence by incentivising domestic production

INTERNATIONAL CONTEXT

COUNTRY	RE CAPACITY (APPROX.)
1st — China	~1,500 GW+
2nd — USA	~400 GW+
3rd — **India**	**283.46 GW**
4th — Brazil	~230 GW
5th — Germany	~170 GW

India's achievement is particularly significant given its per-capita income level — it is the lowest-income country in the global RE top 5, demonstrating that clean energy transition does not require developed-country wealth.

POLICY FRAMEWORK BEHIND THE NUMBERS

POLICY	SIGNIFICANCE
Renewable Purchase Obligation (RPO)	Mandates states to source a % of power from renewables
Production Linked Incentive (PLI) for Solar PV	Incentivises domestic manufacturing of solar panels
PM-KUSUM Scheme	Solar pumps for farmers; rooftop solar on feeders
Green Energy Corridor	Transmission infrastructure for RE integration
ISTS Waiver	Interstate transmission waiver for renewable energy
National Solar Mission (NSM)	Under National Action Plan on Climate Change (NAPCC)

UPSC RELEVANCE

PAPER	ANGLE
GS3 — Environment & Economy	India's energy mix, NDC targets, climate finance
GS2 — Governance	MNRE policies, federalism in power distribution
GS1 — Geography	Spatial distribution of solar/wind resources
Essay	"India's energy transition — aspiration vs. infrastructure"
Mains Keywords	NDC, ISTS waiver, RPO, Green Hydrogen Mission, COP28, IPCC AR6

283.46 GW non-fossil capacity | 3rd globally (1st China, 2nd USA, 4th Brazil) | Annual addition FY26: **55.3 GW** *(record) | Rooftop solar: 8.7 GW | Renewables:* **51.5%** *of peak electricity demand | 2030 NDC target: 500 GW non-fossil + 50% electricity from non-fossil sources | Net Zero pledge: 2070 (COP26) | Solar PV PLI: reduces China import dependence | National Solar Mission: under NAPCC*

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