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India's First Coal Decline in 50 Years — What It Means for the Energy Transition

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MAINS RELEVANCE:

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INTERVIEW ANGLE

"India's coal generation fell for the first time in 50 years — is this a structural shift or a blip? What are the implications for energy security, coal workers, and India's climate commitments?"

When India's coal-fired electricity generation fell by 3% in 2025 — from 1,322 to 1,283 billion units — it marked a moment energy analysts had long projected but few expected so soon. For the first time in half a century, the engine that powered India's industrial rise showed signs of structural deceleration. Renewable generation simultaneously surged 22% to 270 billion units. The question is whether this is a decisive inflection point or a weather-induced anomaly — and what policy must do either way.

READING THE NUMBERS CAREFULLY

A 3% decline in absolute terms is modest. Coal still accounts for roughly 70% of India's electricity generation. But the direction matters as much as the magnitude. For decades, coal generation only ever grew — fuelling India's urbanisation, industrialisation, and the electrification of 600 million people who lacked reliable power as recently as a decade ago.

The decline reflects several converging factors:

Record solar capacity addition: India added ~25 GW of solar in 2024–25, its highest ever

Monsoon effect: Above-average rainfall boosted hydropower generation

Industrial demand plateau: Manufacturing growth in some sectors slowed, reducing base-load coal demand

Distributed rooftop solar: PM-Suryaghar Muft Bijli Yojana connections (targeting 1 crore households) are beginning to register on national consumption data

Analysts note the monsoon variable is partly responsible — a drier 2026 could temporarily reverse the trend. But the structural driver — solar becoming the cheapest new electricity source — will persist.

THE SOLAR REVOLUTION INDIA BUILT

India's renewable success is not accidental. Policy scaffolding over a decade made it possible:

Renewable Purchase Obligations (RPOs): Mandating distribution companies to source a minimum share of electricity from renewables — progressively tightened from ~3% in 2012 to 43% by 2030 targets.

ISTS waiver: The waiver of inter-state transmission charges for solar and wind removed a major cost barrier to connecting renewable plants in Rajasthan and Gujarat with load centres in Maharashtra and UP.

Production Linked Incentive (PLI) for solar modules: ₹24,000 crore scheme to build domestic module manufacturing capacity — reducing import dependence on China (which currently supplies ~80% of India's solar cells and wafers).

Viability Gap Funding (VGF): For offshore wind, pump storage, and other emerging clean technologies where costs are still above market.

The result: India's non-fossil fuel installed capacity reached **46.8%** by 2025 — ahead of schedule against the 40% NDC target for 2030.

THE COAL TRANSITION: A JUST PROBLEM, NOT JUST AN ENERGY PROBLEM

Celebrating coal's decline without confronting its human dimensions is policy without conscience. India's coal sector employs, directly and indirectly, **5–7 million people** — mostly in Jharkhand, Odisha, Chhattisgarh, and Andhra Pradesh. These are often the poorest, most marginalised communities in India's resource heartland.

Unplanned closure of mines risks:

- Mass unemployment in single-industry towns (Dhanbad, Korba, Singrauli)

- Loss of social infrastructure built around Coal India subsidiaries

- Political instability in already fragile governance zones

India needs a **Just Transition framework** — analogous to what Germany built during its Kohleausstieg (coal exit):

- Transition income support** for affected workers during retraining

- Alternative industry development** in coal belt districts — renewable manufacturing, electric vehicles, data centres

- Dedicated fund:** Germany created a €40 billion structural change fund; India's scale would require proportionally larger state and central support

Coal India — still the world’s largest coal mining company — needs to be transformed, not just downsized. Its vast land holdings, rail infrastructure, and worker relationships can anchor renewable energy parks and hydrogen production if policy creates the incentives.

THE ENERGY SECURITY DILEMMA

Coal’s decline is welcome for climate but complicated for energy security. India’s electricity grid currently lacks sufficient storage to manage a high-renewable system:

- Battery storage capacity is growing but still far from grid-scale adequacy

- Pump storage hydro (PSP) projects face environmental and land acquisition hurdles

- Thermal plants (including coal) provide the “baseload” stability that intermittent solar/wind cannot

The **Ministry of Power’s Energy Storage Policy (2023)** and the push for pump hydro in the Himalayas and Eastern Ghats are steps in the right direction — but implementation is years behind schedule.

Without grid-scale storage, India risks a paradox: excess renewable power during sunny/windy periods that cannot be absorbed, and power deficits when clouds or calm settle in. The coal transition must be paired with a storage revolution.

INDIA’S CLIMATE CREDIBILITY AT STAKE

India’s COP26 Panchamrit pledges and the Updated NDC (2022) are credibility instruments — they signal to the world (and to Indian investors) that the clean energy transition is irreversible. The first coal generation decline in 50 years is powerful evidence for that signal.

But credibility requires consistency. A drought year that reverses coal’s decline, a policy backtrack on RPOs, or delays in transmission infrastructure could undermine investor confidence in India’s renewable buildout.

The international community — and international climate finance — watches India’s energy data closely. Each GW of solar, each declining coal unit, is an argument for India’s eligibility for concessional green bonds, green climate fund grants, and technology transfer deals.

CONCLUSION

India’s 50-year coal inflection is not a victory lap — it is a starting gun. The technical transition from coal is now underway; the policy, social, and economic transitions to accompany it have barely begun. A just, well-financed, and carefully managed transition can make India’s coal belt the renewable belt of tomorrow. Leaving it behind would be not only unjust — it would be a wasted opportunity of historic proportions.

★ FACTS CORNER — KNOWLEDGE PEDIA

INDIA COAL & RENEWABLE DATA (2025):

Coal generation decline: 3% (1,322 → 1,283 billion units) — first decline in 50 years

Renewable generation growth: 22% to 270 billion units

Non-fossil fuel installed capacity: 46.8% (vs. 40% NDC target for 2030)

Solar capacity addition 2024-25: ~25 GW (highest ever)

Coal share of electricity: ~70% (despite decline)

INDIA'S CLIMATE COMMITMENTS:

Net-zero target: 2070 (COP26, Glasgow, November 2021)

Panchamrit: 500 GW non-fossil capacity by 2030; 50% renewable electricity; -45% emissions intensity (vs. 2005); net-zero 2070; offset 1 billion tonnes by 2030

Updated NDC (2022): 50% non-fossil electricity by 2030, 45% emissions intensity reduction

POLICY INSTRUMENTS FOR RENEWABLE GROWTH:

RPO (Renewable Purchase Obligation): Mandated % renewable in distribution company purchases

ISTS waiver: No inter-state transmission charges for solar/wind

PLI for solar modules: Rs 24,000 crore to build domestic manufacturing

VGF (Viability Gap Funding): For offshore wind, pump storage

PM-Suryaghar Muft Bijli Yojana: 1 crore rooftop solar households targeted

COAL SECTOR EMPLOYMENT:

Direct + indirect: ~5-7 million workers

Key coal states: Jharkhand, Odisha, Chhattisgarh, Andhra Pradesh, Telangana

Coal India Ltd: World's largest coal company; 7 subsidiaries; ~2.5 lakh employees

Key coal towns: Dhanbad (Jharkhand), Korba (Chhattisgarh), Singrauli (MP)

JUST TRANSITION CONCEPT:

Origin: International Labour Organization (ILO) framework

Goal: Ensuring the transition to a low-carbon economy is fair and inclusive

Germany's Kohleausstieg: Coal exit fund €40 billion; target exit by 2038 (originally 2038, accelerated to 2030)

ENERGY STORAGE:

India's Energy Storage Policy (2023): Targets 60 GW BESS (Battery Energy Storage System) by 2030 + pump hydro

Pump storage hydro: Stores energy by pumping water uphill; releases by running downhill through turbines

OTHER RELEVANT FACTS:

India's solar wafer/cell import dependence on China: ~80%

PLI for solar: Aims to build 10 GW annual domestic manufacturing capacity

ISTS (Inter-State Transmission System): National grid; waiver makes remote solar plants economically viable

Sources: The Hindu, Insights on India, Down to Earth

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