

4. Chile's Lesson for India's Coal Conundrum – Environment

India dropped 13 places to 23rd in the Climate Change Performance Index released during COP30 in Brazil in November 2025

Coal Phase-Out in India- Developmental Paradox and Climate Imperative

Core Issue

The primary constraint on India's climate transition is the slow pace of coal phase-out, despite rapid growth in renewable energy capacity.

Coal presents a policy paradox-

1. Economic and social dependence- Coal supports affordable baseload power, State revenues, and large-scale employment in coal-bearing regions.
2. Environmental and health costs- Continued coal use exacerbates air pollution, water stress, land degradation, and accelerates climate change, threatening long-term livelihoods.

India's challenge is structurally deeper than many countries due to-

3. High coal dependence in electricity generation.
4. Limited economic diversification in coal-dependent districts.
5. Rising electricity demand driven by urbanisation, manufacturing, and digitalisation

India's Current Energy Profile (2025)

Installed Capacity Snapshot

Total installed electricity capacity- 500.89 GW

Non-fossil fuel capacity (renewables, hydro, nuclear)- 256.09 GW (≈51%)

Fossil-fuel-based capacity- 244.80 GW (≈49%)

Electricity Generation Reality

Despite capacity parity, coal contributes ~75% of actual electricity generation, reflecting-

1. Intermittency of renewables.
2. Grid stability requirements.
3. Lack of large-scale storage.

Renewable Energy Composition

Solar power- 127.33 GW

Wind power- 53.12 GW

India added 28 GW of non-fossil capacity in FY 2025-26, compared to 5.1 GW of fossil capacity, signalling a clear directional shift—but not a structural exit from coal.

Coal Phase-Out Is Politically and Economically Complex in India

Coal underpins-

1. State finances through royalties and levies.
2. Employment across mining, transport, power generation, and ancillary industries.

Many coal-rich regions lack

3. Industrial diversification.
4. Skilled labour mobility.
5. Alternative revenue bases.

Sudden closure risks-

6. Job losses.
7. Power shortages.
8. Political backlash, particularly in federal governance

Chile's Experience- A Relevant Comparative Model

Energy Transition Outcomes

Coal's share in electricity generation reduced from 43.6% (2016) to 17.5% (2024).

Renewables now account for over 60% of Chile's power mix.

Complete coal phase-out targeted by 2040.

Key Government Interventions

Stringent emission standards increased coal plant compliance costs by ~30%, reducing coal's competitiveness.

Competitive auctions drove down wind and solar tariffs.

Large-scale deployment of energy storage systems improved grid stability.

Clear long-term policy signals reduced investor uncertainty.

Strategic Insight

Chile demonstrates that coal-dependent economies can accelerate transition with-

1. Regulatory certainty.
2. Market-based incentives.
3. Grid modernisation.

Limits of Replicating Chile's Model in India

Coal occupies a smaller share in Chile's energy system, making transition easier.

Chile has

1. Fewer coal plants.
2. A smaller coal-dependent workforce.

Political economy differences-

3. Faster market reforms enabled by privatisation.
4. Lower federal and social redistribution constraints.

India's scale, federal structure, and socio-economic diversity require a gradual, just transition, not abrupt closures.

India's International Climate Commitments

Updated NDC (2022) under United Nations Framework Convention on Climate Change

Reduce emissions intensity by 45% by 2030 (from 2005 levels).

Achieve 50% of cumulative electric power capacity from non-fossil sources by 2030.

Long-term target- Net-zero emissions by 2070.

National Electricity Plan (NEP)

Envisions major renewable expansion by 2032.

Solar power expected to contribute **around 50% of incremental capacity growth**.

However, NEP still allows continued coal use to meet baseload demand.

Expert Recommendations and Policy Pathways

TERI's Assessment

The Energy and Resources Institute suggests-

1. Complete coal phase-out by 2050 to align with net-zero goals.
2. Gradual scaling down rather than abrupt shutdowns.
3. Improved efficiency and systematic decommissioning of older plants.

Three Strategic Action Pillars for India

Accelerating Renewable System Readiness

Address limitations of renewables- Intermittency. Storage deficits. Transmission bottlenecks.

Scale up- Battery and pumped hydro storage. Smart grids.

Electrify transport, industry, and households to maximise clean power utilisation.

Market and Regulatory Reforms

Disincentivise coal through-

1. Carbon pricing mechanisms.
2. Gradual removal of coal subsidies.
3. Clean dispatch rules prioritising low-carbon power.
4. Power procurement contracts favouring renewables and storage.

Align electricity markets with climate objectives.

Social Protection and Just Transition

Protect coal-dependent workers via- Reskilling programmes. Alternative livelihood creation. Regional economic diversification. Establish a dedicated transition financing mechanism-

Proposed "Green Energy Transition India Fund" by an Inter-Ministerial Committee.

Ensures political feasibility and social legitimacy of coal exit.

Way Forward- From Ambition to Execution

Coal phase-out must become a top-tier political priority, not a peripheral climate goal.

Renewable capacity expansion alone is insufficient without-

1. A coal exit road map.
2. Clear delivery timelines.
3. Financing for worker protection.
4. Market reforms and grid readiness.

Learning from peers like Chile, India must craft a context-specific, just, and phased transition strategy.

Concluding Insight

Without a credible coal exit strategy, India's climate commitments risk remaining aspirational rather than transformational.

The decisive decade for India's energy future has already begun.

Source- <https://www.thehindu.com/opinion/op-ed/chiles-lesson-for-indias-coal-conundrum/article70363013.ece>

