



## Phasing Out Coal

This editorial is based on [A Way Out of the Coal Trap](#) which was published in The Indian Express on 26/05/2023. It talks about reducing dependence on Coal and the role of New Electricity Code in phasing out Coal usage.

**Prelims:** [Coal](#), [National Electricity Policy \(NEP\)](#), [Renewable energy](#), [Paris Agreement](#)

**Mains:** New Electricity Policy, Reducing the Coal usage, Challenges and Way Forward

India plans to stop building new coal-fired power plants, apart from those already in the pipeline, by removing a key clause from the final draft of its [National Electricity Policy \(NEP\)](#), in a major boost to fight climate change.

The government probably feels it would be a good idea to carry on with old plants even after they have completed 25 years of operation. Carrying on with generating units that are more than 25 years old is not a bad idea since the station heat rate of well-maintained plants does not get adversely affected with age. The advantages of carrying on with old plants are that the transmission links are already there and that the coal linkages are maintained.

### What is the Significance of the Move?

- It shows India's commitment to fight climate change and reduce [greenhouse gas emissions](#).
  - India's proposed coal power capacity is the highest after China. Both India and China account for about 80% of all active coal projects.
- Aligns with the global trend of phasing out coal and shifting to cleaner sources of energy.
- Encourages the development of [renewable energy \(RE\)](#) and energy efficiency.
  - The government plans to achieve an installed renewable energy capacity of 500 GW by 2030 and net zero carbon neutrality by 2070.
  - Allowing new coal power plants to commence construction will not just send mixed signals and distract the market from its ambitious RE targets - it will also jeopardise the growth of the renewables industry.
- Improves air quality and public health by reducing pollution from coal combustion.
- Reduces India's dependence on [coal imports](#) and enhances energy security.
- Reducing the cost of electricity generation
  - There are 33 "zombie" coal plant proposals which are either seeking or have received permits but are yet to start construction.
  - These power plants will be 2 to 3 times more expensive than [renewable energy \(RE\)](#) options.

### How much of India's Electricity Generation Relies on Coal?

- India is highly dependent on coal for electricity generation. Nearly 60% of total electricity generated in India is from coal and it is the main source of the nation's greenhouse gas emissions.
  - Non-fossil sources accounts for about 40%.
- The electricity generation from coal-based power plants in 2022-23 saw an increase of 8.87% over the previous year.
- The electricity generation target for 2023-24 was fixed at 1750 billion units, of which more than 75% is expected from thermal sources, mainly coal.

## Why should India Reduce dependence on Coal?

- **Reduction of Pollution:**
  - Coal is a **highly polluting fossil fuel** that contributes significantly to air pollution and greenhouse gas emissions.
    - Burning coal releases large amounts of carbon dioxide, **sulphur dioxide**, **nitrogen oxides**, and **particulate matter**, which contribute to climate change, smog, acid rain, and respiratory diseases, cardiovascular problems, and even premature death.
  - Coal is the single **largest source of carbon dioxide emissions** globally. As a signatory to the **Paris Agreement**, India has committed to reducing its greenhouse gas emissions.
- **A Way to Clean Energy Production:** India possesses abundant **renewable energy** resources, including solar, wind, hydro, and biomass. By shifting away from coal and promoting renewable energy sources, India can tap into its vast potential for clean energy production.
- **Addressing Water Scarcity:** Coal-fired power plants **require large quantities of water** for cooling and other processes. The extraction and consumption of water for coal mining and power generation can lead to water scarcity and ecological degradation, particularly in regions already facing water stress.
- **Reduce Imports:** India has to **rely heavily on Coal imports**, reducing dependence on Coal would save lakh of **Forex reserves**.
- **Job Creation:** The transition from coal to renewable energy can **create numerous economic opportunities**. The renewable energy sector offers potential for job creation, innovation, and technological advancements.
- **Adhering to Global commitments:** India's transition away from coal aligns with global efforts to **combat climate change and transition to a low-carbon economy**. By demonstrating a commitment to reducing coal dependence, India can enhance its international standing, contribute to global sustainability goals, and attract investment in renewable energy technologies.

## How can India Reduce its Dependence on Coal for Electricity Generation?

- **Increasing Renewable Energy Capacity:** India has set a target of increasing its renewable energy capacity to 500 gigawatts by 2030, which would help reduce the share of coal in the power mix. Renewable energy sources such as solar, wind, hydro and biomass can provide clean, affordable, and reliable electricity for India's growing population and economy.
- **Improving Energy Efficiency:** India can save energy and reduce emissions by improving the efficiency of its power plants, industries, buildings, appliances and vehicles. Energy efficiency measures can also lower electricity bills, create jobs and enhance competitiveness.
- **Phasing out Old and Inefficient Coal Plants:** India can retire its old and inefficient coal-fired power plants that are costly to run and maintain and replace them with cleaner and cheaper alternatives.
- **Diversifying Energy Sources:** India can reduce its reliance on coal by diversifying its energy sources and increasing the share of natural gas, nuclear and hydro power in its energy mix. These sources can provide flexibility and stability to the grid and complement the variable output of renewable energy.
- **Strengthening Grid Infrastructure:** India can improve its grid infrastructure and transmission networks to enable the integration of more renewable energy and reduce losses and outages. India can also invest in smart grids, energy storage and demand response technologies to enhance grid reliability and resilience.

## What are the Challenges in Switching to Renewable Energy?

- **The poor financial condition of [power distribution companies \(DISCOMs\)](#)**, most of which are owned by state governments. DISCOMs are the main buyers of renewable energy, but they often delay payments to generators or curtail their power due to low demand or high costs. This affects the viability and bankability of renewable energy projects.
- The **lack of adequate grid infrastructure and storage capacity** to integrate variable renewable energy sources, such as solar and wind, into the power system. This requires investments in transmission lines, substations, smart meters, demand response and battery storage to ensure reliability and stability of supply.
- The lack of financial intermediaries and instruments to mobilize capital for renewable energy projects, especially from domestic sources. India relies heavily on foreign financing for its renewable energy sector, which exposes it to currency risks and policy uncertainties.
- The lack of investor understanding and awareness of the opportunities and benefits of renewable energy, especially among small and medium enterprises, households and rural communities.

## What should be the Way Forward?

- Reforming the DISCOMs by improving their operational efficiency, reducing their losses, enhancing their revenue collection and ensuring timely payments to generators.
  - This could involve measures such as performance-based contracts, cost-reflective tariffs, smart metering and prepaid billing.
  - The [new Electricity rules](#) try to bring reforms in power sector and if implemented properly would address the situation to a large extent.
- There is a need to improve information dissemination, capacity building, technical assistance and consumer engagement to increase the adoption and acceptance of renewable energy solutions.
- Strengthening the grid infrastructure and storage capacity by investing in transmission and distribution networks, enhancing grid flexibility and resilience, and deploying battery storage and pumped hydro storage systems.
  - This could involve measures such as grid codes, ancillary services, renewable energy zones and green corridors.
- Mobilizing domestic capital for renewable energy projects by developing financial intermediaries and instruments that can provide low-cost and long-term financing, risk mitigation and credit enhancement.
  - This could involve measures such as [green bonds](#), green banks, green funds and green insurance.

### **Drishti Mains Question:**

Discuss the need, challenges and opportunities of phasing out coal for India's energy security and climate action.

## UPSC Civil Services Examination Previous Year Question (PYQ)

### **Prelims**

**Q. The term 'Intended Nationally Determined Contributions' is sometimes seen in the news in the context of (2016)**

- (a) pledges made by the European countries to rehabilitate refugees from the war-affected Middle East
- (b) plan of action outlined by the countries of the world to combat climate change
- (c) capital contributed by the member countries in the establishment of the Asian Infrastructure Investment Bank

**(d)** plan of action outlined by the countries of the world regarding Sustainable Development Goals

**Ans: (b)**

**Exp:**

- Intended Nationally Determined Contributions is the term used under the UNFCCC for reductions in greenhouse gas emissions in all countries that signed the Paris Agreement.
- At COP 21 countries across the globe publicly outlined the actions they intended to take under the international agreement. The contributions are in the direction to achieve the long-term goal of the Paris Agreement; “to hold the increase in global average temperature to well below 2°C to pursue efforts to limit the increase to 1.5°C, and to achieve net zero emissions in the second half of this century.” Therefore, option (b) is the correct answer.

### **Mains**

**Q.** Describe the major outcomes of the 26<sup>th</sup> session of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC). What are the commitments made by India in this conference? **(2021)**

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