



## Tackling India's Energy Crisis

This editorial is based on [“Energy imports must be slashed”](#) which was published in the Hindu Business Line on 30/03/2023. It discusses the issue of the Energy Crisis and ways to address the same.

**For Prelims:** Energy Imports, Coal, Coke, Crude Oil, LNG, LPG, Greenhouse Gases, Photovoltaic Cells, Lithium Ion Batteries, Covid-19 Pandemic, Russian invasion of Ukraine, Greenhouse Gases, Climate Change, Floods, Droughts

**For Mains:** Mobilization of Resources, Infrastructure, Growth & Development

**India's energy imports are projected to surge by 43.6% in FY2023**, which would significantly impact the country's import bill. **Energy imports, including coal, coke, crude oil, LNG, and LPG**, account for a significant portion of India's merchandise import bill, representing 36.6%.

If the current import growth rate persists, the **energy import bill will soon surpass that of all remaining merchandise imports, with projections indicating that it could exceed USD 1 trillion by December 2026**, a troubling prospect. Additionally, the import value of items required for clean energy such as [photovoltaic cells](#) and [Lithium Ion batteries](#) would further exacerbate the situation.

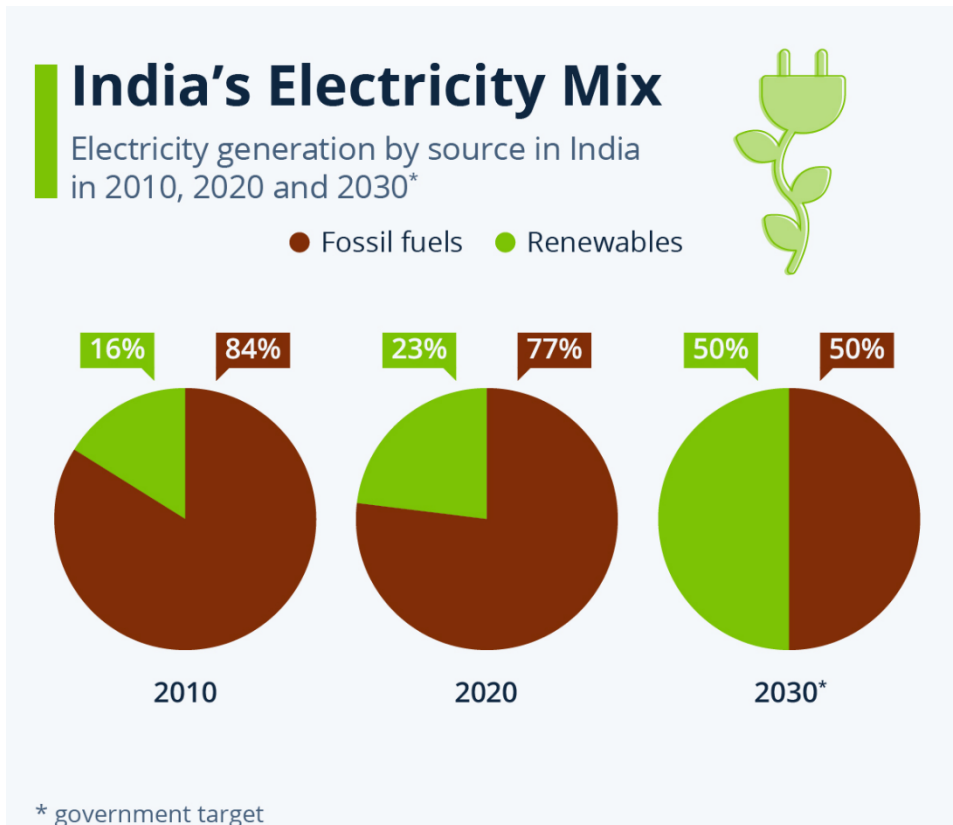
However, **India can cut its crippling import bill by boosting exploration of local oilfields and enhancing coal output.**

### What are the Reasons behind an Increase in the Price of Energy Sources?

- **Disruption of Oil Supply Chains:**
  - The [Covid-19 pandemic](#) and **geopolitical tensions** (US sanctions on Russia post the [Russian invasion of Ukraine](#)) have led to **disruptions in the global oil supply chain**, which has increased demand for alternative energy sources.
- **Weakening of the US-Saudi Arabia 1970s Deal:**
  - The **United States and Saudi Arabia reached a deal in the 1970s** that allowed the US to rely on Saudi oil in exchange for security guarantees.
    - However, the **US is now pursuing energy independence** and is reducing its reliance on Saudi oil.
- **High Inflation in Developed Countries:**
  - High inflation in developed countries can certainly lead to a surge in the price of oil, coal, and other energy sources.
  - This can induce price increase of the oil all over the world including India and affects its buying power.
- **US Effort to Create Alternate Supply Chains excluding China:**
  - The US efforts to create alternate supply chains excluding China can surge the prices of energy sources as **China is a major producer and exporter of many critical minerals**

and metals, such as [rare earth elements](#).

- **China is also a significant consumer of energy**, particularly fossil fuels like coal and oil.



## What are the Challenges in Tackling India's Energy Crisis?

### ▪ Limited Energy Resources:

- India has **limited energy resources such as coal, oil, and gas**, and it depends on imports to meet its growing energy demands.
  - The estimated values of **petroleum imports for FY 2023 are USD 210 billion**. This includes crude oil with an import value of USD 163 billion and LNG and LPG of USD 17.6 billion and USD 14 billion, respectively. Crude imports grew by 53% over the last fiscal.
- The country's coal reserves are of low quality and there are significant environmental concerns associated with their extraction and use.
- As a result, India is looking for alternative sources of energy, such as [solar](#), [wind](#), and **hydro power**.

### ▪ Poor Energy Infrastructure:

- India's energy infrastructure is **inadequate to meet the growing demand for electricity**. It suffers from frequent power cuts and blackouts, which can last for hours or even days.
  - A **rapid addition of solar farms has helped India avert daytime supply gaps**, but a shortage of coal-fired and hydropower capacity risks exposing millions to widespread outages at night.
  - **India's power availability in "non-solar hours" in April, 2023 is expected to be 1.7% lower than peak demand**.
- The **poor energy infrastructure is also affecting the development of the country's rural areas**, where many people do not have access to electricity.

### ▪ Inadequate Investment:

- **India's energy sector requires significant investment to improve its infrastructure** and expand its energy capacity.
- However, the government and private sector are not investing enough in the energy sector.

- **India's low per capita income and high poverty rates** also make it difficult for people to afford clean energy sources.
- **Political and Regulatory Barriers:**
  - **India's energy sector is heavily regulated**, and there are significant political barriers to energy sector reforms.
  - India has been slow to adopt renewable energy policies, and there is a lack of coordination among various government agencies and ministries.
- **Climate Change:**
  - India is **one of the largest emitters of [greenhouse gases](#) in the world**, and its energy sector is a major contributor to these emissions.
  - [Climate change](#) is also affecting the country's energy infrastructure, as extreme weather events such as [floods](#) and [droughts](#) are becoming more frequent and severe.

## What Should be the Way Forward?

- **Invest in Domestic Exploration and Production:**
  - India must **evaluate its options to increase local production, including developing Category II sedimentary basins that have known hydrocarbon reserves** but no commercial production yet. The government should provide incentives to attract investment in these areas.
    - India has 26 sedimentary basins divided into the following four categories:
      - **Category I (7 Basins):** Established commercial production
      - **Category II (3 Basins):** Known accumulation of hydrocarbons but no commercial production as yet.
      - **Category III (6 Basins):** Indicated hydrocarbon reserves considered geologically oil-bearing
      - **Category IV (10 basins):** Uncertain potential may be prospective by analogy with similar basins worldwide; and deep-water reserves.
- **Improve Coal Quality:**
  - India **should focus on improving the quality of domestic coal to reduce the reliance on imports**. This can be **achieved by investing in technology** to increase the calorific value of coal and reduce the ash content.
- **Encourage Renewable Energy:**
  - India has **vast potential for renewable energy sources** like solar, wind, and hydro.
  - The **government should encourage the development of renewable energy projects** through incentives and subsidies.
  - **Carbon pricing can help to incentivize the use of renewable energy** by putting a price on carbon emissions.
- **Develop Energy Infrastructure:**
  - India **must invest in developing its energy infrastructure to ensure efficient transmission** and distribution of energy.
  - This can be achieved by upgrading the existing infrastructure and building new power plants, pipelines, and transmission lines.
- **Reducing Coal Imports:**
  - India **must also focus on reducing coal imports**. There's not enough scope for reducing the import of coking coal as India does not have high-quality reserves but the import of thermal coal can be managed.
  - **Coal imports have increased mainly because of demand from new power plants** that use only high-grade imported coal.
    - The **need to import arises because of the low quality (high ash content of 30-40%) of Indian coal**, the inability of Coal India Ltd. to increase production and use technology to increase the calorific value of coal, and within-country transport restrictions.

### **Drishti Mains Question**

What are the key challenges that need to be addressed in effectively tackling India's energy crisis and how can they be overcome?

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

### Prelims

**Q. The term 'West Texas Intermediate', sometimes found in news, refers to a grade of (2020)**

- (a) Crude oil
- (b) Bullion
- (c) Rare earth elements
- (d) Uranium

**Ans: (a)**

- West Texas intermediate (WTI), also known as Texas light sweet, is a grade of crude oil used as a benchmark in oil pricing.
- WTI is described as light crude oil because of its relatively low density, and sweet because of its low sulfur content.
- It is sourced from US oil fields, primarily in Texas, Louisiana, and North Dakota.
- Therefore, option (a) is correct.

### Mains

**Q. Petroleum refineries are not necessarily located nearer to crude oil producing areas, particularly in many of the developing countries. Explain its implications. (2017)**

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