



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.

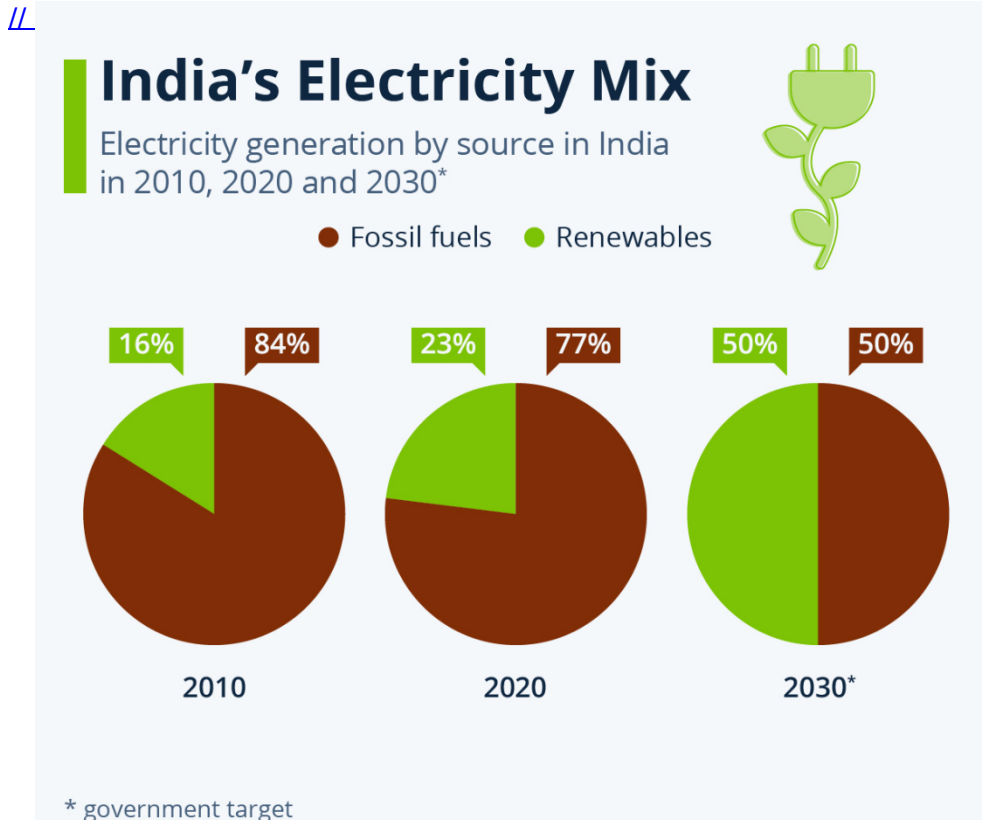
However, **India can cut its crippling import bill by boosting exploration of local oilfields and enhancing coal output.**

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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