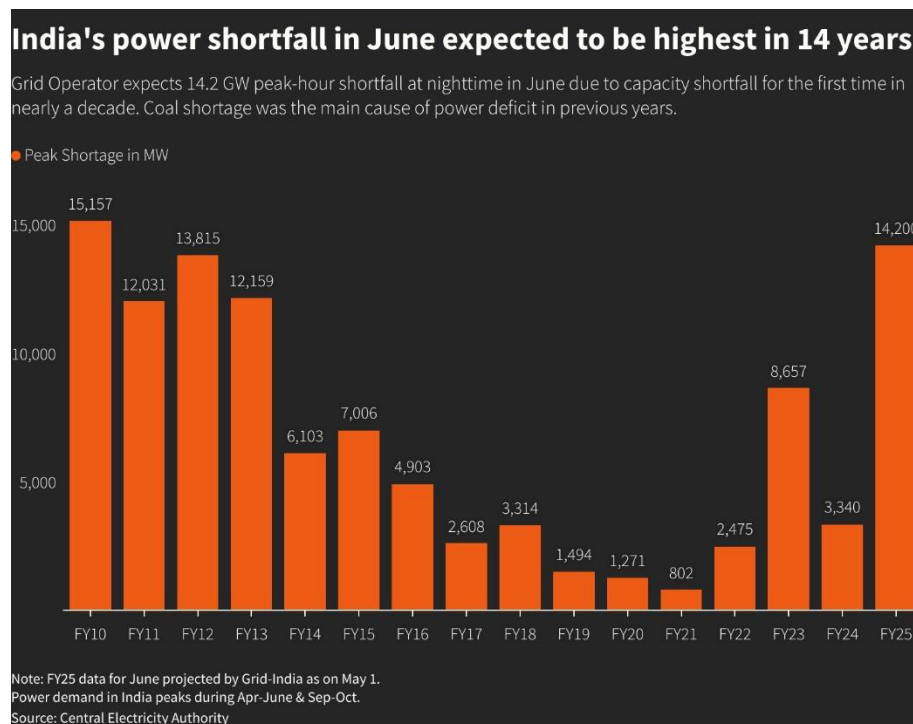


Energy Crisis In India: What's Next?

The Energy Crisis in India is more than just a headline - it's a pressing reality impacting the daily lives of millions and posing significant challenges to the nation's economic ambitions.

Despite being the world's [third-largest producer](#) of electricity, India grapples with frequent power shortages. In 2020, the country faced an [energy deficit](#) of about 0.4%, leading to regular blackouts even in metropolitan cities like Delhi and Mumbai.

India has faced some of its worst energy crises ever in recent years, and [June 2024](#) saw the country's largest energy deficit in 14 years. Furthermore, projections indicate that India could face a significant power shortfall in the coming years. The country's energy demand is [growing at a rate](#) of 6% annually and [will double](#) by 2045.



Source: [Reuters](#)

What's an Energy Crisis?

An energy crisis occurs when energy demand exceeds supply, leading to shortages, blackouts and escalating costs that can cripple economies and disrupt daily life. In India, frequent power cuts impact both industries and households. For instance, in 2021, states in the country's northern region experienced power outages [lasting up to](#) eight hours for many during peak summer months.

The economic impact is substantial. Energy shortages and unreliable power supply [cost India](#) about 1.9% of its GDP annually. This amounts to billions of dollars lost due to decreased industrial output and higher operational costs from alternative energy sources like diesel generators.

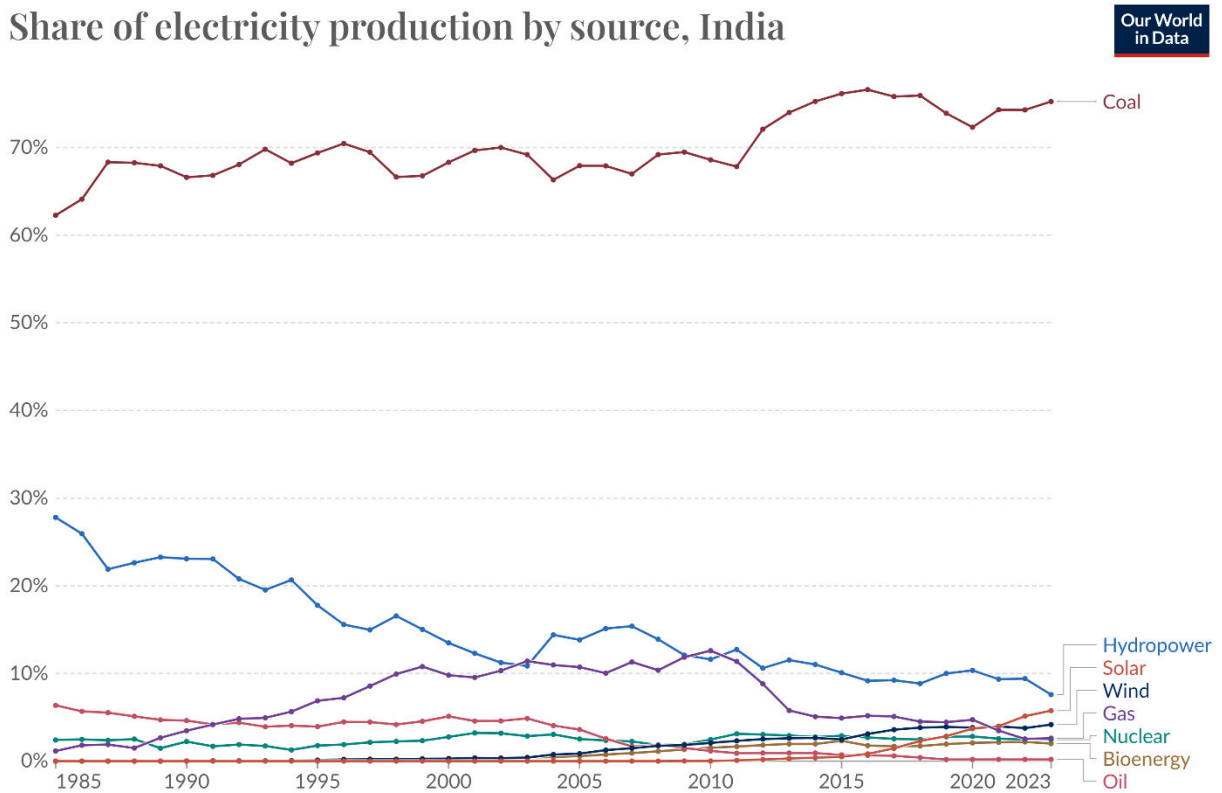
Additionally, Indians [face an average](#) of 10 power outages per month. For businesses, this [leads to losses](#) of over USD 10 billion in annual sales. Small and medium-sized enterprises (SMEs) are particularly vulnerable and lack resources for backup power solutions.

These examples highlight that India's energy crisis is more than an infrastructural issue - it's a significant economic challenge affecting the nation's growth and the well-being of its citizens.

Major Causes of Energy Crisis

India's regularly occurring energy crises arise from a combination of factors straining the nation's energy resources and infrastructure. Rapid urbanisation and industrial growth have led to a surge in energy demand, putting immense pressure on existing systems and outpacing supply growth. The country's heavy reliance on fossil fuels, particularly coal and oil, exacerbates the issue. [Coal alone](#) accounts for about 70% of electricity generation, leading to resource depletion and increasing dependence on imports with [volatile prices](#).

Share of electricity production by source, India



Data source: Ember (2024); Energy Institute - Statistical Review of World Energy (2024)

OurWorldinData.org/energy | CC BY

Source: [Our World In Data](#)

Inefficient energy infrastructure compounds the problem. Ageing power plants and outdated transmission systems result in [high energy losses](#) - around 15% in transmission and distribution compared to developed countries [like the U.S.](#) at around 5%.

Regulatory and policy challenges, such as bureaucratic hurdles, [slow adoption](#) of renewable technologies and increasing additions of coal power capacity, further hinder the energy sector's growth.

Consumption of Non-Renewable Energy by Industries

Furthermore, industries in India heavily rely on non-renewable energy sources rather than available renewables. While many companies have made public renewable energy goals, they are largely failing to work towards them. For example, on average, large Indian electricity-consuming companies [only source](#) 5% of their energy from renewable sources.

This strengthens the country's fossil fuel industry and disincentivises the development of renewable energy facilities. Renewable energy development is critical to bridging the existing energy supply-demand gap and meeting the country's [2030 goal](#) of 500 GW renewable energy capacity.

Social and Environmental Impact of the Energy Crisis on India

The energy crisis has far-reaching impacts on people and the environment. Frequent power outages disrupt daily life and essential services, particularly in rural areas where about 670,000 people [still lack electricity access](#). This hinders education and healthcare services. Plus, it perpetuates the use of biomass fuels for light and cooking – a significant contributor to indoor air pollution - which accounts for [600,000 premature deaths](#) annually.

Environmentally, heavy reliance on fossil fuels increases pollution and greenhouse gas emissions. India is the [third-largest](#) emitter of carbon dioxide globally, with the [energy sector](#) as the largest contributor.

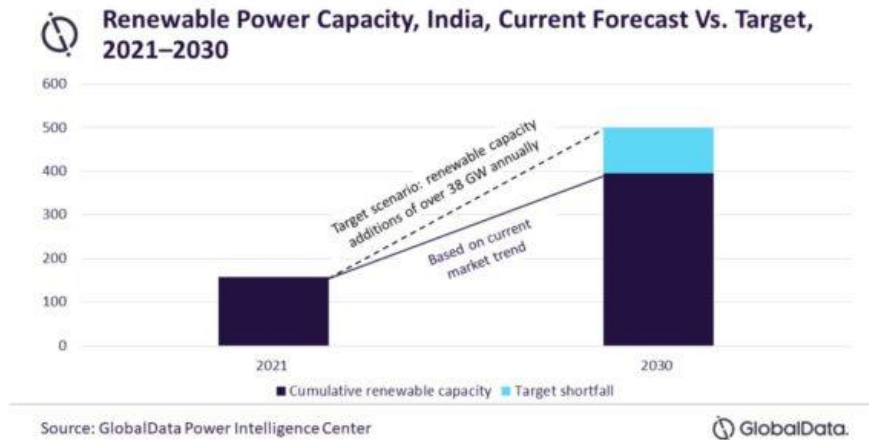
Solutions to Prevent Energy Crisis

To mitigate the energy crisis, India must adopt a multi-pronged approach.

Investment in Renewable Energy Sources

Investing in renewable energy is pivotal for mitigating India's energy crisis. The country has set a goal to achieve 500 GW of renewable energy capacity by 2030 and be [net-zero](#) by 2070. Progress has been significant, with installed renewable capacity [reaching over](#) 120 GW as of early 2023, including substantial solar and wind energy contributions.

Projects like the [Bhadla Solar Park](#) in Rajasthan, one of the world's largest solar parks with a capacity of 2.25 GW, highlight India's commitment to expanding renewable infrastructure. However, the country must continue rapidly expanding capacity to quadruple within the next 6 years to meet its 2030 target.



Source: [PV Magazine](#)

Energy Efficiency Measures

Implementing energy efficiency measures can significantly reduce energy consumption and has the potential [to contribute to](#) 56% of the country's target of reducing emission intensity by 35% by 2030. Programmes like the [Perform, Achieve and Trade \(PAT\)](#) scheme incentivise industries to adopt energy-efficient practices, resulting in savings of over 8.67 million tonnes of oil equivalent in the first cycle.

Policy Reforms and Incentives

India needs robust policy reforms to reduce energy issues – both incentivising renewables and disincentivising fossil fuels. This includes offering tax incentives and subsidies for renewable energy projects while implementing stricter regulations on fossil fuel use and reducing fossil fuel subsidies. Currently, [fossil fuel subsidies](#) are five times larger than subsidies for renewables.

Path Forward for India's Energy Future

India stands at a pivotal point in addressing its energy challenges. Despite progress in expanding renewable energy capacity, issues like infrastructure inefficiencies and policy obstacles remain.

Moving forward, India must accelerate investments in renewables, modernise its energy grid and implement supportive policies. By taking these steps and fostering collaboration among government, industry and citizens, India can fill its supply-demand gap and address its energy crisis.