

Energy Crisis in Pakistan

Introduction:-

Energy has become an essential necessity in today's modern world by playing a crucial role in powering industries, households and other institutions. However, Pakistan, like many other countries/nations, is currently facing a significant energy crisis. This crisis underscores the urgent need to address the issue and develop effective remedies to mitigate its impact. As it can attract further issues such as weakening economy, inflation hike and various other challenges. (Given the critical role of energy in various sectors, it is imperative to take a prompt action and implement sustainable solutions to ensure a reliable energy supply for the country's development and growth.

→ Current Situation:

Overview of Pakistan's electricity crisis as reported by ISSI on May-August 2023...

Description	Megawatts
Total Demand	28,300
Power Supply	21,200
Shortfall	27,000

Pakistan's electricity Capacities in 2022

Capacity Type	Megawatts
Installed generation capacity	41,557
Maximum total Demand	31,000
Transmission and distribution capacity	22,000

Source:- ISSI

→ There are two major problems contributing to the energy crisis:-

1- Expensive electricity generation:-

According to the prime minister of Pakistan, our country is facing significant challenges with electricity costs ranking as the most expensive in Asia and third most expensive globally.

Domestic unit charges range widely from 24 PKR to 65 PKR, determined by consumption slabs set by NEPRA. For instance, for the consumption of below 100 units, the cost is approximately 28 PKR per unit, while in the 100-300 unit slabs, it rises to 44 PKR per unit. The cost continues to escalate to about 56 PKR per unit for the 300-600 unit slab with a minimum of 72 PKR per unit for consumption exceeding 600 units. In the commercial

sector like markets, industries and agriculture prices vary from 48 to over 90 PKR per unit.

2) = Loadshedding:-

The energy sector in Pakistan is experiencing severe loadshedding. As the table shows:

Year	Shortfall megawatts	Urban loadshedding per-day	Rural loadshedding per-day
Summer 2024			
Summer 2023	More than 7000	4-5 hrs	10-12 hrs
Summer 2022	more than 10,000	8 hrs	16-18 hrs
Summer 2007-16	5000-8000	8 hrs	18+ hrs

Dangerous revival of energy crisis:- In 2022-23

Source: ISSI

the fluctuations of power cuts and energy shortages over the years highlight the ongoing difficulties faced by the country's energy sector.

Add more arguments in this part

→ These two problems are created because of the following causes:

1) Economic - Causes

(a) Import of HC:-

Pakistan is generating electricity by using hydrocarbons through different sources:

↳ Diesel units account for 12,000 MW of installed electricity capacity

↳ LNG → 7,000 MW capacity

↳ Coal → 6,500 MW capacity

Almost all the HC being consumed for production of electricity are imported.

Diesel is the most expensive; LNG is the second one and 3rd the coal.

These sources are related to HC and HC's price jumped up in the international market because of the war of Ukraine and Russia. All the HC has been purchased in dollars while rupee has been devalued against dollars. In 2021, importing one billion worth of oil cost 178 billion PKR, but today it costs over 280 billion PKR.

(b) Circular Debt:-

The circular debt issue in the energy sector exacerbates the crisis. This occurs when power generation companies are not paid on time by the govt or consumers, leading to the shortage of funds for fuel and maintenance. As a result, the energy generation process is disturbed.

Source: ISSI

2) Political and Governance Causes:

(a) Lack of check and balance and accountability:-

The energy crisis in Pakistan is increasing as there is no check and balance. When there is not enough oversight, it leads to inefficiencies, corruption and mismanagement in the energy sector. This results in fuel shortages and reduced power generation capacity.

(b) Lack of focus on developmental projects:-

One of the primary reason of energy crisis in Pakistan is insufficient investment in the developmental projects. The country has not made substantial investments in building new power plants or upgrading existing infrastructure.

3) Social Cause:-

(a) Population growth =

Population growth has increased the crisis of energy as there is a massive increment in the need of electricity according to number of people.

(b) Waste of energy:-

- People at domestic and commercial levels use energy carelessly or with old equipments that use too much energy.
- Another significant factor is the lack of awareness about energy conservation practices which creates massive energy consumption. Source: ISSI

4= Technological Causes

(a) Lack of Innovations:-

Without new innovations/ideas, energy production remains insufficient and unsustainable, leading to power shortages and economic shortages.

(b) Transmission and distribution:-

Outdated transmission lines in Pakistan cause a 17% electricity loss, the highest in Asia. Electricity theft and distribution issues lead to another 16% loss, raising prices affecting rural and urban areas.

Impacts=

1) Economic Impacts.

(a) Reduce Industrial productivity:-

When factories can't work at full capacity because of electricity shortages, they make less stuff. This means fewer jobs and less earning.

(b) Increase production costs:

Businesses need electricity to make things. When there's not enough, they have to use more expensive ways to get it, which makes everything cost more.

(c) Budget Strain:

The govt has to spend a lot of money fixing problems caused by energy crisis. This means less money for important institutions like schools and hospitals.

2) Social Impacts

(a) Quality of life:-

People's lives become harder because they don't have electricity for things like lights, cooking and refrigerators to keep food fresh. It's uncomfortable and makes daily tasks difficult.

(b) Health risks: Hospitals can't even operate properly without electricity, which means people might not get the medical care they need.

(c) Educational disruption:

Schools cannot continue their daily routine's activities without electricity. This makes it harder for the students to learn.

Add references/examples against these arguments

and teachers to teach.

3) Political Impacts

(a) National growth:-

Electricity shortages slow down businesses and the economy. This means the country can't grow and develop as quickly, which affects everyone's lives.

(b) Impact on Agriculture:-

Farmers need electricity for water pumps and other tools to grow food. As they cannot produce enough food without electricity so it leads to shortages and higher prices.

4) Technological Impacts

↳ Slower Progress in technology:-

Absence of electricity may hinder the use of technology and make new innovations. This slows down the progress and development of the country.

↳ Solutions (for the economic domain)

(a) Reduce dependency on imported Hydrocarbons:-

- Encourage the use of natural energy sources like solar power by offering significant financial incentives like subsidies. This will help to reduce the need for expensive imported fuels.

(b) Address Circular Debt:-

- Identify areas where money is owed and create a plan with others to manage and reduce these debts.
- Ensure timely payment of bills to decrease the overall debt burden.

↳ For the political and Governance domain

(a) Improve check and Balances-

- Ensure a proper check and balance towards those who are engage in unfair/ theft practices.
- Apply strict penalties on those people who are involved in energy theft.

(b) Focus on developmental projects:-

Increase government funding and incentivize private investment in energy projects, particularly those which expand capacity and improve the resilience of the energy infrastructure.

↳ Social Recommendations:-

(a) Manage population related energy demands:-

- Educate people on energy saving practices and efficient usage.
- Upgrade energy systems in densely populated areas to handle increased demand.

(b) Community engagement in energy projects:-

- Encourage local communities to

initiate energy projects and provide them with necessary support.

- Train communities to actively participate in and benefit from energy-related solutions.

Recommendations For the Technological domain

(a) Promote energy innovation:

- Support research and development efforts aimed at improving energy efficiency.
- Provide financial assistance to startups and researchers working on innovative energy solutions.

(b) Reduce energy waste:-

- Invest in smart technologies to optimize energy usage and minimize losses in distributions.
- Enforce regulations promoting energy efficiency and eco-friendly practices in product manufacturing and consumption.

→ Conclusion:

Energy crisis is a multifaceted issue with far reaching impacts on economy and development of the country. Addressing its roots causes requires a holistic approach. By embracing sustainable solutions, we can mitigate the effects of this crisis and can build a more resilient future.