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Q. Enlist and explain the energy issue in Pakistan and explain the strategy to deal with them.

Answer:

### i- Introduction:

Pakistan's energy sector faces multifaceted challenges that impede economic growth, industrial productivity, and the overall well-being of its citizens. From chronic power shortages to overreliance on imported fuels and environmental degradation, the energy landscape demands urgent attention and strategic interventions. By implementing comprehensive strategies like diversification of energy resources, infrastructure upgrades, energy efficiency measures, environmental regulations, Pakistan can achieve a sustainable and resilient energy sector that drives economic development and enhances the quality of life for its citizens.

### ii- Energy issues in Pakistan:

1- Inadequate Power Generation: In 2023, Pakistan's energy demand was 29,435 MWhs whereas the supply after line losses in the same year was 26,083 MWhs (Ministry of Water and Power, Pakistan, 2023). Pakistan struggles with frequent power outages due to insufficient electricity production capacity. For instance, during peak summer months, the demand often exceeds the supply, leading to load shedding and disruptions in industrial and domestic activities.

## 2- Transmission and Distribution losses:

The outdated infrastructure in Pakistan's energy transmission and distribution networks results in considerable losses during electricity transmission. These losses not only reduce the overall efficiency of the system but also contribute to increased costs for consumers.

Add and highlight

references/examples against your arguments with proper source

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**Energy Access Disparities:** Rural areas in Pakistan often lack access to reliable energy sources, perpetuating poverty and inequality. The lack of electricity in these areas hinders socio-economic development and limits opportunities for the rural population.

## 4- Environmental Pollution:

The predominant use of fossil fuels for power generation in Pakistan leads to severe environmental pollution, including air and water pollution. The emission of greenhouse gases and other pollutants contributes to climate change and negatively impacts public health and ecosystems.

## 5. Reliance on Imported Fuels:

other renewable resources.

Nuclear power

Hydropower

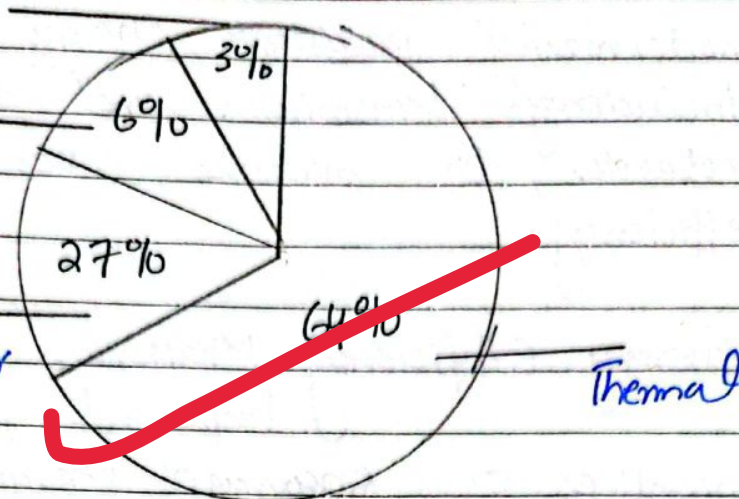


Figure 1: Pakistan Energy Mix (2023)

Source: US-Government statistics.

According to the US-Government statistics (2023), Pakistan has an imbalanced energy mix of 64% Thermal, 27% hydro-power, 6% Nuclear power, and 3% of other renewable resources. The energy mix is burden on the feeble economy of Pakistan. The high reliance on Thermal power, increases in imports of fuels, e.g. diesel and oil, which is expensive and causes power blackout in the country.

Add more arguments in this part

### iii- Strategies to Address Energy issues:

#### 1- Diversification of Energy sources:

promote the development and utilization of renewable energy sources such as solar, wind and hydro power to reduce dependence on imported fuels and enhance energy security.

## References/examples??

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### 2- Infrastructure Modernization:

Invest in upgrading and modernizing Pakistan's energy infrastructure, including transmission and distribution networks, to minimize losses and improve efficiency.

### 3- Energy Efficiency Measures:

Implement policies and incentives to encourage energy-saving practices in industries, buildings, and transportation sector to reduce overall energy consumption and costs.

### 4- Environmental Regulations:

Enforce stricter environmental regulations and standards for power generation and industrial activities to mitigate pollution and promote cleaner energy.

### 5- Rural Electrification Programs:

- Implement targeted rural electrification initiatives and off-grid solutions to expand access to electricity in remote areas, thereby improving living standards and fostering economic development.

Add more arguments. A 20 marks answer should have around 15 subheadings and be on 8-9 pages

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#### iv - Conclusion:

In conclusion, Pakistan's energy sector challenges requires a comprehensive approach that includes diversification of energy resources, infrastructure upgrades, environmental regulation and rural electrification programs. By implementing these strategies effectively, Pakistan can achieve a sustainable and resilient energy sector.

Improve the references, and the paper presentation part