

Q: Despite being rich in natural and renewable resources, Pakistan continues to face an unending energy crisis. Critically examine the structural, political, and economical factors responsible for this failure, and propose a pragmatic roadmap for energy sustainability?

## Introduction — Understanding current energy landscape.

Energy is catalyst for boosting, economical development, industrialization and social growth of any country. It is also an indicator of progress socially and economically. For example, Australia, being a self sufficient energy producing has GDP at 1.53 trillion dollars. Thus, it can be said that energy is essential for economic stability. Otherwise, achieving economical stability is wild goose chase under energy crisis.

Pakistan, despite being rich in natural and renewable resources, unfortunately faces ~~energy problems~~ ~~economic challenges~~ since the very beginning! At time of its birth, it has capacity of only 60MW. This capacity did increase later but so, the demand of electricity both in industries and for domestic use. In energy crisis of 1970's, Pakistan took initiatives towards meeting demands of energy. Pakistan in 1994, made agreements with IPPs, into producing 13000MW as addition to already energy production. However, due to distribution infrastructure failures those could not be drawn off.

The continued energy crisis in Pakistan has crippled its economy in several ways. It's multifaceted threat to economic sovereignty, food security and political stability.

Here are some structural political and economical causes, which are major contributors of this energy crisis prevailing in Pakistan.

relate the headings and arguments to the qs statement..

### Causes of energy crisis.

#### 1. Overdependence on imported fossil fuel.

Seventy Pc of energy generation in Pakistan depends upon its overdependence on imported fossil fuel. Despite, that coal deposits recognized as largest coal reservoirs, Pakistan is still impaled expensive fossil fuel for energy generation. This makes country vulnerable to global energy prices indebted in dollars, and depreciation of rupee exorbitantly adds to the problem.

#### 2. Poor energy planning and policy inconsistencies.

Pakistan did integrate energy policies; National power policy 2013; Power generation policy 2019; Alternate and Renewable energy policy 2019. However, so far, there is lack of implementation of any policy properly. Also, frequent policy shifts, as these projects are politically motivated not economically viable, further fuels energy problems.

add and highlight references/examples against these arguments.

#### 3. Circular Debt and capacity payments.

IPPs played major role in escalating costs of energy, further adding to problems.

Many contracts obligate government to pay IPPs despite power generation. This leading ~~as~~ as of May 2024 report; circular debt at 2,30 billion with capacity payment, as of March 2025 report; at 2.1 trillion, intensifying the crisis. Capacity payments being made regardless of power put immense financial strain on government and domestic consumers alike. Despite, ongoing payment (which is third largest obligation after defence and foreign debt) circular debt is climbing. It is driven by poor recoveries, operational inefficiencies, and misaligned policies.

#### 4. Transmission and Distribution Loss.

Pakistan has failed to provide energy to either of domestic or industrial sector.

Power outages are not because of less supply of energy in Pakistan, they are because of fluctuations in transmission lines which have not been updated time to time. Hence, the basic issue is of the difference of generation capacity to capacity to transmit it to the distribution companies.

~ Syimra Sohail, Pakistan Power Crisis.

Pakistan's outdated grid infrastructure, technical inefficiencies adding with power theft has worsen the situation Pakistan faces 20-25% loss of energy in line losses. which reducing the efficient supply of energy for domestic and industrial use.

## 5. Underutilization of Indigenous resources.

Throughout history Pakistan has underutilized its natural indigenous resources. Rather it imports expensive fossil fuels.

Thar coal deposits are one of largest coal reservoirs. Pakistan has yet failed to utilize its Sui gas resources in Balochistan properly, much of energy is reportedly gets wasted, due to structural inefficiencies.

Moreover, rather than utilizing Balochistan's solar project regions or KPK and Sindh's wind projects, Pakistan heavily relies on fossil fuels adding into environmental problems due to emission.

## 6. Lack of investment in Renewable Energy.

Pakistan's even in 2025, yet to pay any heed to turn towards green house projects - only less than 5% of energy mix constitutes Renewable energy.

add proper source against your stats.

## 7. Population growth and urbanization.

Rise in population growth and frequent urbanization has led to more power consumption. Lack of structural reforms leading to

Urbanization is adding into already existent energy problems. More travelling, using of personal cars, adds to demand of energy also leads to environmental problems.

## 8 Mismanagement and corruption

Lots of misgovernance, inefficiencies in

project execution by DISCO's and GENCO's has only raised concerns of possible corruption and mass-level mismanagements. Even after public outrage, leading to renegotiation of contracts with IPPs no significant steps has been taken. Coupling it with over invoicing and capacity payments without verifying actual power supply calls for massive forensic audits. Despite receiving roadmap in 2012, to take proper initiatives to reduce energy losses, NEPRA has yet to take any effective steps.

### Solution : The path forward.

#### 1) Energy diversification.

There is an urgent need for Pakistan to shift towards renewable resources. Pakistan should aim to produce 30% of its energy from natural and renewable resources, as per its signed agreement "NDCs" under Paris climate agreement. Government should invest towards solar projects in Balochistan; Wind projects in North west of kpk and along coastal lines of Sindh.

#### 2) Circular Debt Management.

Pakistan should take strict measures towards financial accountability of concerned parties among rising circular debt despite making ongoing payments. Further steps towards automation of billing process, crackdown of defaulters, and target subsidies. It should also incorporate independent energy pricing mechanism.

references??

### 3. Revamping transmission and Distribution.

First and foremost, structural reforms that Pakistan has to take is upgrading national grid. So, that Pakistan can reduce its technical losses. Further improvements could involve deploying smart meters and most importantly curb energy theft.

### 4. Local Energy Production.

Pakistan has ample amount of natural resources it doesn't need to import expensive fossil fuels. Pakistan needs to improve its storage, excavating sites. It also must need to make sure smooth transmission of fuels to energy generating power plants.

### 5. Institutional Reforms.

Pakistan must merge streamline energy regulatory bodies such as NEPRA, OGRA, AEDB. This will ensure better governance and transparency.

### 6. Regional energy cooperation.

Pakistan must engage with electricity trade with Central Asia, i.e., Iran, China for seasonal production of energy under CASA-1000.

### 7. Consistent Policy framework.

~~Policy Shifts, frequently, makes energy crisis a lingering problem.~~

Frequent, ~~energy~~ Policy Shifts had made energy crisis even worsen situation. Thus there is urgent need for consistent

integrated policy framework, ideally for 10-20 years without political meddling - only then we will be able to overcome energy crisis.

## 8. Energy Economics and Public awareness.

Energy economics should be incorporated while, making any decision related to energy crisis. For this purpose, we would need to recruit economists. Thus, students should be taught at college or university level and provide proper training as they may contribute to fight of country to energy crisis. We also need to make public aware of how they can contribute to overcome energy crisis by transitioning to more environmental friendly structures.

## Conclusion: Towards Sustainable future.

Pakistan's energy crisis is more than technical problems. Socio-economic emergencies due to energy crisis hampers growth on all fronts. Investing in renewable resources, accountability and transparency in governance of energy sectors and thus, leading country to balanced capital account with less capital payments and looming circular debt. This coupled with stable monetary policy, can lead us to overcome energy crisis.

improve the references, paper presentation and the headings quality part