

# ENERGY CRISIS IN PAKISTAN

start with the summary of the answer as introduction.

## \* How the energy sector of Pakistan Operates

### - Hydrocarbon Consumption and Production

Pakistan consumed 588,000 barrels of oil per day in 2022-23, producing only 83,000 barrels locally while importing 500,000 barrels. Similarly, daily gas consumption was 1 billion cubic feet, with only 36% produced locally and the rest imported.

### - Hydrocarbon Suppliers and Distribution

PSO handles both imported and locally produced oil, distributing refined oil directly and sending crude oil to refineries, where only 36% is refined. Gas is supplied by Sui Southern (Sindh and Balochistan) and Sui Northern (Punjab, KP, AJK, CRB), while NTDC manages electricity transmission from generation to local grids. leave a line space between headings for neatness.

### - Energy Decision-Making and Electricity Production

NEPRA oversees electricity-related decisions, while OGRA regulates oil and gas matters. Major electricity producers include WAPDA (28-30% of total production), IPPs (oil, coal, gas, wind, solar based), and civil nuclear projects like K2, K3 (1100MW each) and Chashma (340 MW each).

### - Banking Sector's role in Energy

Banks provide financial support to oil and gas importers, Producers, transporters and electricity generators. They also fund large-scale energy projects initiated by the State Bank of Pakistan.

add and highlight references/examples against these arguments.

## \* Introduction

- Pakistan faces multiple crisis, including political instability, constitutional issues, security threats and economic challenges.
- One of the most severe crisis is the energy crisis, characterized by loadshedding and high electricity costs.
- The energy crisis negatively impacts industries, agriculture, markets, domestic life and the public sector.
- Urgent action is needed to mitigate its adverse affects on Pakistan's economy and society.

## \* Two Major Problems in Energy Sector

### 1. Loadshedding

#### Severe Power Shortages

Summer 2023: Shortfall exceeded 7,000 MW, leading to

Urban Areas (4-5 hours of loadshedding per day)

Rural Areas (10-12 hours per day)

Summer 2022: Shortfall over 10,000 MW

Urban Areas ( $\approx$  8 hours per day)

Rural Areas (16-18 hours per day)

2007 - 2016: Shortfall ranged between 5000-8000 MW

Urban Areas ( $\approx$  8 hours per day)

Rural Areas (Over 18 hours per day)

### - Reasons for loadshedding

Low bill recovery rates  $\rightarrow$  More loadshedding in areas with lower recovery.

State's inability to pay IPPs  $\rightarrow$  Reduced electricity generation.

Dollar Shortage  $\rightarrow$  limit. imports of oil, gas

are these notes or a question?

and coal for power production. e.g. In 2022, dollar reserves fell below \$ 8 billion, forcing import cuts.

## 2. Expensive Electricity Generation

- Pakistan has one of the highest electricity costs in Asia and the world.
- Current domestic electricity rates (2024)

1-100 units:  $\approx 28$  PKR per unit

100-300 units:  $\approx 44$  PKR per unit

300-600 units:  $\approx 56$  PKR per unit

Above 600 unit:  $72 +$  PKR per unit

- Commercial and industrial rates

$48 - 90 +$  PKR per unit

- Tripled electricity cost in two years

2022: 300-600 unit slabs cost 18 PKR per unit.

2024: Increased to 56 PKR per unit

- Reasons for High Electricity Costs

Over-reliance on imported HCs

60% of electricity generated using diesel, LNG and coal.

Fuel prices hiked (due to Ukraine war and sanctions on Russia).

Rupee depreciation increases import costs.

Example: 2021: \$1 billion oil import = 178 billion PKR

2024: \$1 billion oil import = 275+ billion PKR

Expensive agreements with IPPs

IPPs installed in 1994, 2005, 2011 and 2015.

Installed capacity: 42000 MW (as of June 2024)

Max Demand

Summer 2024: 26,000 MW

Winter 2024: 13,000 MW

Overcapacity issue: Govt must pay for unused

electricity.

Capacity Payments

FY 2023-24: 1.3 Trillion PKR paid to IPPs

Remaining dues: 2.6 Trillion PKR

Payments made in USD, further depleting dollar reserves.

IMF Loan Conditions (2022-2023)

Subsidy removal → Higher consumer bills

Fuel Prices hikes → Increased generation costs

PKR devaluation → Higher costs of imported fuel and IPP payments

Inefficiencies in Transmission and Distribution

Total Loss:  $\approx 33\%$

Transmission losses:  $\approx 17\%$  (Outdated infrastructure)

Distribution losses:  $\approx 16\%$

Electricity theft and unpaid bills

Pak ranks highest in South Asia for electricity theft.

Urban Theft: Industrialists and builders

Rural Theft: Farmers and Agriculturalists

Free electricity and unpaid bills  $\rightarrow$  Poor developments.

## \* Implications of Energy Crisis

### - Industrial Impact

Industry worst affected, over 200 industries shut down in last three years.

High electricity costs increased production expenses, making Pakistani exports uncompetitive against Bangladesh and India.

Decline in textile, leather and product exports.

### - Agricultural Setbacks

30% of agriculture relies on tube wells, mostly powered by electricity.

Load shedding disrupts irrigation, increasing agricultural production costs.

### - Balance of Payment Crisis

Higher production costs make Pakistani products less competitive.

Export decrease, while imports rise, putting pressure on dollar reserves.

Government relies on IMF and external loans to manage reserves.

### - Effect on Commercial Markets

Electricity prices tripled in recent years, increasing costs for shopkeepers.

Additional electricity costs passed on to consumers.

Load shedding forces reliance on generators, raising operational expenses.

### - Public Life Consequences

Deindustrialization leads to rising unemployment.

Declining purchasing power and reduced business earnings.

Electricity tariffs pose a major socio-economic challenge.

## \* Solutions

### 1. Renegotiate IPPs Agreements

Some agreements negotiated in 2020, reducing payments.

Major relief expected only after 2041 for IPPs installed in 2011 and 2045 for IPPs from 2015.

### 2. Develop Local and Cheaper Electricity Projects

Hydropower: Diamer Basha (4500 MW by 2029), Dasu (4300 MW by 2027), Mohmand (800 MW by 2025) etc.

Coal Energy: The coal projects (1320 MW + 4 projects of 320 MW each).

Renewables: 4500 MW wind, 10,000 MW solar, 10,000 MW nuclear by 2030.

Goal: Achieve zero dependency on imported hydrocarbons for electricity generation.

### 3. Upgrade Transmission Lines

Reduce losses by modernizing NTDC and local transmission networks.

### 4. Enforce Strict Law Against Electricity Theft.

Prevent electricity theft and ensure timely bill payments.

Stop unauthorized free electricity usage.

### 5. Privatize DISCOs.

K-Electric has reduced losses from 33% to 17%.

Privatization can improve efficiency, with the state acting as a regulator.

add more arguments.

end with conclusion.