

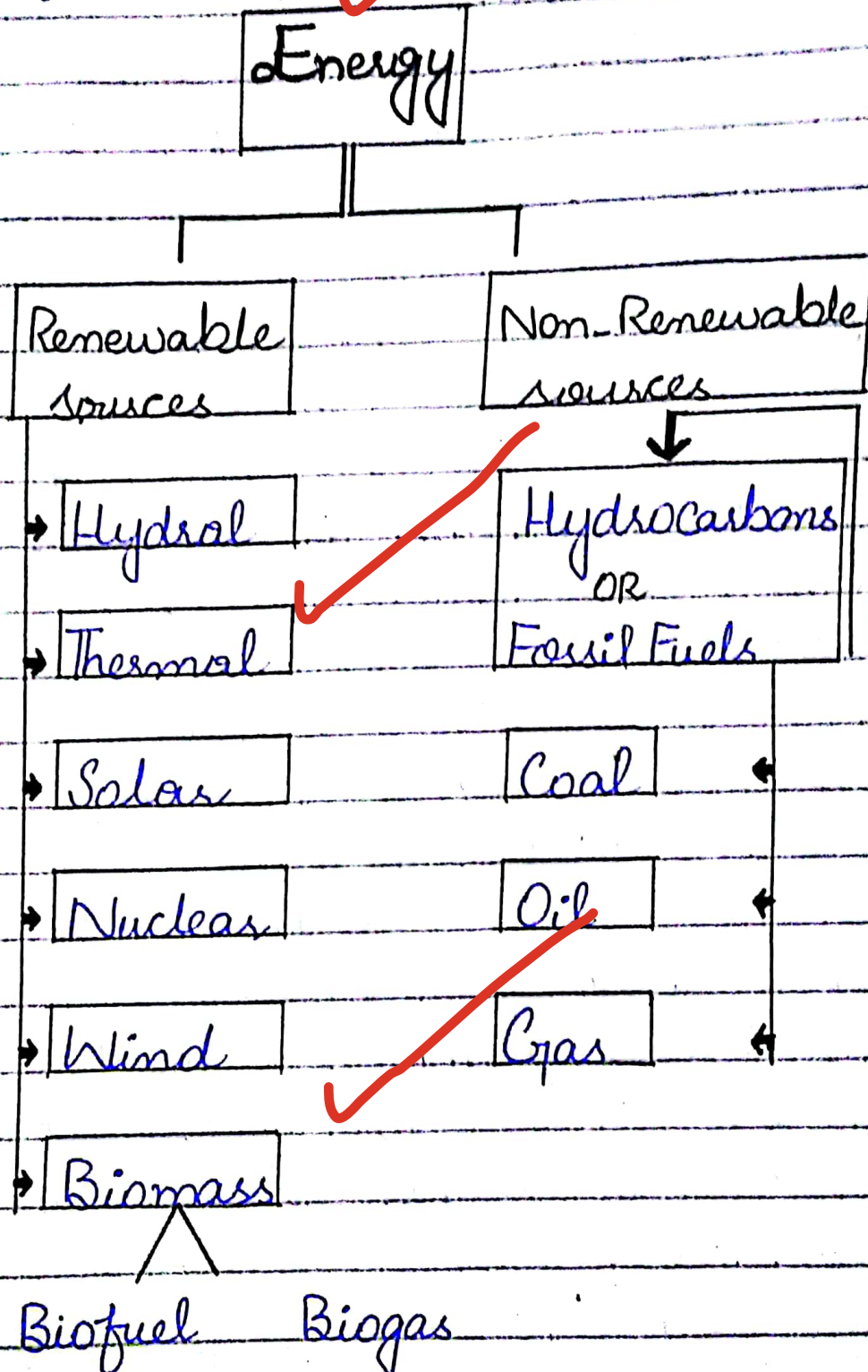
Energy Crisis in Pakistan: Causes, Ramifications, and Suggestions

Introduction:

Energy is the backbone of civilization and development of any country, but unfortunately, Pakistan's energy is in deep crisis. Energy sector of Pakistan is grappling with many problems like gap in demand and supply, lack of political will, poor policies, myopic agreements and reliance on imported fuel and much more. The crisis have many serious impacts on industries, agricultures and domestic aspects of daily life. Pakistan can overcome this problem by adopting holistic approach and make strong strategies to foster economy and make reliance on natural reserves of the

Energy Sources

Pakistan gets its energy from mixed sources. Mainly, Pakistan rely on non-renewable sources of energy.



Energy Sector:

The energy sector of Pakistan relies heavily on the primary sources of electricity and that is oil, gas and coal.

Oil Consumption:

Pakistan consumed approximately 588,000 barrels per day, and locally produced about 8300 and the remaining amount of about 500,000 imported locally.

(Survey-2023)

Gas Usage:

According to economic survey of 2023, Pakistan consumed about 3 billion cubic feet (bcf) and 4 bcf produced locally while the rest 6-8 bcf approximately were imported.

use marker for references.

Coal Production:

According to most recent survey, Pakistan's electricity installed capacity is 41268 MW.

out of which 13% generated from coal while 3% is the share of locally produced and 10% were imported coal. Additionally, Pakistan possess 185 billion tonnes of coal and out of which electricity will be generated for 200 years but it is process.

Energy Providers:

Importers: PSO, Attock companies, Hasecol Limited, etc.

Producers: OGDCL, POL, MOL

Hydrocarbon Distributors:

PSO is responsible for distributing oils to different sectors. All the importers and locally producers of oil handed over to PSO. If the oil is crude oil then it is sent to different refineries like Attock, Hub, Karachi refinery and there 36% oil could be refined and then distributed to various sectors like fuel pump, electricity producers and industries.

Gas is distributed by two sectors SSGC and SNGPL.

SSGC: Sui Southern deals with the areas of Sindh and Balochistan.

SNGPL: Sui Northern deals with the areas of KPK, Punjab and AJK.

Electricity is distributed by NTDC (National Transmission and Dispatch Company) supply electricity to the generator to local grid.

DISCOs (Distribution companies) supply electricity from the local grid to the root level consumers.

Major Electricity Producers:

WAPDA generating almost 28-30% of electricity.

IPPs Independent Power Producers generate electricity from sources like coal, oil, gas, solar, wind.

Civil Nuclear Projects: Almost 2200 MW from (K₂, K₃) and about 360 MW from each of (C₁, 2, 3, 4).

Causes of Energy Crisis:

- Agreements with IPPs
- Power Theft
- Reliance on Imported fuel
- Outdated Infrastructure
- IMF Conditionalities
- Circular Debt, etc

Agreements with IPPs:

Expensive and myopic agreements with IPPs locked Pakistan paying for installed capacity actual, than the usage payment. Independent Power Producers got installed during 1990s, 2002, 2005, 2011, 2015 to balance demand-supply gap during the CPEC project.

Poor policies of increased demand of electricity for a new industrial zone results in the shape of heavy payments made to IPPs in the form of 'Take or Pay'. Unutilization of electricity caused

increased instal capacity and payments have to be made in dollars which results in the decline of dollar reserves of Pakistan.

Power Theft:

Power theft is a damaging process of tempering meter reading during using a pattern of 'Kunda system'. In South Asia, Pakistan is on the top of list for electricity theft.

Foreign Energy Minister

Awais Leghari stated:

Power theft doesn't belongs to any geographical territory or province but it extends all across the country. Electricity theft amounts to Rs 600bn in a year is quite revealing. In this situation DISCOs imposed 'forced load-shedding' for the recovery of bills and to minimize power theft and penalize electricity thieves.

Reliance on Imported fuels:

Pakistan heavily relies on imported fossil fuels like Oil, gas and coal.

Pakistan generated almost 60% of its electricity from Hydrocarbons.

Pakistan is the 3rd largest country in the globe for producing expensive energy. Dependence on imported fuel puts the country at risk of economic instability due to fluctuation in fuel prices especially during war in Ukraine and sanctions on Russia. All the HC has been purchased in dollars which devalue Pakistan rupee.

Outdated Infrastructure:

Pakistan's electricity transmission and distribution infrastructure is outdated, unreliable and results in energy line losses. Many Private and Public power plants built in 19^{'s} and are inefficient and even sited which causes loss of 20-25pc in energy generation and performance is as low as 30pc.

Circular Debt:

Circular Debt is the major cause of energy crisis which badly affects consumers and investors. Circular debt rooted in 1990s when poor policies of generation made and as a result Pakistan's energy sector debt is about **Rs 5.422 trillion**. Households and industries have extra charges on units like **Rs 3.32** per (kWh) to just mark up payments.

Media's Muted Voice:

less role of media and its muted voice over the major issue of energy crisis also contributing to country's problem. Mainstream media does not providing productive discussions and raising awareness to the masses that how to save energy and consume less. **Lumen Learning claims** that media concentration on few issues leads the people to perceive that there are important problems other than theirs.

Impacts of Energy Crisis

- Industrial downfall
- Agricultural impacts
- Social impacts
- Domestic impacts
- Political Instability
- Environmental Degradation, etc

Industrial Downfall:

High prices of electricity and power shortage worsely effects the industrial sector of Pakistan. As Textile industry is the oxygen of Pakistan's economy facing downfall because of insufficient electricity and not competing in the international markets as compared to Bangladesh and India. Export from textile industry worths 16 billion dollar annually, but due to expensive energy almost 200 industries have been shut down since last three years. While the industries of steel, cement, leather and sports goods production also included.

Agricultural impacts:

Agriculture sector is the backbone of country's economy. More than 30% of agriculture depends on tube wells which are worsely hit due to power shortage. The price of agricultural products also increases as the increase in the price of electricity. Survey of 2022 stated that 'price of Urea increases three times within two years as the increase in power prices'.

Social Impacts:

Energy crisis has led to social unrest in the citizens. High unemployment due to downfall of industries and increasing poverty leads to increased crime rate in the form of power theft which is the result of price hikes. Inflated prices of bills also leads to suicide for the poor ones. The strike of high prices badly effects mental health of citizens.

Domestic Impacts:

Energy crisis effected lower middle class mainly through the increase in per unit which shows a burden and destabilize their monthly budget. Load shedding also effecting their livelihoods like in Summer (2023) there is a shortfall of **7000 MW** and sever load shedding is seen in the urban areas for 4-8 hours and in rural areas for 11-12 hours. Blackouts also effecting daily routine of consumers.

Political Instability:

Crisis in any form makes political situation instable. Wrong policies of Ministeries like Ishaq Dar control dollar artificially caused setbacks to energy and other issues.

Masses raises questions on the government for making heavy agreements and protesting against government for not providing electricity even for households.

Environmental Degradation:

The natural environment of Pakistan has been polluted by using fossil fuels. Heavy reliance on hydrocarbons causes huge amount of carbon emission gases which contributing to air pollution and health issues.

According to Bioenergy research, Using solid fuels heating releases pollutants, including dioxins, which damage lungs and exacerbate asthma.

Solutions:

- Re-negotiating with IPPs
- Utilizing Natural Reserves
- Building Power Plants
- Energy sector reforms
- Using modern Technology, etc.

Renegotiating agreements:

Agreements related to heavy capacity payments should be renegotiated which reduces 40% problems related to

Circular debt and decline in foreign reserves. An agreement in the form of **Take and Pay** should be made.

Utilizing Natural Reserves:

Utilizing un-tapped natural reserves of energy generation sources like solar energy, wind, geo thermal. Use of **Renewable** energy sources should be encouraged to stable Pakistan's economy.

Updating Infrastructure:

Updating transmission lines and power sector buildings. New technology should be introduced for smooth transmission which prevent line losses and as a result loss of electricity would as much as low.

Conclusion:

Pakistan is facing a problem in the form of energy crisis but

this problem is not new for Pakistan, many developing countries are facing same problem. Pakistan has much installed capacity and many untapped fuels for power generation. Pakistan just need to make efficient energy reform to stable its economy. Furthermore it is also the responsibility of individuals to consume less energy and pay bills accordingly for reducing circular debt.

attempt and upload proper questions for evaluation; not notes.

