

ENERGY CRISIS IN PAKISTAN.

Q. 2019 (Pak. Affairs)
Q. What are the main causes of the energy crisis in Pakistan? What measures do you suggest to address it?

INTRODUCTION.

Pakistan has been facing multiple & serious challenges like (Political ^x stability), political instability, constitutional crisis, security threats and unprecedented economic crisis etc. Energy crisis is one of the major crisis faced by the country today. Public is facing load shedding & skyrocketing ^{eg} pricing of electricity bills. Energy shortfall has far reaching negative implications on industries, agriculture, markets, domestic life etc. It is the need of hour to overcome these negative implications on the national life of Pakistan.

MAIN CAUSES OF ENERGY CRISIS IN PAKISTAN.

Following are the ^{main} causes behind energy crisis in Pakistan.

1) Long and unscheduled loadshedding is serious problem in Urban & rural areas of Pakistan.

For instance in Summer 2023, the electricity / power shortfall was above 7,000 MW.

- In Urban areas, the loadshedding was about 4-5 hours per day, while in Rural areas 10-12 hours per day.

- In Summer 2022, the shortfall was more than ~~10~~ 10,000 MW, while loadshedding in Urban areas was about 8 hours per day, while in rural areas it was 16-18 hours per day.

Reasons

① Less Recovery.

Those areas of Pakistan where the bill recovery is less there is more power outages. For instance, in KPK, after the merging of FATA, PESCO (Peshawar Electric Supply company) is facing less recovery problem.

② Pending Bills.

The government of Pakistan is unable to pay pending bills of

IPPs — Independent Power Producers.

- For The Government of Pakistan pays to the IPPs and they produce power which is distributed through National dispatch company. As the government is unable to pay them on time b/c of dollar shortage hence they are producing less power. Moreover, most of the electricity in Pakistan is produced through hydrocarbons.

- As the ^{PKR} supply ~~value~~ is devalued against dollar & IPPs are to be paid in Dollar. ~~For the electri~~

- Oil is not produced in the country & we have to import oil & gas.

3) ~~Expensive electricity generation in Pakistan.~~

- Eg In 2022, total dollar reserves fallen down to less than 8 Billion Dollars & the state faced with the corrupt to default.

Therefore, government decided to protect dollar by cutting down the import of oil, gas & coal. so, the IPPs did not get the required oil gas & coal to generate electricity.

2) Expensive Electric generation as a major problem of Pakistan.

- Acc, to ~~Ex~~ Former PM of Pakistan, Pakistan as a country generate most expensive electricity in Asia, & 3rd most expensive electricity generated in the world.
- Acc, to Current PM, 2024, "Pakistan generates the most expensive electricity in the world."
- The per unit cost for domestic users in Pakistan is 24 to 65 PKRs, and for commercial purpose consumers is 48 to 112 PKRs per unit including all taxes.

Price per unit decided on basis of SLABS being introduced by NEPRA.

The price of per unit decided on the basis of SLABS being introduced by NEPRA are,

- Below 100 units (1-100 units) the cost is almost 28 PKR including all the taxes & other charges

- From 100-300 unit slab price is 44 PKR per unit including all the taxes & other charges.
- From 300-600 unit slab the cost is about 56 PKR per unit.
- Above 600 units the minimum price unit is 72 PKR.

→ In commercial (markets, industry, agriculture), it varies from 48 to 90+ PKRs per unit cost.

→ The cost of domestic unit of slab 300-600 units, 18 PKR in 2022, now the price rises more than 56 PKR.

Reasons of expensive electricity in Pakistan.

(i) Pakistan generates more than 60% electricity through Hydrocarbons (HC).

• 12000 MW electricity units are installed capacity of diesel, more than 7000 MW of LNG, around 9000 MW of

coal.

- Diesel is most expensive; LNG is the second most & 3rd the coal.
- ↳ Almost all the HC being consumed for production of electricity are imported.
- All the diesel, LNG, petrol & majority of coal is being imported.
- ~~The prices of HC~~
- Ukraine war & sanctions on Russia caused fuel prices to soar.

Because the conflict b/w Ukraine & Russia has caused the fuel prices high, & endangered supply chain, and is making it challenging for Pakistan to support the effective operation of its power plants.

- In order to make more profit, European markets, LNG companies have broken their agreements with Pakistan.

For Example.

- Gunvor and Pak. signed a 5-year contract in 2017 for 0.78 mtpa per year 12 LNG cargoes per year

but was unable to deliver 4 contracted cargoes in April-June 2022 to Pakistan.

② Expensive agreements with IPP (Independent Power Producers)

- IPPs produce electricity from hydrocarbons.
- In Pakistan, IPP was first installed in 1994 b/c of high demand & less generation capacity in Pakistan. Initially, it was meant to ~~ensure~~ minimize dependency on oil & shift to ~~dependency~~ on LNG & coal.
- These IPP were installed in 1994, 2005, 2011 & 2015. (1994, 2005, 2011 were installed b/c the generation capacity was less & the demand was more, while in 2015 IPPs were installed in order to minimize dependency on oil & shift to LNG & coal.

- ~~Result~~ In result, installed capacity increased while the demand is less.

- As per Economic Survey of Pakistan, June 2024, install capacity is 42,000 MW. The installed capacity of hydrocarbons is about 28,000 MW.

Problem

- The increase in demand, the more IPPs got installed.
- ↳ The first & major reasons for expensive electricity is the

- capacity payments made to IPPs. The demand in the summer increases while in winter it reduces to about 40%, now government has to purchase these 40%.

For Instance

In the year **FY 2023-24**, Pakistan paid 1.3 Trillion PKR to IPPs under capacity payments but much higher price is yet to be explained.

③ The Conditionality of IMF results in making electricity more expensive.

In Oct 2022, the Agreement with IMF renegotiated.

- In March 2023, it renegotiated again.

1) IMF conditioned the provision of loan to Pakistan with the increase in per unit price of electricity. To do that subsidies should be waved off.

2) Secondly, the fuel & prices would be increased in Pakistan more than 60% of electricity is produced by fuel.

3) Thirdly, make rupee devalue. The devaluation of PKR resulted

in further increase in prices of electricity.

Hydrocarbon is purchased in dollar, secondly IPP are also paid in dollars whereas the rupee devalued against dollars.

Resultantly the unprecedentedly price hike of electricity in Pakistan

4) ~~etc~~ Problems with the electricity distribution & transmission system results in loadshedding & expensive electricity. The total loss in distribution & transmission is about 33%.

The reason is that transmission line of Pakistan is seriously outdated. Because of more resistance the line loss in Pakistan is highest in Asia, which is 17%.

- The line loss in
 - China is 3%.
 - India & Bangladesh 9%.
 - Afghanistan 12%.
- This loss is to be borne by the state & the consumer.

→ The distribution system faces 16% loss in electricity sector, major reason is electricity theft, in Asia, Pakistan is on top in

this regard. The examples are

- Konda system
- Tempering with the meter reading etc.

↳ It is mostly common in Urban centers like Karachi, mostly done by industries & builders. In rural areas, agriculturists are the main thieves.

- Furthermore, non-payment of bills by government departments & those departments in which electricity is either free or subsidized are responsible for the loss.

OTHER REASONS.

① Political Instability
Because of everchanging leadership & political turmoil, & their unwillingness to address the situation has further aggravated the situation.

- Governments, political parties & other interest groups continue to interfere with business decisions like employing and disconnecting defaulters customers.

2) Inconsistent Energy Policies.

Although the government of Pakistan from time to time has taken good initiatives to improve the energy crisis in Pakistan, such as National Power Policy 2013 —

the aim was to develop a effective power production, transmission & distribution system.

National Power Generation Policy 2015 —

the aim was to use domestic resources to produce cheap power by engaging all the parties in the trade & protecting the environment.

Alternative & Renewable Energy Policy 2019 —

The main objective was to support national development of renewable resources.

- But b/c of the changing governments, there was an absence of coordination among the departments & thus integrated energy policy couldn't be implemented.

IMPLICATIONS OF ENERGY CRISIS ON FOR PAKISTAN.

① Disruption of Industrial operations.

The price of the product depends upon; raw material, transportation cost, labor rates & the price of electricity.

- It is the duty of state to provide non-stop supply of electricity.

- As the generation cost has increased three times, as a result the production cost has also increased.

- Pakistan's products are unable to compete in international market unlike Bangladesh & India, where cost of electricity is far more less.

- Hence, Due to energy crisis, textile, leather & sugar & sports industries are the worst hit.

More than 200 industries closed in Pakistan since last 3 years.

⇒ Acc. to **Qasim Malik** - vice president of chamber of commerce in Sialkot
"the textile sector is in a situation of emergency."

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2) Setback for Agriculture.

More than 30% of Agriculture in Pakistan is based on tube wells & digwells, which run on electricity.

- B/c of loadshedding / power outages, agriculture is ~~to~~ adversely affected. B/c of increase in electricity price, the cost of agricultural products has also risen.

3) Increase in Balance of Payment crisis.

As the Pakistani products are more expensive b/c of expensive electricity, now they are unable to compete in Int. market.

- The exports have been declined, while imports have been increased.
- which is lowering the dollar reserves & government has to depend on IMF loans & other sources.

4) Effects on domestic life.

In a lower middle class family, most of the salary is consumed in

paying electricity bills that's why the domestic life of poor class is adversely impacted.

- Moreover, unscheduled & repeated power outages has affected domestic life, especially of students.

5) Commercial Mauret / Inflation / Skyrocketing in Inflation

As the cost of the production of industrial goods has increased three times in the past few years. The shopkeepers have to pay heavy bills of electricity, they are shifting their burden to the consumers by skyrocketing price hike.

- Moreover, use of generators by the shopkeepers have further escalated the crisis.

6) ^{creation} ~~Imp~~ Effects on jobs & increase in unemployment.

Energy crisis has adversely impacted employment & job creation in Pakistan.

- Industries are unable to expand their operations or higher additional

workforce. Because of uncertainty & operational challenges, due to power shortages, there is no new investment in the country, the local businesses are suffering losses. Job opportunities have become limited. Furthermore, the downsizing in the industries & companies is creating unemployment.

7) Environmental Degradation.

Too much reliance on the fossil fuels like oil, gas and coal, for electricity generation is contributing in the air pollution & environmental degradation.

- Harmful gases such as Nitrogen oxide, Sulphur oxides & Greenhouse gases etc, are degrading the air quality & passing health risks to the population.
- Lung diseases have increased many folds.

WAY FORWARD

1) Renegotiation of IPPs agreements.

The agreements signed in 1994 & 2005 should have been negotiated long time

ago, but unfortunately it is delayed.

- Until 2020, when these agreements were renegotiated & local IPPs were paid off in PKR, there was no capacity payments.
- It was a positive step, but ~~due to~~ it has solved the problem only by 40%.

2) Install local & cheaper electricity projects.

Energy Policy 2030, focuses on the installation of local and cheaper electricity projects. A massive wave of transformation into alternative & renewable energy from conventional energy production methods by the year 2030 is underway. Denmark is one of the unique countries that have taken itself to highly ambitious target of shifting to 100% renewable energy resources by the year 2050. The construction of Diamer Bhasha Dam, Daska, Mumand dam, etc. will further ^{improve} ~~improve~~ the situation. The objective of Pakistan is to achieve zero percent of dependency on imported hydrocarbons for electricity generation by 2030.

3) up dation of transmission lines.
Though it is costly but Pakistan badly need to update the transmission lines. Furthermore the changes in the local transmission & broader network of NTDC - National Transmission Dispatch, can be beneficial. It can reduce line losses.

4) Controlling electricity theft.
The writ of the Government should be improved & intact in order to control electricity thefts, more of the department should be free to pay bill.

5) Privatization of DISCOs, K-Electric Supply Corporation.

The privatization can improve the situation as government owned distribution company is mostly at loss. State should play the role of regulator. It is not government's business to run the business.

(6) Diverse Biomass Resources.

Pakistan is endowed / gifted with diverse biomass resources derived from agricultural activities, ~~the~~ livestock farming, forestry residues, agricultural residues, organic waste from industries & households etc.

- Bioenergy conversion techniques like

combustion, gasification & anaerobic digestion etc should be utilised to get fruitful results.

(6) Synergizing wind energy with solar energy.

By synergizing wind energy projects with solar ^{power} ~~energy~~ generation, we can optimize renewable energy.

CASE STUDY OF BRAZIL'S BIOENERGY & HYDROPOWER STRATEGY : LESSONS FOR PAKISTAN.

Brazil faced severe energy shortages in 1970s & responded by developing a diverse & sustainable energy mix.

Today, over 80% of Brazil's electricity comes from renewable sources, primarily hydropower & bioenergy (ethanol from sugarcane).

Key Policies & Features of Brazil's Strategy

①

Investment in Hydropower.

Brazil used its vast river-systems to

- build large & small-scale hydroelectric dams
- 2) **Ethanol Fuel Program (Proalcool)**
 Launched in 1975, this policy supported ethanol production from sugarcane to reduce oil dependency.
 • Today, most vehicles in Brazil run on flex-fuel (ethanol or gasoline).
 - 3) **Energy Security Strategy.**
 Focused on reducing fossil fuel imports & increasing local energy production.
 - 4) **Government Support & Private Sector Involvement**
 Government provided financial & regulatory support while private companies played a major role in implementation.
 - 5) **Technology & Research Investment**
 Brazil developed expertise in sugarcane ethanol, making it a world leader in biofuels.

Lessons for Pakistan.

- ① **Diversifying Energy Sources**
Brazil — Balanced hydropower with bioenergy.
Pak — can combine its hydropower potential (especially in the north) with solar, wind & possible biomass (from agriculture).
- ② **Using Agriculture for Energy**
Brazil — Turned sugarcane into fuel
Pak — Can explore biogas from

livestock waste, crop residue for biomass energy, & even small-scale ethanol if policy allows.

3) Energy Independence Focus

Reduce reliance on imported oil & LNG by shifting to domestic renewable sources.

4) Public - Private Collaboration

Encourage local industries to participate in clean energy production, like sugar mills producing their own power or ethanol.

CRITICAL ANALYSIS.

The energy crisis adversely affects global socio-economic future.

Energy is considered to be the jugular vein of progressing society in a country.

- For the past two decades, Pak. is facing grave energy crisis that has derailed its economy.

- Foreign investors are reluctant to invest in Pakistan which is causing unemployment, inflation & poverty.

CONCLUSION.

Due to energy crisis, Pakistan is facing acute power outages and expensive generation of electricity. There is less recovery of the bills, and lots of transmission & distribution losses.

- Major causes of energy crisis in Pak. are too much reliance on hydro-carbure for power generation, oil & gas price hike due to Ukraine-Russia conflict, expensive agreements signed with IPPs, IMF loans & circular debt. Furthermore, political instability, inconsistent energy policies are the major factors in aggravating the situation.

- Almost every walk of life has been adversely affected due to energy crisis such as; disruption of industrial operations, setback for agriculture, increase in balance of payment, bad effects on domestic life, environmental degradation, inflation skyrocketing, soaring unemployment etc.

- As God has not created a disease without a treatment. In the

same way there is no problem in the world which is irresolvable. If we have political will, the energy crisis issue can be resolved by taking some crucial steps such as; renegotiation of IPP agreements, installation of local & cheaper electricity projects, updation of transmission lines etc.

- Pakistan can learn lessons from ~~the~~ ~~&~~ ~~from~~ those countries which have succeeded in overcoming energy crisis like Brazil.