Energy crises in Pakistan.

(2019 Pak Affairs).

Q: What are the main causes of energy crises in Pakistan? What measures do you suggest to adress it?

Introduction:

Pakistan has been facing multiple & serious challenges like political instability, constitutional crises, Security Threats & unpretended economic crises, etc. Energy crises is one of the main crises faced by the country today. Public is facing load shedding & sky rocketing prices of electricity bills. Energy shortfall has far reaching negative implications industries, agriculture makets domestic life etc. It is the need of hour to overcome these negative implications on the natinal life of Pakistan.

Main Energy crises in Pakistan:

Following are the main energy crises in Pakistan.

(Main Energy crises in Pakistan.)

- Long & unscheduled load shedding is several Problem in Urban & rural area of Pakistan.
- For Instance in summer 2023, the electricity / Power shortfall was above 7000 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 the 10,000 MW, while loadshedding in Urban areas was about 8 hours per day, while in rural area it was 16-18 hours per day.

Causes:

Reasons:

no need to include paras in notes; use bullets and phrases

(1) Less Recovery:

- Those area 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 gov of Pakistan is unable to pay pending bills of IPPs – (Independent Power Producers)

- The government of Pakistan pays to the IPPs & they produce power which is distributed through National dispatch company. As the gov 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 Pakistani Rupee (Rs. PKR) is devalued against dollars. & IPP are to be paid in Dollar.
- Oil is not produced in country & we have to import oil & gas.

Eg: source

In 2022, total dollar reserved fallen down to less then 3 billion Dollar & 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.

According to former PM of Pakistan, Pakistan as a country generate most expensive electricity in Asia, & 3rd most expensive electricity generate in the world.

According to current PM, 2024, "Pakistan generated the most expensive electricity in the world.

The per ~~we~~ unit cost for domestic user in Pakistan is 24 to 65 PKRs. & for commercial consumers is 48 to 112 PKr. per unit including all taxes.

Price per unit decided on the 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 taxes & other charges.
- From 100-300 units slab price is 44 PKR per unit including all the taxes & other charges.
- From 300-600 units slab the cost is about 56 PKR per unit.
- Above 600 unit 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 then 56 PKr.

Reasons of expensive electricity in Pakistan.

(1) Pakistan generates more then 60% electricity through Hydrocarbons (HC).

1200 MW electricity units are installed capacity of diesels. more then 7000 MW of LNG,

around 9000 MW of coal.

- Diesel is most expensive, LNG is the second most & 3rd the coal.

Almost all the Hydrocarbons (HC) being consumed for production of electricity are imported.

- All the diesels & LNG, Petrol, & majority of coal is being imported.
- Ukraine was & sanctions on Russia caused fuel prices to soar.

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

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

Eg: Govnor & PNK signed a 5-year contract in 2017 for 12 LNG Cargoes per year.

But was unable to deliver 4 contracted cargoes in April - June 2022 to Pakistan,

(3) Expensive agreements with IPP (Independent Power Producers)

- 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.

- In result, installed capacity increased while the demand is less.
- As per Economic Survey of Pakistan June 2024. Installed capacity of hydrocarbons is about 28,000 MW.

Problem :

- The increased in demand, the more IPPs got installed.
The first & major reason 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 gov has to purchase the 40%.

keep the description of a single argument brief

For Instance:

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

③ The conditionalities of IMF & results in making electricity more expensive.

- In Oct 2022, the Agreement with IMF renegotiate.
- In March 2023, it renegotiate again.

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

- Secondly the fuel prices would be increased in Pakistan more than 60% of electricity is produced by fuel.
- Thirdly more 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 dollar, whereas the rupee devalued against dollars. Resultantly the unprecedenly price hike of electricity in Pakistan.

4) Problem with the electricity distribution of - transmissin system results in load sheddiy & expensive electricity.

The Total loss in distributin & transmissin is about 33%.
The reason is that transmissin line of Pakistan is seriously outdated. Because of more resistance the line loss in Pakistan is highest in Asia, which is 17%.

- The line lost in
  - → China is 3%.
  - → India & Bangladesh 9%.
  - → Afghanistan 12%.

This loss is to be bore by the state & the consumers.

→ The distribution system faces 16% loss in electricity sector.

major reason is electricity theft, in Asia, Bangladesh is on top in this regard the examples are

- Kunda system.
- Tampering with meters reading etc.

It is mostly common in Urban center like Karachi, mostly done by industries & builders. In rural areas agriculturists are the main ~~cause~~ theives.

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

Other Reasons.

① Political Instability & Because of ~~to~~ everchanging leadership, political turmoil, & their unwillingness to address the situation

- Goverment, politicw parties & other interest groups continue to interfere with business decissions like employing & disconnecting defaulter customers.

(2) Inconsistent Energy Policies.
Although the government of Pakistan from time to time has taken good initiative to improve the energy crises in Pakistan from time to time has taken good initiatives to improve the energy crises in Pakistan such as → National Power Policy 2013 the aim was to develop effective power production, transmission & distribution system.

→ Power Generation Policy 2015 - The aim was to use domestic resource 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 govts. their was absence of coordination among the depart thus integrated energy policy couldn't implemented

Implications of Energy crises on Pakistan:

① Disruption of Industrial operations
The price of the product depend upon; raw material, transportation cost, labor rates & the price of electricity.

- It is the duty of state to provide non-stop of electricity.
- As the Generation cost has increased three-times, As a result the production cost has also increased.
- Pakistan products are unable to compete in the International markets unlike Bangladesh & India where cost of electricity is far more less.

- Hence due to energy crises, Textile, leather & sports industries are the worst hit.
More than 200 industries closed in Pakistan since last 3 yrs.

According to Qaim Malik - vice presidt of chamber of commerce in Sialkot. the textile sector is in a situation of emergency.

2 Setback for Agriculture:
More than 30% of Agriculture of Pakistan is based on tube wells. & diswells, which run on electricity.
- B/c of load shedding Power outrages, agriculture is adversly 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 Cmpete in Int. market.

- The exports have been declined, while imports have been increased,
- which is lowering the dollar reserves & gov 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 thats why the domestic life of poor class adversely inpacted.

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

⑤. Commercial Markets / Inflation/

Skyrocketing in Inflation-

As cost of production of Industrial

goods have 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 crises.

6) Effect on Jobs creation increases in unemployment:

Energy crises has adversly impaired employment & job creation in Pakistan.

- Industries are unable to expand their operations & hire higher additional workforce. Because of uncertainity & operational challenges due to power shortages, there is no new investment in the country the local business are suffering losses. Job opportunities have become limited. Furthermore the down sizing in the industries & companies are creating unemployment.

(7) Environmental Degradation:

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

- Harmful gases such as Nitrogen oxide, Sulphur oxide & green house gasses etc, are degrading the air quality & posing health risks to the population.
- Lungs 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 where renegotiated & local IPPs were paid off in PKR, there was no capacity payments
- It was a positive step, but 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 or 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 targets of shifting to 100%

renewable resources by the year 2050. The construction of Diemar Bhasha dam, Dasu Dam and Mohmand dam etc will further improve the situation. The objective of Pakistan is to achieve zero percent of dependency on important hydrocarbons for electricity generation by 2030.

③ Updation of transmission lines:
Though it is costly but Pakistan badly needs to update the transmission lines. further more the changes in the local transmission or broadee network NTDC — National Transmission Dispatch can be benificial. It can reduce time losses.

④ Controlling electricity theft:
The writ of the government should be improved or intact inorder to control electricity theft. None of the department should be free to pay bill

(5) Poivatization, k-Electric Supply corporation:-
The poivatization can impoove the situation. as government owned distribution company is mostly at loss. State should play the role of regulator. It is not governments business to run the bussiness.

(6) Diverse Biomass Resources:
Pakistan is endowed / gifted with diverse biomass resources derived from agricultural activities livestock farming, forestry residues, agricultural residues, organic waste from industries or houshalds etc
- Bioenergy conversion techniques like Combustion, gasification or anaerobic digestion etc Should be utilized to get fruitful results.

(7) Synergizing wind energy with Solar energy:
By Synergizing wind energy projects with Solar power generation, we can optimize renewable energy

Casestudy of Brazil's Bio-energy or Hydropower Strategy : Lessons for Pakistan.

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

- Today over 80% of Brazil's electricity comes from renewable sources, primarily hydropower or bio-energy (ethanol from sugarcane).

key policies or features of Brazil's strategy.

① Investment in Hydropower: Brazil used it's vast river system to build large or 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 fosil fuels imports increasing local energy production

④ Government Support or Private Sector involvement:
Government provided financial regulatory support while private companies played a major role in implementation.

⑤ Technology or Research investment
Brazil developed expertise in sugarcane ethanol, making it a world leader in bio-fuels

Lessons for Pakistan:

① Diversifying Energy Sources
Brazil — Balanced hydropower with bioenergy
Pakistan — can combine its hydropower potential (especially in the north) with solar, wind or possible bio-mass (from agriculture)

② Using Agriculture for energy:-

Brazil- Turned Sugarcane int fuel.

Pakistan- can explore biogas from livestock waste, crop reside for biomass energy. ✓

these are very lengthy notes for a single topic. shorten them

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