

# Energy

C.A.:

Q: Write about energy crisis in Pakistan? Its impact and steps needed for remedial measures? also the causes?

## Introduction:

The growing menace of electricity and gas loadshedding, combined with constantly raising electricity and gas tariffs has mushroomed into a grave national crisis. It is not only affecting trade and industry, development and construction, education and administration gravely, but also has seriously impeded the progress of the whole national life in spite of higher authority's claim of narrowing the gap b/w energy demand and supply. The ground situation is showing discouraging picture. The power short fall has crossed the figure. Immediate remedial measures are lunched on footing of not happened Pakistan would lead to deeper crisis.

## Causes of Energy Short Fall

① failure of the last regime to increase electricity. It is also one of the main cause of energy crisis in our country.

② under utilization of the existing generating capacity.

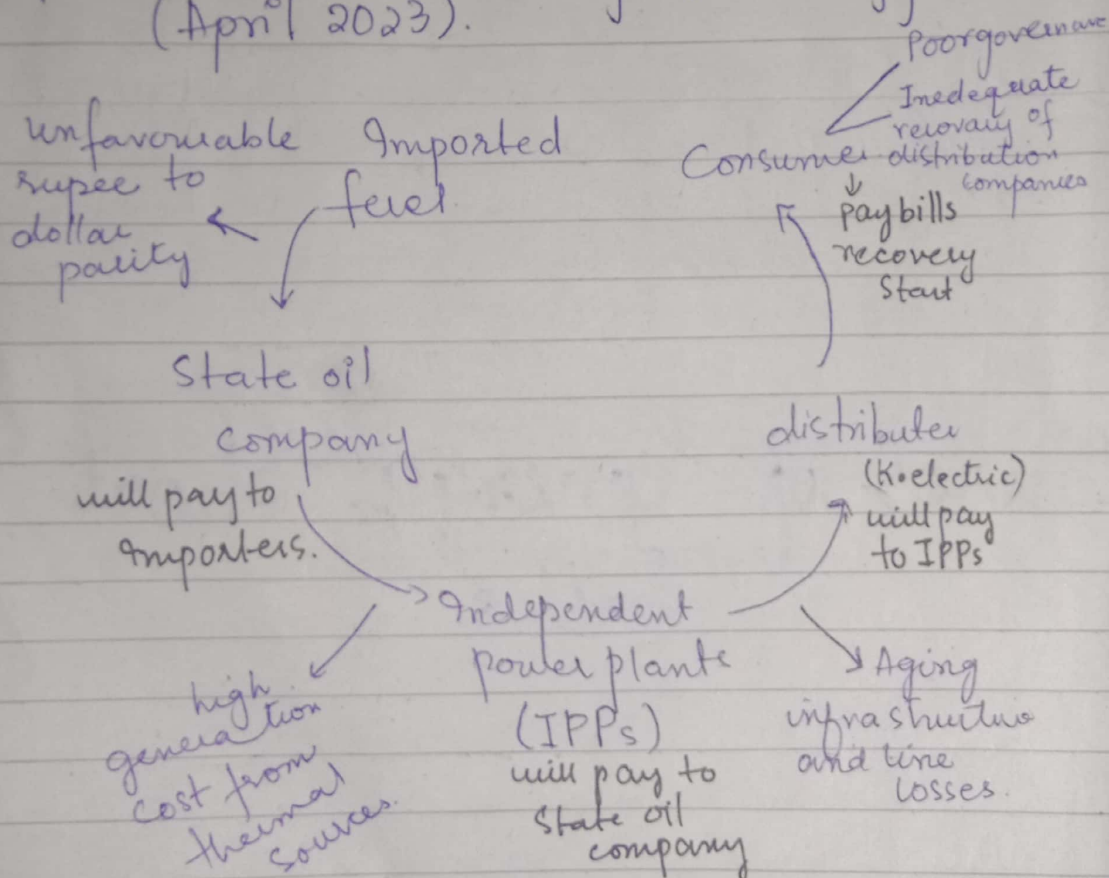
is elect. Hydro the availability of hydel electricity goes down in winter by 63%. but unfortunately, the actual generation

Tedious  
Write and add chart

of electricity from thermal plant has also declined sharply. Thus raising demand and supply gap to around 5000 MW.

### ③ Circular debts:

The average per month increase in circular debt during the July-Feb period of FY 2022-23 was a colossal Rs 52.4bn according to sources in the Ministry of finance and Ministry of Energy (April 2023).



In 2007, Government did not compensate the power companies for the subsidy that was being provided to the consumers. Power companies in

turn could be able to pay the oil and gas companies reducing their liquidity to import the furnace oil and that was needed to generate electricity. This problem not only continued but presently, it has turned grave crisis. Presently, the power company is in debt of about 100 billion rupees to the oil and gas companies. Therefore, oil and gas companies provide insufficient oil and gas to the power companies. that has resulted in energy short fall.

## Other Factors :

These are the chronic factors that contribute to the present crisis are as under:

### ① Line losses:

heavily line loss in the transmission and distribution because of old and poorly managed transmission system which is out dated as installed in 1970 to 1980s and already exhausted their lifetime and already expired but we

### ② Large Scale theft of electricity: all still using them

there is a large difference b/w units generated or purchased than those paid for due to electricity theft by Kunda System which can be observed in interior Sindh and Balochistan. Meter reading is tampered inclusion with WAPDA employees. Mostly Hydro

done by landlords, industrialist and common consumers.

### ③ Wastage of electricity by Industrial Sector.

There is a huge wastage of energy by industry which consumes 30% of the total electricity due to the less efficient system and other practices. (28.2%)

### ④ Over use of energy by transport sector

Transport sector consumes 28% of total energy. This over use of energy is due to the old and poorly turned engines.

### ⑤ Domestic and General Wastage.

Domestic wastage is about 46.6% and of the total electricity produced. Wasteful and unnecessarily use of lights, air conditioners and large scale illumination on different occasions. Also the excessive use of electricity in government offices, roads and parks also contributed to worsening of the energy crunch. The energy consumption by government offices and general services is 9.1%.

⑥ Corruption and lack of political will in the concerned energy department &

also helped the energy shortfall to rise to such a disturbing heights.

Electricity consumption by Various Sectors

Household → 46.6%  
Industries → 28.2%  
Agriculture → 8.2%  
Commercial → 7.8%  
Others → 9.1%

Seems like your notes  
Add paragraphs

(Source: Hydrocarbon development institute of Pakistan) July - March FY 2023.

Installed capacity vs Generated capacity by various sources:

	Installed capacity	Generated capacity
Hydel	25.8%	28.6%
Thermal	58.8%	46.2%
Nuclear	8.6%	21.0%
Renewable	6.8%	4.2%

⑦ Expensive Electricity Generation:-

The electricity in Pakistan is generated is very expensive. More than 60% of electricity generated in Pakistan is from hydrocarbon out of which more than

6000 megawatt is from gas and 4000 - 8000 megawatt from oil. Most of the hydrocarbon is generated is imported and that is expensive due to the devaluation of PKR against dollar. The increase price of oil in International market leads to the expensive electricity in Asia.

### g) Expensive Agreement with IPPs (Independant power plants)

The capacity payment is to be made to every IPP, even if it is not generating a single megawatt of electricity. Even IPP has an installed capacity of 1000 Megawatt and if government doesn't buy the electricity still the minimum of 35% is paid to the IPPs. In Summer the demand is more (28000 megawatt in 2022) and in winter it's less (12000 megawatt). The Capacity payment is called circular debt. In feb 2023 it was 2.23 trillion and expected to have additional 900bn and will be 3 trillion plus. and we have to make these payments in dollar but the Rupee is devaluating and we collect bills in PKR which will increase the debt.

# Impacts of Energy crisis:

## ① Routine life.

In 2007-2016 long hours loadshedding such as in urban sector 8-10 hours while in rural area it was 18-20 hours of load shedding. In 2022 loadshedding again started in urban sectors 6-8 hours and 15 hours plus in the rural areas. The loadshedding of electricity disturbs the routine life of people. Also disturbs markets and other workplaces.

② Industries: many industrial units have closed and many shifted their production to Bangladesh. Industrial production is badly affected which in turn affects the GDP of the country. Many workers become jobless. Textiles industries are most impacted.

③ Acc to Gasim Malik (President of chamber of commerce and trade).  
"The textile sector is in a situation of emergency."

## ③ Markets:

Markets are also adversely affected by energy crisis which in turn affects the traders.

④ Agriculture: The agriculture land that is dependent on the tube well and dugwells. Its yielding capacity has sharply reduced due to load shedding as crops do not get water on time.

This is not an impact, rephrase to show impact e.g. industrial downfall

## Strikes and Agitation

Due to loadshedding, strikes occur in various cities which leads to the loss of government installations.

## National growth

Loadshedding has affected the national growth badly, less progress or no progress at all in all walks of the country. ultimately, less GDP growth rate.

## Remedial Measures:

Following remedial measures are needed to be taken to minimize the effects of energy crisis:

### Immediate measures:

Firstly, the problem of circular debt should be solved on priority basis in order to enable the power companies to clear their debts. Secondly, the agreement of importing electricity from Iran and Tajikistan needs to be implemented in a quick fashion. The Pak-Iran gas pipeline project needs to be completed on the earliest dates.

Mid-term plan :- First, all the gas and insufficient WAPDA plants should be replaced by more efficient and



Combined cycle plants. Second, There is an urgent need of modernizing the over loaded transmission and distribution system. The expenditure of updating our electricity system could be recovered in only three years through savings from the loss.

## Long Term plans:

① Dams Construction: The long term solution of energy crisis will be done by restoring the hydro-thermal mix to 60:40 or at least 50:50 in the coming five years. According to world bank report "Pakistan can create upto or above 50,000 MW through water. The previous WAPDA chief said that Pakistan could produce 100,000 MW from water. There is a need of building Kalabagh dam of 4500 MW capacity. Raska dam 4200 MW, Neelum Jehlum 996 MW, extension of Taibelad dam 960 MW, Suki kinar 800 MW, Munda 700 MW. Need of foreign investment for this institution like world bank etc are needed to be attracted to investment on this project.

Gas Exploration: - licences should be issued to foreign and local gas exploration companies. As there is a high untapped gas capacity at Pakistan. On 18<sup>th</sup> of June, a reservoir near Mianwali, Punjab started gas production. It is considered to be the large reservoir in the subcontinent. Three new reservoir in Karak one in Sindh and

Sui is ~~needed~~. Such more reservoir are needed to be explored to meet out the energy needs of the country.

(3) Coal: Pakistan has the second largest coal deposits in the world i.e. 150 billion metric tons; most of it is in "Thar" Sindh. The initiative taken by Government to facilitate Dr Sumner Mubarak Mand's steps of gasification and then turning this coal into electrical energy, must be implemented on larger scale. Once his first experiment is successful "we can produce 50,000 MW electricity from coal" for coming 200 years. (Sammal Mubarak Man). A coal can produce 10,000 MW of energy.

Wind energy:

Pakistan is blessed with a 1000 km long coast and towering mountains of Himalayas, which provide excellent source for wind energy. The Alternative energy department development Board (AEDB) need to plant wind turbines in these areas. More project on the thermal model of wind Mill, Thimpur, Sindh that produce 50MW electricity are required to be planted in Pakistan. 4500MW of energy can be produced by wind.

Solar Energy:

! Pakistan gets abundance of sunshine throughout the year. Around

Rephrase headings

1800 KW/h per square meter can be produced annually through sunshine.

Peace and Security :

Peace and security is necessary for implementing all the plans about the generation of power resources in Pakistan.

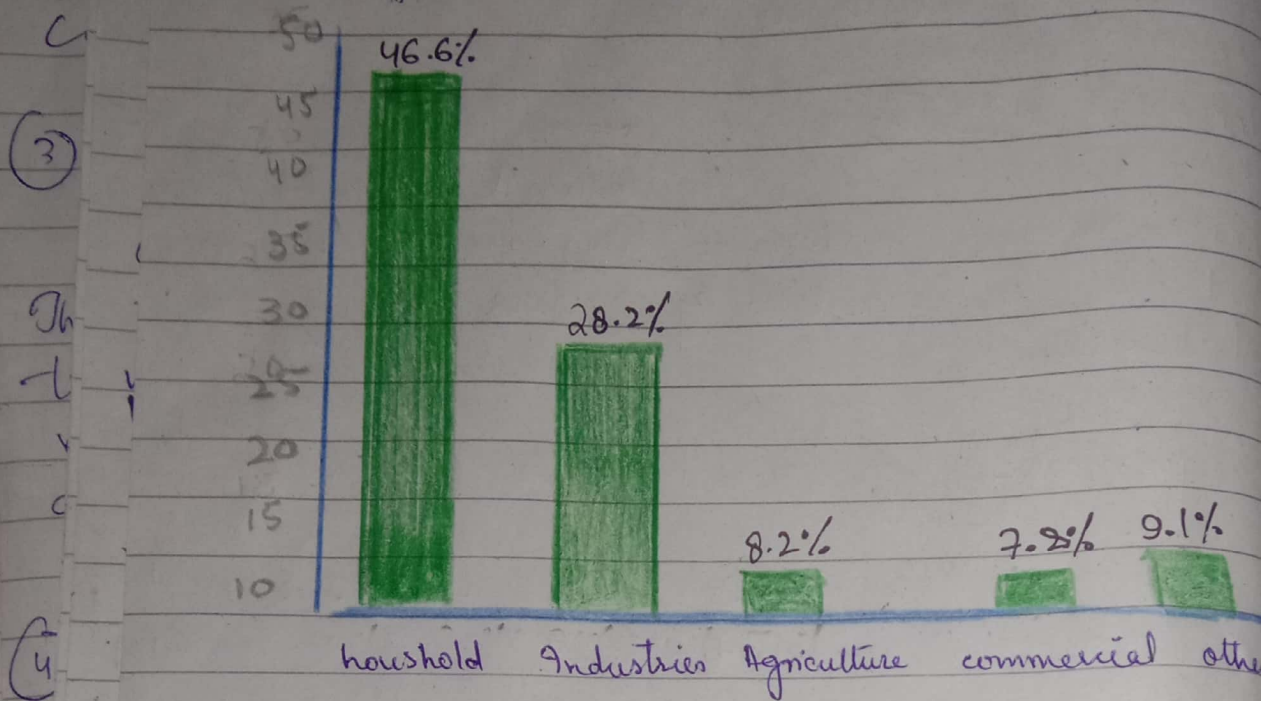
Renegotiate agreement with IPPs :

First batch of IPPs was installed in 1986 should have been renegotiated till 1996 but were not till 2020. which was a delay of 24 years. Second batch of IPPs was installed in 1991 which should have been renegotiated till 2001 but didn't till 2020. which was a delay of 19 long years. Third batch was installed in 2012 which should have been renegotiated till 2012 but didn't till 2020 a delay of 8 long years. In 2020 all batches was renegotiated. It caused 100bn annually, local IPPs will not be able to pay in dollars but in PKR. Capacity payment will not be paid in local or international.

Revamp the transmission lines :

we will have to change the 11000 KV lines and local transmission lines but its costly and would take 5-10 years and would cause 45bn dollars but within three years

it will fullfill its cost.



A Bar diagram showing energy consumption by various sectors.

Source: Hydrocarbon Development Institute of Pakistan, July-March FY 2023).

## CONCLUSION:

Pakistan's energy sector has become a major drain on the economy and is impeding growth, both because of power shortages and because of the budget impacts of energy subsidies which divert much needed resources from more productive sectors. God has blessed Pakistan with variety of resources in large amount. There is a need of proper planning and political will to take out these and demand and supply in the country. Once a proper policy is formulated and

steps were taken with nationalistic zeal, then we would not only have enough energy to be utilized domestically but we would be among its exporters as well.

Improve presentation

Most of the headings are not attractive as these are only phenomena

Make headings that depicts impacts or solution

Improve presentation by highlighting references with black pen

Add graphs as well