Outline

Imbalance of Energy mix in Pakistan and its consequences

1. Introduction

Thesis statement: Pakistan faces a lot of hurdles in the development process, but enery imbalance mix is crucial, which leads to socio-economic and environmental challenges. A comprehensive policy is useful to overcome this hurdle. Must be adopted

2. What is imbalance of energy mix and its Consequences?

3. Imbalance of Energy mix in Pakistan: Causes

a. Dominance of fossil fuel in energy production

b. Limited diversification from non-renewable to renewable energy sources

c. Mismatch between energy demand and energy supply

d. Outdated and inadequate energy infrastructure

e. Policy issue and Implementation challenges

f. Inadequate energy storage disturb energy mixing equation.

4. Consequences of Imbalance of energy mix in Pakistan.

a. Dents to foreign exchange reserves on imported fossil fuel.

b. Extensive burning of fossil fuels lead to environmental damage.

c. Expensive energy gives dents to the export Industry.

d. Circular debt: A stone on development process

e. Inflation because of interlinked all sectors to energy.

f. Geopolitical risks and global fuel price fluctuations.

g. More dependent on IPPs result in misery conditions.

5. Policy Recommendation to counter energy mix issue in Pakistan.

a. Strick implication on Vision 2030.

b. Renegotiate the agreements with IPPs.

c. Accelerate progress on ML-1 and Iran-Gas pipeline projects.

d. Upgrading and modernizing energy infrastructure.

6. Conclusion

With

It is not energy related project

In the heart of Pakistan, where busy city streets meet peaceful countryside, there's a hidden challenge- a quest for balance in how the country gets its energy. Picture a scene where the noise from generators clashes with natural sounds around, and the problems touch the lives of many. The uses of more generators show that country is unable to provide basic production source- the energy. It is because of imbalance mix of energy. This imbalance occured due to dominance of fossil fuel in production process and limited dependent on renewable energy resources. Moreover, mismatch between energy demand and supply also contribute in this imbalance. Lack of policy continuity and implementation challenges also put some shares in imbalance. Outdated and inadequate energy infrastructure is important factor while calculation of energy imbalance mix. More depends on fossil fuels not only dents the foreign exchange reserves, but also contribute in inflation because all production sectors are linked to energy supply chain. Expensive energy production gives set back to export because of high production cost. Besides socio-economic factor, environmet is deadly effected due to extensive useof of fossil fuels in production process of energy. Result of expensive fossil fuels in circular debt which is stone on the development process. Geopolitical risks and global

fuel price fluctuation are reasons of imbalance. Moreover, more dependent on IPPs lead to misery conditions. To mitigate it, urgent based re-negotiation with IPPs. The vission 2030 must be completed on time. Moreover, accelerate work on ML-1 and Iran-gas pipeline. and upgrading the energy infrastructure. Pakistan faces a lot of hurdles in the development process, but energy imbalance mix is crucial, which leads to socio-economic and environmental challenges. A comprehensive policy is useful to overcome this hurdle.

Complete the sentence

Imbalance means the unequal contribution of essential factors in sum. Energy imbalace in Pakistan leads to slowdown the development process. In Pakistan, energy produce from fossil fuel burning upto 65% of total production. The consequences of imbalance can be see in all sectors because energy position in industry is as important as blood position in human body. One side, world is moving away from fossil fuel, but Pakistan is more dependent on fossil fuel that disturb the energy equation. As a result of this disturbing, whole economy and society fall in death trape. Inflation, unemployment and balance of payment crisis are the consequences of this disturb.

Pakistan's energy production capacity varies from 1965 to 2023. In 1965, Pakistan produced 85%.

energy from hydel. With the passage of time, energy needs increases and Pakistan adopts fast process to fullfil the needs of energy. In speedy process, Pakistan dependent more on fossil fuel. Today, almost all power plants are run on imported fuels which include oil, coal and LPG. This speedy process disturbs the energy mix equation of Pakistan and as a result, the dominance of fossil fuel in production of energy. According to the Economic Survey of Pakistan 2022-23, the energy mix consists of 58.8% thermal, 25.8% percent hydel, 8.6% nuclear power and 6.8% alternative power sources. The thermal production is totally depends on the fossil fuel. The hegemony of fossil fuel in production process is the reason of energy imbalance in Pakistan.

The energy mixing is the sum of renewable and non-renewable sources of energy. In Pakistan, this mixing significantly covered with non-renewable sources of energy like furnance oil, liquid petroleum gas and Bituminous coal. Thus, limited diversification from non-renewable to renewable energy sources lead to imbalance the energy mixing equation. Pakistan only generates less than 7% energy from renewable energy sources while other countries produce upto 40 to 50% from these cheap sources. A lot of wind and solar corridors Are in Pakistan, but dearth of shifting towards these bring

Pakistan at catastrophic conditions. Today, Pakistan is producing expensive energy because of limited usage of friendly sources of energy. Transition from environmental harm-sources of energy to friendly sources of energy is one factor that contribute in imbalance energy mix in Pakistan.

Energy mixing is totally dependent on demand and supply. But, mismatch between supply and demand not only fatal the production process but also give dent to economy of the state. In 2007 to 2016, Pakistan faces a shortfall of about 5000MW to 8000MW- means demand was high, but production was short. In 2023, as per WAPDA, Pakistan has installed capacity upto 37000MW, but need is about 28000MW. In speedy recovery process, the Government of Pakistan sets more plants especially in private sector which distrub the energy equation. Mostly rental power plants run on fossil fuel and government has paid a lot of money in exchange of electricity. In this case, per unit cost also increases which contributes a lot in imbalance of energy mixing in Pakistan.

Infrastructure plays a crucial role in electricity transmission. In Pakistan, outdated and inadequate energy infrastructure become bone in develop-ment process as well as in energy balance equation.

One side, the production is expensive and on the other ends old and less efficient transmission system disturb the mixing equation. Pakistan has heighest line loss as compared to India and Bangladesh. According to Planning Commission and USAID Report, Pakistan has heighest line loss which is 29.7% as compared to India 15% and Bangladesh 12%. Moreover, the transmission system was expired before 2010. Other than line loss, other infrastructure is not according to International standards. That's why, the energy mix in Pakistan is totally imbalanced which dents whole country.

Policy issue and implementation challenges put up some shares in imbalance mix of energy. Every democratic government has different energy policy. During 2008 to 2012, no high work done in energy planning. In 2012-2018, a lot of struggle and efforts put in this regard. But, policy issue brings Pakistan on verge of turmoil. During this democratic process, a lot of IPPs comes in energy investment plan, but it disturb the mixing. One side IPPs plays a crucial role in ending the loadshedding, but on the other side, they eat the foreign reserves because of import of fossil fuels. There is no charater of democracy in Pakistan. That's why, policy continuity faces a lot of challenges. This challenge brings imbalance in energy mixing in

Pakistan.

Inadequate of efficient energy storage solutions makes it challenging to store excess energy generated during periods of high production, leading to the wastage and imbalance. IPPs produced all energy from fossil fuels and terms of agreement with IPPs are set at time of peak demand. In Pakistan, June month has more electricity demand. So all agreements are according to June demand. But, in December the demand is low. So, most of electricity wastes. But, government pays payment which is known as capacity payment. Lack of industries and dearth of energy store facilities leads to disturb the energy mix.

Inequality of energy mix has vast consequences on Pakistan economy and depletion of foreign reserves is crucial among them. Pakistan produced 57% electricity from fossil fuel. Among them are oil, gas and coal. All these are natural resources and imported in US dollars. Oil, gas and coal are 1st, 2nd and 3rd expensive sources of energy production respectively. A country has always faced balance of payment crisis because of high depends on imported fossil fuels for energy production. To overcome balance of payment crisis, government borrowed loans and as a result country sovereigoty faces dents from international institutions. As per Finance Division, Pakistan imports oil and gas commodity of more than $25 billion

each years. About $20 billion dollar loan repayment each year will suffers due to more import of fossil fuels. That's why, extensive utilization of natural resources in energy production give dents to foreign reserves accounts of Pakistan.

More burning of fossil fuel in powers plants, more toxic elements added in the environment and resulted in climate change that is what Pakistan is facing at higher level. Humen already distuab the natural composition of basic gases in the environment and using high amount of fossil fuel will manipulate the composition more. The result of climate change can be seen in disasters and Pakistan is facing at higher level. According to Global Climate Risk Index, Pakistan is ranked as the 5th most vulnerable country to climate change. High floods, changing of weathers patterns and high temperature in summer are the consequence of climate changes which is result of burning of fossil fuel.

Energy is the basic need of any industry and its importance is equal to the important of blood in human body. Machines and all instruments required energy for converting raw material into useful products. The more expensive energy production, more expense on production of products, resultant in less export and people suffer more difficulties. That's exactly what Pakistan is facing. Pakistan is consumer based economy. It imports ten

times more than export. One of the reason of less export is expensive energy. How industries export products on less amount when they purchased energy on Rs 40 per watt as compared to Rs 10 per watt energy price in other country for industry. That's why, expensive energy gives dents to the export industry.

Energy is the basic needs of human and its availability on cheap price shows the development of any country. In India, per unit cost is nearly 15 rupees, in Bangladash, per unit cost is nearly 20 to 25 rupees and nearly prices in all other countries. More expensive energy means more debt on production company which is called circular debt. Pakistan is cussently in death trap of circular debt. It acquired more loans to overcome it. As a result, funds allocated for development projects are less than loan repayments. One of reason for expensive energy is circular debt. It increases because government gives subsidies to electricity companies to protect consumer. According to Power Division, about Rs 2.34 trillion is the circular debt by the end of June 2023. About of Rs 8 trillion total budget, how development amount is high when country is under high circular debt.

Inflation rate shows the development of any country. When inflation rate is more than 30-40%, then how the people of any state lived happy life. Pakistan

had faced inflation of about 41% and has been facing 30% inflation since 2022. Inflation increases because energy prices increases. In 2022 to 2023, petroleum prices increased upto RS 430 per Litter and as all industry are is inteslinked to energy, resulted high inflation People have lost their purchased power and unable to secure two time meals. Energy prices linked with inflation and inflation linked with poverty. More inflation and more poverty, what Pakistan is cussently facing. According to World Bank, poverty in Pakistan rose from 34% to 39% in 2022 to 2023 and 95 million Pakistans now live in poverty. Inflation and poverty are totally depend on energy price. More energy price, rise in both, poverty and inflation.

Purchasing fossil fuel from international market and other oil rich countries in US dollars. Unfortunately, the price of these fuel is largely influenced by geopolitics, making nation's dependence on them even more challenging and faces global hurdles. In 2020, 1 barrel was in $71 dollar. After, Russia invasion, and KSA decision of reduction in oil extraction, prices touch the sky. In 2023, 1 barrel of crude oil is in $90 dollars. This is due to geopolitics and war between Russia and Ukraine. The rise of $20 dollar per barrel resulted in 130 rupees per litter increased in Pakistan. As 60% of energy production is using fossil fuel. Ither, electricity prices increased from 28 rupees per unit

to 50 rupees per watt. Energy mix has vast consequences because of geopolitical risks and global fuel price fluctuation.

Every state provides platform for private investment what one called it IPPs. Pakistan, firstly allowed independent power producer in 1988, but in 2013, a number of IPPs invests in energy sector. Today, 42 independent power producers are in Pakistan and all producers used fossil fuel in production process. The consequences are: depletion in reserves, high energy price, land tax given by government and relaxation in tax. All these are bearing because state has not produced required amount of electricity. Moreover, the agreement conditions are in favour of IPPs. From 1990 to 2020, government payment mode was US dollar. After 2020 negotiation, payment mode is in Pak rupees. Other countries left limited space for IPPs, but Pakistan is halfly dependent on IPPs. That's why, there is a misery condition in state because state has less power to protect its citizens from expensive energy purchasing.

Energy issue can be solved easily by strick implication on Vision 2030. Vision 2030 is the plan taken by Government of Pakistan in which energy production modes are changed. As, country produced 57% energy from fossil fuels and according to this Vision

this 57% production is shifted from fossil fuel to clean energy source. Local and cheap electricity can be produced from hydro-electric power plants, from wind corridor Jhimpir, Sindh, and from Dalbandin Balochistan Country is already working on it. Through Vision 2030 many goals are archieved: zero percent use of imported oil, gas and coal, saving more dollars and also improved the transmission line system by using black coded wires. Vision 2030 is the life-line for energy in Pakistan.

As, more than half of energy is obtained from IPPs. The agreements with IPPs are not negotiated because of some political and administrative issue. According to International Agreements Policy, every agreement must be re-negotiate after 10 years. Government of Pakistan should re-negotiate the agreement with IPPs on turmoil bases. This can save the country from catastrophic conditions and provide relief to consumers. Some agreements are not re-negotiated after first agreement. The mode of payment must be changed because some IPPs still charged government in dollars. The balance of payment crisis can be mitigated by shifting mode of payment. Renegotiate the agreement with IPPs can be saved country from economic crisis.

Pakistan geographical location provides a lot of access to energy rich countries. Iran 2nd rich producer

of gas in the world. Central Asian Republic Countries are full with natural resources. Pakistan must avail these opportunity to fullfil its energy needs. Pak-Iran Gras pipeline is the life-line for industries and energy production plants. Iran has already completed its work and Pakistan must complete its allocated work as early as possible. Moreover, Main Line-1 is the project which connects Pakistan and CARs countries. Pakistan must complete these two projects and enhanced its energy mix equation in balanced way.

Infrastructure plays a key role in effective and cheap energy transformation process. As, Pakistan is trying to shift its transmission lines in black coded wires which can save the line-losses upto 2%. Moreover, upgrading and modernizing energy infrastructure save more energy because meter tempering and Kunda are famous tools in electricity theft. Both can be handle easily. Upgrade grids and local distribution system. Upgrading aging infrastructure, integrating renewable energy sources, investing in smart grid technologies, and balancing energy demand and supply capacity are all critical steps towards building a resilient, reliable, and sustainable energy infrastructure for the future.

In conclusion, although Pakistan has faces a lot of technicial, administrative and economic

issues in energy production, yet it has potential to mitigate all these hurdles with sustainable and long term policy. Pakistan faces balance of payment crises because of fossil fuels imports. It can be easily overcome through transition from fossil fuel energy production to clean energy production and Vision 2030 is useful in it. Energy demand and supply can be maintained through upgradation of transmission lines. In term of high fare, M-I and Iran-gas line project can be helpful to overcome high fare of fossil fuel. Consistant policy making and implementation will easily mitigate the energy mixing equation. More cheap energy, more industries, more export and more development. Government institutions have capacity and capability to remove hurdles that hurt energy production.

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Work on sentence structure
Work on propositions