Day: Date:

Essay

Energy crisis in Pakistan: Causes and Consequences

Outline:

I. Introduction:

Thesis Statement:

Exorbitant energy prices, persistent electricity and gas loadshedding, and bleeding economy underscore the bitter reality that Pakistan is in the throes of an abysmal energy crisis, being brought about by various catalysts, and can be stemmed by implementing thoroughly an array of robust measures: Relaunching net metering policy, renegotiating costly contracts with IPPs and and implementing the demand management strategy.

II. Energy can empower or enervate a country in its all walks of life: Understanding the indispensable need for energy in the present world

III. Some facts, proving the deep entanglement of Pakistan in a dire energy crisis-

a- A significant electricity shortfall in the country

b- A huge number of population still living in the stone-age period: A look at the dismal electrification rate

c- Bleeding economy: Closure of industry and shrinking Investment — both foreign and domestic

d. Exorbitantly inflated energy prices.

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IV- An account of the causes due to which Pakistan has descended into the prevailing energy crisis

a- High energy generating cost
1- Over reliance on thermal energy
2- Dollar payments for import of fuels
3- Pakistan: A typical example of 'Nearer to the Church, farther from the heaven'

b- Enormous losses in transmission and distribution domains
1- Highest transmission losses in the region
2- Outdated infrastructure
3- Inadequate recoveries by discos

c- Government's inconsistent policies and lack of political will
1- Revocation of highly effective 'Net Metering Policy'
2- Lack of consensus on dams construction, hampering generation of less expensive hydel energy
3- Myopic policy commitment with IPPs

d- Skyrocketing demand for energy being fuelled by simultaneous growth in population and economy
1- Estimates suggest that energy demand will grow by 1000 MW every year

e- Absence of a Consistent strategy for energy conservation
1- Cultural Cliff: wasteful use of energy
2- Potential to reduce energy demand by 2500-3000 MW

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f- Funding shortage and large circular debt
1- Resulting in increased energy prices and decline in generation

V- Repercussions of energy crisis for Pakistan

a- Economic
1- Closure of industry and slowdown in business activities
2- Increased reliance on imports
3- Decline in FDI and flight of capital

b- Social
1- Unbearable inflation
2- Mass unemployment and sluggish growth of new opportunities
3- Eruption of significant problems in health and education sectors

c- Political
1- Erosion of public confidence in the government
2- Aggravating governance issues
3- Shrinking country's ability to make independent decisions
→ The relevant statement of the Chief of Army Staff of Pakistan: "Real independence is impossible without economic stability"

VI- Some pragmatic solutions for overcoming the energy crisis in Pakistan
1- Relaunching of a revised net metering policy
2- Renegotiation of pernicious contracts with IPPs
3- Robust implementation of energy demand management strategy

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Energy has been an indispensable need for mankind since the day first, and it will remain to be in all the times ahead. All of activities of humans, in one way or another, are linked with energy. Even, man himself can not survive without energy. As the time progressed on and number of heads increased, it became important to invent new tools and technologies that would facilitate humans in productions of more resources and achieving efficiency. This resulted in dawn of the 'Industrial Era' eventually. Though industries continued to sprout all along, they made energy even more essential. Without energy, industry will cease to exist, meaning that humanity will also be pushed to brink of annihilation. In present-day world, thus, energy is essential for countries to survive and prosper. Unfortunately Pakistan is facing ~~the~~ an existential threat due to an incessant energy crisis. This ~~turbulent~~ crisis is turbulent in nature, which is evident from its dreadful manifestations such as persistent loadshedding, dismal electrification rate, bleeding economy due to closure of industries and unbearable energy prices. The country has landed into this challenging time owing to its own inefficiency and ineptness. It is without even a shred of doubt that this crisis has largely stemmed from the expensive generation of energy due to the

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continued reliance on the outdated mode of producing energy through fossils. Similarly, the dilapidated transmission and distribution infrastructure is fanning the flames of this crisis. However, the paramount cause of this crisis lies in the government's own miscalculated policies, one to quote is myopic agreements with IPPs. It is needless to even mention that unbridled population growth is further adding fuel on the fire of energy crisis in Pakistan. As this turmoil is deepening, deteriorating and escalating, the country is getting pushed down deeper into the quagmire of its far-reaching, devastating implications. In economic domain, industries are finding it extremely difficult to survive during this energy crisis, thereby being propelled to cease their operations. Moreover, foreign investors are not willing to inject their money in the country in these catastrophic times, begotten by the energy crisis; even contrarily, domestic investors are shifting their capital to overseas. In much of the same way, the social domain of the country is also being shaken to its core by the ongoing crisis, as people are reeling in an exorbitant inflation and sprouting unemployment. Ironically, the crisis has also held the political domain in a state of jeopardy. Political setup is witnessing a growing erosion of public confidence and aggrandizing governance issues. In fact, Pakistan is in the claws of energy crisis.

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Over time, energy has become extremely important for countries. As absence of oxygen can end a human's life, absence of energy can jeopardize an entire existence of a nation. It is through energy, almost all the activities in a country take place. In economy, from manufacturing to distribution of goods, all are are dependent on energy. Even if a country is not industry-oriented, it still needs energy for other sectors such as agriculture or services. Socially, the importance of energy is apparent from the fact that health and education sector will be rendered paralysed by lack of energy. Moreover, energy crisis spawns various political problems, especially governance issues, public scepticism and weakened decision-making power. Thus, it is very true that energy can empower or enervate a country in its all walks of life, which is well depicted from the dismal state of Pakistan — the country that is deeply mired into energy crisis.

The following paragraphs will shed light on different manifestations of energy crisis in Pakistan.

A significant shortfall of energy is the first and foremost indication of the prevailing energy crisis in the country. It is indeed a herculean task to meet the entire demand of a huge population. However, a large number of demand remaining to be unmet

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speaks cryingly the volume of energy crisis. As per various reports, in particular that of by the 'National Transmission and Despatch Company (NTDC), there is an electricity short fall of '7000 MW' in the country. This number represents that a large number of households and businesses do not get their energy need completely satisfied. Due to this prevalent energy shortage, domestic and commercial life is getting enormously affected. Thus, the existing huge electricity shortfall constitutes the major evidence of energy crisis in Pakistan.

Very unfortunately, the country is unable to meet demand of the segment of the society that is having the electricity and gas meters; how come will it manage the enormous burden of the segment that is outside of the energy infrastructure? This leads us to another manifestation of the energy crisis in the country: Dismal electrification rate. It is honestly a very surprising thing that a huge population in Pakistan has not yet evolved into a modern age. This set of population, very miserably, is still living in the stone-age period as it does not have access to energy at all. According to the latest report by the 'Asian Development Bank' (ADB), 25% of the people in Pakistan do not have ~~do not~~ access to electricity. It highlights that only 75% of the population gets ~~only~~ electricity everyday. Therefore, the dismal electrification rate underscores the fact that the country is deeply entrapped into the energy crisis.

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At the time when it is a mirage for Pakistan to meet the needs of its huge population, meeting the electricity and other energy needs of businesses is out of the question. Owing to the existing energy crisis, a large number of businesses are unable to operate, thus swallowing the bitter pill of closing down, which, in turn, is making the economy bleed badly. This ongoing energy crisis is hampering the ability of the industry to do affordable production as the expensive electricity is forcing them to increase prices. In turn, people are either reducing their consumption or moving on to affordable alternatives or substitutions. This, in particular, is making businesses to bear enormous losses, thereby forcing them to suspend or cease operations. Some reports have highlighted that more than 400 industries have closed down alone in Faisalabad — the hub of textile industry in the country. This indeed reflects the magnitude of energy crisis in Pakistan.

The only silver lining in low electrification rate is that the people who do not have access to electricity are spared of bearing the terrible pain of paying high bills. Recently, a person has killed his brother for failing to pay heavy bill of electricity. Hence, an unbearable price of energy is another stark manifestation of the energy crisis in Pakistan. At present, the energy prices are way too high for people to bear.

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The current price per unit in Pakistan is more than 65 rupees. As compared to this, per unit price in India is only 21 Pkr. Both people and businesses are unable to afford this costly electricity in Pakistan. This is resulting in hampered business activities and growing frustration in public, which is well evident from the incident cited in beginning. Ergo, the inflated energy prices are an irrefutable manifestation of the energy crisis in Pakistan.

All these manifestations explained in above paragraphs indeed validate the conjecture that Pakistan is ensnared into a net of a deep energy crisis. The question arises here that how has this crisis spawned in the first place? So the following paragraphs will bring into account a diverse nature of causes that have incubated the energy crisis in Pakistan.

First and foremost, the high energy generating cost is the major reason of the prevailing energy crisis in Pakistan. The country heavily relies on the thermal energy, which contributes more than 60% to the total energy production. Thermal energy is produced by fossil fuels and coals. Since Pakistan does not have its own oil reserves, it imports from foreign markets. Firstly, these imports increase the cost of production significantly and then the payments in dollars further fuel the cost per unit. Unfortunately, Pakistan

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is not managing its own resources properly. The country has huge potential in renewable energy. Moreover, it can use its coal reserves in 'Thar' to produce cheaper energy, but it has failed to exploit these options, which is a good example of the old saying, "Near to the church, farther from God. In essence, the present energy crisis is stemming from the high energy generating cost.

Moreover, the enormous losses in the transmission and distribution (normally referred to as T&D) domains is another vital cause of energy crisis in Pakistan. The country has mostly paid its all attention to generation energy more and more; however, completely overlooking the other major areas including transmission and distribution, which are undermining its overall efforts. Over the time, no significant steps have been taken to revamp or reinvigorate the derelict T&D infrastructure. Owing to this, a huge volume of energy losses take place in the process of supplying energy to the end users. One of the Asian Development Bank's reports here revealed that Pakistan has the highest transmission losses in the region — in numerically stand somewhere near 40%. Moreover, the overall crisis is being fuelled by the rampant electricity theft, 'Kunda culture' and ineffectiveness of the distribution companies to recover bills. Altogether

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these diverse ailments are afflicting the energy sector in Pakistan, making it almost dysfunctional.

Likewise, lack of political will and inconsistent policies are also a chief cause of the ongoing energy crisis in Pakistan. If a country has a strong leadership, it will firstly never descend into any crisis; and in case, it does, the leadership will sail it out of that. Unfortunately, Pakistan is reeling in the present crisis of energy due to the flawed policies and lack of political conviction. For example, the country has taken a very miscalculated step of securing a wonderful policy called 'Net Metering'. With this policy, the country was poised to bridge down the energy shortfall to a great proportion. The energy mafia has pressured the government for this unprofitable step. Similarly, the cost-reducing policy with IPPs is another strong evidence of ineptness of the government. However, the lack of political will is the real culprit for the energy crisis. Over the past many decades, the country has seen no dam being constructed, and the matter of 'Kalabag dam' could still not get settled. Therefore, it is true that the energy crisis has arisen due to the government's inconsistent policies and lack of political will.

In addition, the biggest cause of energy crisis in Pakistan is the explosive population growth and strong economy. It is a universal

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phenomenon that when population number grows, it raises the burden on the shoulders of a country, especially draining its resources. Over the past few decades, the population in Pakistan has grown significantly, leading the country face various challenges — including the energy inadequacy. As per an estimate, the rising population will add a burden 1000 MW on the energy sector every year. Similarly, there is gradual rise in economy, too. As the economy is growing, need for energy is also going up substantially. Thus, these two areas — population and economy growth — are fuelling the energy crisis in Pakistan, especially impeding the country's efforts to navigate itself out of this mess.

With enormously growing population and a gradually rising economy, meeting the energy demand in its entirety is indeed like chasing rainbows for Pakistan. Amidst this, Pakistan needs to focus on 'conservation' of energy, which is almost non-exist in Pakistan. This unveils another cause of the energy crisis in the country: Absence of a consistent strategy for energy conservation. The country has a huge potential to save a large amount of energy every year. People are not controlling wasteful use of energy in the country. Shockingly, the consumption per unit of GDP is much higher in Pakistan than that of the USA and Japan. With robust measures, as suggest by various reports, the

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country can easily conserve energy upto 2500MW every year, which is indeed much-needed given the prevailing energy crisis. Thus, lack of implementation of a robust energy Conservation strategy is a solid reason behind the continuing energy crisis.

In fact, the funding shortage and a large circular debt are also the major reasons for the eruption of the energy crisis in Pakistan. The country is facing a situation of financial crunch owing to rising debts and stagnant tax revenues — which stand at a dismal level. Owing to this, it is unable to construct small scale dams to produce hydal energy — which will also help in its efforts to promote green energy. Moreover, inadequate funds are a big hinderance in the way the country to upgrade antique and derelict transmission and distribution infrastructure — old not less than centuries. Above all, the losses due to this inefficient infrastructure are resulting in enormously increased electricity prices and amassing circular debt. Therefore, the energy crisis in the country is being nurtured and raised by the deficient finances and amassing circular debt.

The paragraphs above have extensively unveiled the gravity of the energy crisis in Pakistan. Due to this crisis, the country is ailing a plethora of consequences. The subsequent paragraphs will discuss these consequences.

First and foremost, the energy crisis

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is making Pakistan's economy suffer by inducing industry closure and slowdown in business activities. There is goes a wonderful saying that demonstrates importance of energy for industry and economy: "Energy is a fuel of industry, and industry is a wheel of an economy." Pakistan's economy is, thus, paralysed because of a jammed wheel due to lack of adequate fuel. Unbearable price of electricity and persistent load shedding are forcing businesses to stop their operations or relocate them to other countries. Alone in Faisalabad — the hub of country's textile industry — more than 400 businesses have gone shut, as per a report. In the same manner, due to expensive and inadequate energy, the businesses that are stubbornly operating are facing slowdown due to their increased prices, which are proving to be unappealing to the public. Hence, businesses are becoming the prime victim of energy crisis, thereby inflicting an acute damage to the country's overall economy.

In the face of declining supply and closing businesses, will the people go on fasting? They will have to satisfy their needs. This introduces to the other implications of energy crisis, that is, the increasing reliance of the country on the imports from foreign countries. Presently, the country is suffering from an enormous trade

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deficit — that is the country importing more than exporting. It is, in every sn inevitable outcome this ongoing energy crisis. At the time, when industry is closing down or is unable to do optimal productions, it can not be expected that the country will be raise its exports or maintain the existent ratio. In this scenario, the country is rather pushed to import more to meet the unmet needs of the citizens. It is no different case to that of the country's wheat import policy. Due to floods in 2022, the agricultural produce were almost scent, which forced the country to import wheat from Ukraine in order to meet people's need. As industry is closing down or operating at a lower production level, a larger number of people's needs are unfulfilled thus forcing the country to expand its imports.

When the existent industry is unable to smoothly operate, the expectation that more FDI will seep into the country is nothing but a utopian thought. In the wake of the energy crisis, there is a memooth decline in FDI and a unsmooth rise in capital flight from the country. Pakistan is already deemed as a country with the least conducive environment for the businesses, owing to the various reasons — one to mention is security. At such a time, the energy crisis is doing nothing but adding fuel on the flames. Why would an investor want to invest on a 'white elephant'? Wouldn't it be pernicious use of his wealth? Owing to reasons, investors

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from foreign countries are discouraged to invest in Pakistan as they deem the country unlucrative. For instance, to attract the FDI into 'Special Economic Zones'-to be built in the CPEC project, it was decided to develop energy infrastructure first, because energy is the bloodline requirement of business. Thus, declining FDI in Pakistan is owing to the existing energy crisis.

The adverse effects of energy crisis are not restricted to economy of the country only, they are spiraling into social domain as well. Unbearable inflation that has engulfed the Pakistani society is the very first peril of energy crisis. Prices of all kinds of goods and services have soared sky-high. Nowadays, people feel largely incapacitated to make their ends meet. This hike in prices is especially due to decreased productivity of businesses or their closures. There is a wider shortage of commodities, thus things have became very costly. Besides, as the economy is not picking up, the currency of the country is devaluing meteorically. This also results in lower purchasing power of the individuals. More importantly, companies are forced to raise prices as they are buying raw materials at very expensive rates due to costly energy. The situation has become such alarming that buying essentials such as medicines, for instance, have become a life-death question for the people. Thus, prices are surging too high in Pakistan due to the energy crisis.

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When there is a situation of high inflation, it is not only the public that solely suffers but also businesses as their output remains unsold at a large scale. In this case, businesses slash their production. This brings forth another consequence energy crisis, that is, mass unemployement and and sluggish growth of new opportunities. As the energy crisis is breeding the plague of high inflation, people's demand is withering, making businesses to curtail their production level, or explore avenues for cost cutting. In such grim conundrum, businesses are laying off their employees at a large scale. It is best reflected in the fact that the unemployment rate in Pakistan has risen over time instead of going down, presently standing at above 7%. Apart from this, new opportunities are not being generated in the country as businesses are not growing, rather closing down. Foreign direct investment has significantly reduced because of the prevailing energy crisis. Ironically, domestic investors are not willing to invest in the country as they believe that the country is no longer a 'cash cow'. Therefore, the energy crisis is not only causing mass unemployment but also hampering incubation of new opportunities in Pakistan.

Another significant consequence of the energy crisis for Pakistan is the underperforming health and education sectors. Both the sectors are heavily reliant on the electricity. Slight disturbance in the supply of energy paralyses them almost completely

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Various reports have outrightly highlighted that one of the various reasons behind woebegone education sector is inadequate availability of electricity. As per a report, more than 15%. schools in Balochistan do not have access to electricity. How can students get quality education in a such a painful atmosphere. In these recent board exams in Karachi, many students fainted during their papers due to scorching heat and unavailability of electricity. In the same manner, electricity is essential for hospitals. without it, operations or treatment of patients is not possible. Even bed-ridden patients will face difficulty during their under-way course. During these recent prolonged outages, scores of ~~dozens~~ serious operations were either cancelled or postponed alone at Jinnah hospital in Karachi — as per the internal report of the hospital. These revelations indeed demonstrate the fact that the health and education sector of Pakistan are badly reeling in the energy crisis.

As a result of the prevailing energy crisis, the public confidence is significantly reducing in the government. Generally, people place an immense confidence in the representatives they choose and expect that their miseries will get squelched; however, if these continue to afflict them, their confidence erodes. People in Pakistan have been facing the energy problem since ages. The current governments have failed to overcome it. Even the problem has now escalated into a crisis of great severity.

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From bearing the pain of few hours gas and electricity load shedding to the current outages spanning days, indeed the crisis has gathered every storm into it. For instance, there was a national level of electricity outage on 17 January of this year. Due to this dreadful energy crisis, people are paramountly losing their trust in the government

The last but the most significant implication of the ongoing energy crisis is the shrinking ability of the country to make independent decisions. Without energy, an economy can not become stable and happy towards prosperity. Energy in adequate quantity and supply help a country's industry grow and exports rise. Unfortunately, Pakistan is surround into the economic crisis due to the energy crisis. Consequently, it needs to rely on powerful and affluent nations for financial help. These nations help it but with extracting guarantees to safeguard their interests and abide by their dictations. For instance, India easily leased the 'Chabahar port' from Iran recently but Pakistan is still struggling to complete pipeline agreement with Iran — which is its sovereign right in every respect. This reflects transparently the power discrepancy. Even the Chief of Army Staff of Pakistan himself admitted, "Real independence for Pakistan lies in economic prosperity." Without availability of adequate energy, economy of the country can not grow. Thus, it is true that the prevailing energy crisis is hampering economic growth, which, in turn, is depriving Pakistan of the power to make independent decisions

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Given the gravity of the energy crisis, which is evident from its far-reaching implications that have been discussed in the above paragraphs, it is essential for the country to safely navigate its wayout of this storm. For the safe navigation, it needs to follow some unavoidable steps. The following paragraphs will enumerate these steps.

First of all, to culminate this ongoing energy crisis, the country needs to re-introduce a revised net metering policy. The government had the reservations over the net-metering policy, due to which it scrapped the policy. One of the major concerns was that the government was paying higher to those who were selling their surplus, generated electricity. This was not a big deal; It could reduce the per unit rate. A revised policy is the need of the hour now. The government must introduce it again. It will help bridge the demand and supply gap. As per reports, under the previous policy, nearly 3000 MW figure was touched. Moreover, the revised policy will promote the green energy, which is now a question of the country's survival, considering unabated natural disasters. In addition, it will take off the burden of producing more energy to meet the growing demand, triggered by rising populations. To further relieve the burden on the government shoulder, it can stipulate in the policy that all public offices will install solar panels on buildings to fulfill their energy needs. Therefore, a revised net metering policy is no longer a choice but necessity to end the ongoing energy crisis

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Secondly, Pakistan's government must renegotiate costly contracts with the IPPs. One of the chief reasons behind expensive energy in the country is IPPs — Independent Power Producers. They are charging very high over-capacity payment rates. Some reports suggest that out of the 64 rupees per unit, there are 25 rupees capacity charges. Basically, capacity charges are the amount that consumers pay for not using the potential energy that IPPs can produce by their overall capacity. Under the current contracts, the government has agreed to pay this, in a bid to attract more investment in the energy sector. However, these agreements are now an albatross around the country's neck, requiring immediate renegotiation as it can not revoke unilaterally. In renegotiated contracts, the government must make two changes: payments in rupees not dollars to IPPs and the model must from "Take or Pay" to "Take and Pay". As a result of renegotiated contracts, energy prices will become sustainable and largely affordable. Above all, they will boost industry by making Pakistan's exports internationally competitive and domestically buyable. Therefore, it is imperative for Pakistan to revamp the pernicious contracts with the IPPs in order to stem the prevailing energy crisis.

Lastly, the implementation of a robust demand management strategy will help the country to get over the energy crisis. The latest census by the Pakistan Bureau of Statistics has shown

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that the country has one of the highest population growth rates in the world - with 2.55% per annum. In parallel with such a huge rise in population, energy demand will also skyrocket, as predicted by some reports that the country will an increase of 1000 MW energy demand every year. This indeed underscores the fact that a mere focus on supply side will alleviate the energy crisis. It requires the country to properly manage the demand-side as well. Presently, consumption per GDP unit in Pakistan for energy is way more than the USA and Japan, reflecting that energy can be conserved. In this pursuit, Pakistan must implement demand management strategy which is virtually non-existent in the country. It should incentivize the consumers to reduce the wasteful use of energy in households. Besides, it should subsidize the modern electricity technologies and tools that are energy-efficient or help in conserving energy. Apart from this, the National Energy Efficiency and Conservation Authority (NEECA) should play an increased role, especially considering the rising urbanization and growing demand for energy. It must undertake initiatives - such as vertical housing instead of horizontal housing which is indeed energy efficient and develop a strong set regulations for promoting energy-saving practices in homes and offices. Therefore, the country needs to focus on the demand side as well to save huge amount of energy through energy conservation practices.

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In a nutshell, the dark clouds of energy crisis are looming over Pakistan, which is evident from the inflated energy prices, incessant electricity and gas load shedding, and industry closures. The country has landed into this mess partially due to its own miscalculated decisions and partially due to outside factors. Being blessed with an enormous potential in the renewable energy, the country is still relying on the thermal energy sources. It is because of this over reliance on the thermal energy that the energy generating prices in Pakistan are extremely high. Similarly, the country could not yet upgrade ages old transmission and distribution infrastructure, which is precipitating heavy energy losses. What actually is adding the fuel on the flames of energy crisis is the inconsistent government's policies and lack of political will, both are apparent from the unresolved matter of dam-building. As this crisis continues to deepen and linger on, it is inevitably making the country bleed in its socio-economic and political domains, in particular. The country is bearing the brunt in the form of industry closures and slowdown in business activities. Similarly, the energy crisis is hampering the inflow of FDI into the country and leading to a memooth increase in the inflation rate. As they goes the saying: "There is no problem that does not have solutions." The country can remedy this ailment with steps such as re-continuing net metering policy and renegotiating contracts with the IPPs. With overcoming this crisis, the country will be poised to leapfrog towards achieving socio-economic prosperity

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