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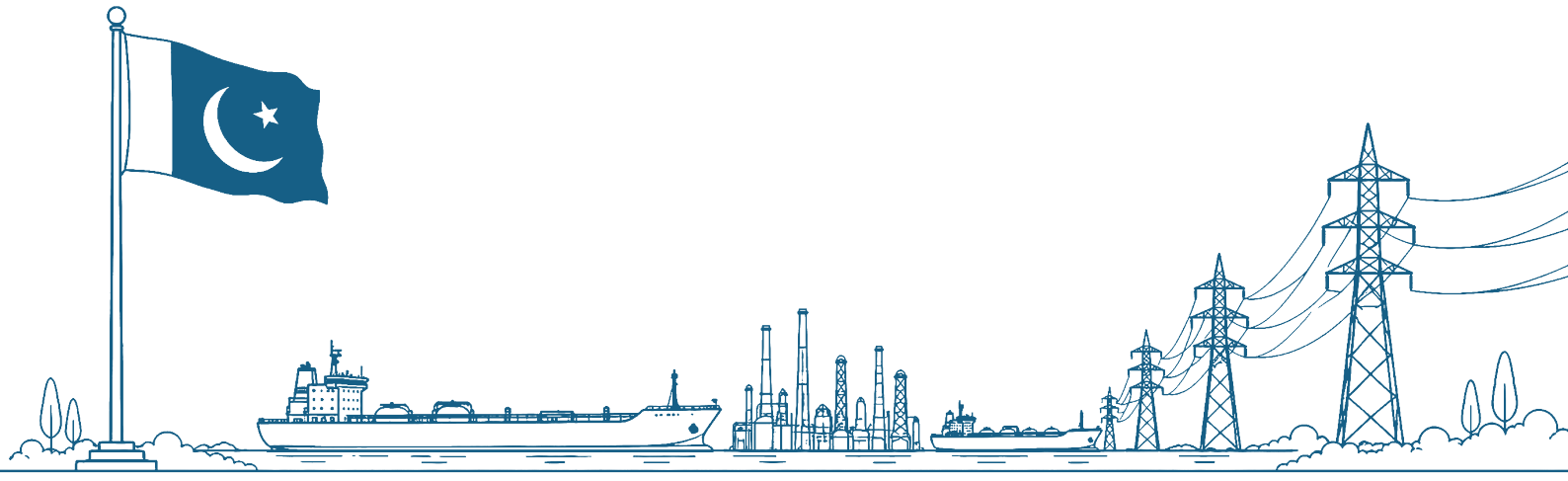
POLICY BRIEF

BEYOND THE SHOCK

Pakistan's Energy Options Amidst Persian Gulf Crisis



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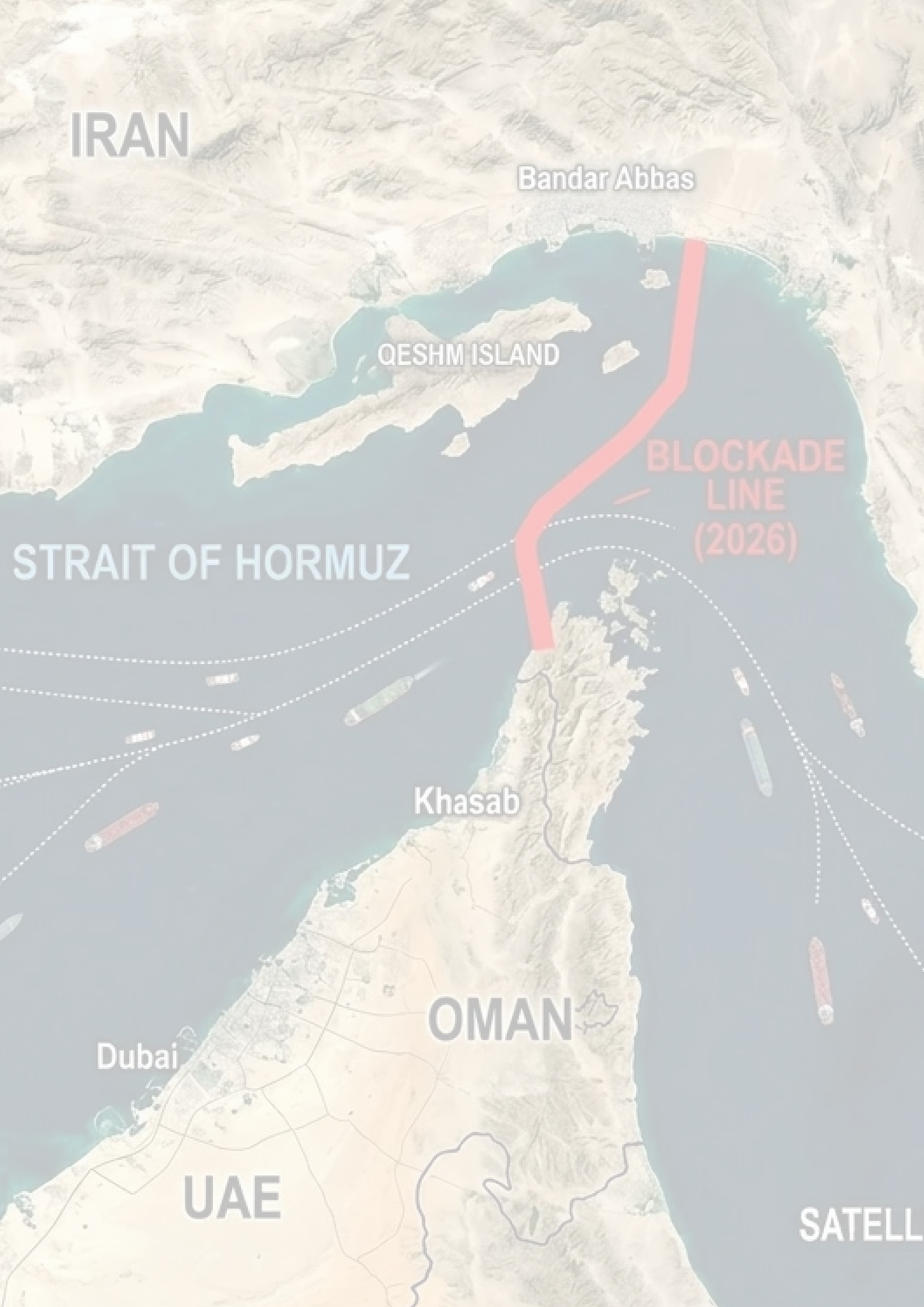
IRAN
Bandar Abbas
QESHM ISLAND
BLOCKADE LINE (2026)
STRAIT OF HORMUZ
Khasab
OMAN
Dubai
UAE
SATELL

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EXECUTIVE SUMMARY

The joint invasion of Iran by the United States and Israel in late February this year has transformed the Strait of Hormuz from a global trade chokepoint to a source of energy-supply shock. As around one-fifth of the global supply of crude oil, petroleum products, and Liquefied Natural Gas (LNG) normally passes through it, this has caused an energy crisis the likes of which the world has not experienced before. By late April 2026, the narrow waterway separating Iran from Oman and the United Arab Emirates (UAE) remains only partially open to shipping, as both Iran and the United States vie for control over the maritime traffic passing through it. The disruption of trade through the Strait of Hormuz has removed roughly 12–15 million barrels per day from global oil supply, according to Reuters, pushing crude oil price close to 120 US dollars a barrel - a staggering 70 percent increase since the war began. The war has also caused large-scale destruction of oil and gas facilities in several countries in the Persian Gulf, including Iran, Qatar, Kuwait, Bahrain, Saudi Arabia, Oman and the UAE. The damage to Qatar's gas manufacturing plants alone has cut back the global LNG supply by 20 percent, forcing the Qatari government to revoke all its LNG export agreements, including those with Pakistan, under force majeure provisions.

In Pakistan, the consequences of these developments are gravely discernible. Because of its heavy reliance on petroleum imports from the Persian Gulf, and given its dire financial straits, the war has brought about severe financial and economic stress for the country. It cannot afford to spend more money on costlier petroleum imports than it is already doing without putting serious pressure on its meagre foreign exchange reserves. It has turned a fragile microeconomic reality further precarious, marked by indicators such as....

- Rising inflation – expected to go up with an increase in petroleum prices.
- Current account balance – expected to go into deficit if the global prices of our petroleum imports remain as high for six months as they have been since the start of the war.
- Dollar-rupee exchange rate – expected to come under serious strain if petroleum import bills continue to rise over the next three to six months.
- Industrial activity – expected to experience declines as the cost of production rises due to higher energy prices.
- Overall economic growth – expected to experience a decline because of the increased cost of doing anything.
- Fiscal (budget) deficit – expected to go up if economic activity declines, resulting in lower tax collection.
- Public expenditure – expected to decrease further if more funds have to be diverted towards petroleum imports and petroleum subsidies.

At the microeconomic level, people will have to pay more at the petrol pump, in public transport, and for using grid-connected electricity. Farmers will also have to pay higher prices for running diesel-operated tube-wells and other agricultural machinery such as tractors, harvesters, reapers, and threshers.

Close to two months into the war, most of these macro and micro-level shifts are already quite obvious. The fact that Pakistan is undergoing not one but two assistance programs by the International Monetary Fund (IMF) – a three-year Extended Fund Facility and a shorter Resilience and Sustainability Fund facility. That has taken away the subsidies for petroleum and power prices, even as inflation gallops, eroding the people's capacity to pay more and more.

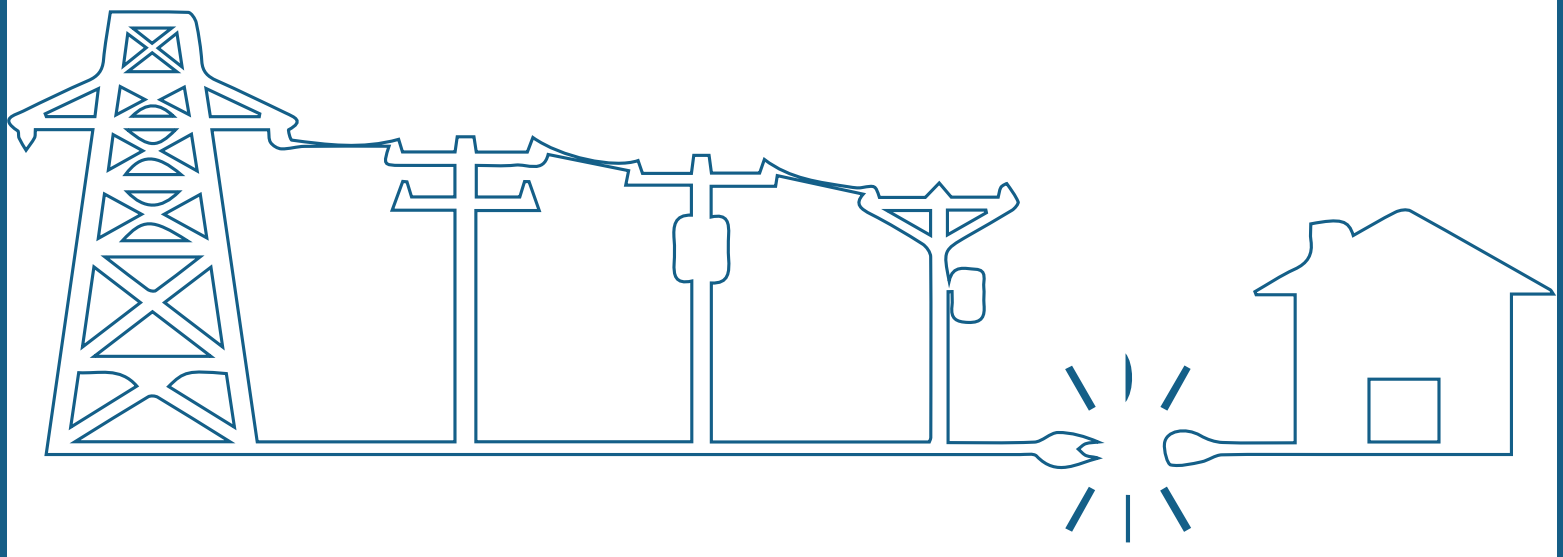
The energy shock also comes for Pakistan at a stage when the demand for power peaks at the onset of summer. And yet Pakistan's power sector is less exposed to the war-induced economic shocks than it was during the 2022 global energy crisis that resulted from the Russia-Ukraine war. It now has surplus power generation capacity, including thousands of megawatts of solar power that requires no costly fuel imports, and its domestic coal and gas reserves are more strongly wired into the power generation system than they were back then. Still, with the power demand expected to peak significantly, its biggest worry is maintaining LNG supplies. Though they are required for a small share in power generation, the power plants running on LNG are strategically important to meet peak demand for electricity in the evenings and maintain the grid stability during demand fluctuations. In LNG's absence, the supply of gas to fertilizer manufacturers, other industries, and even domestic consumers also gets curtailed.

This policy brief argues that the government of Pakistan cannot afford to have a simplistic response to the current energy crisis. To be practical and credible, its response has to be a layered one.

- The first layer consists of protecting essential fuel and gas supplies in the short run without allowing energy prices to balloon astronomically;
- The second layer related to the government avoiding a panic return to expensive imported fuels or long-lived coal lock-in; the third layer should be focused on accelerating investments in renewable energy, transmission and grid improvements, and battery energy storage systems to store surplus electricity for usage when renewables are not available – such as during the night or under cloudy conditions;
- And lastly, the government should devise a long-term pathway to start, accelerate, and promote a climate-resilient, low-carbon, and low-import-based energy transition.

Chapter 1

Disrupted: Pakistan's Energy Crossroads



The ongoing war in the Persian Gulf between the United States and Israel on the one side and Iran on the other side has made it abundantly evident that geopolitical crises can lead to devastating impacts on global energy markets. After joint attacks by the United States and Israel on Iran started in late February 2026, the Iranian government blocked the Strait of Hormuz, a very narrow maritime passage[1] that serves as a conduit for around 25 percent of global seaborne petroleum trade. This closure led to a disruption in the global flow of almost 20 million barrels per day (mb/d) of oil and liquefied natural gas[2], driving crude oil prices above 100 US dollars per barrel[3].

With this blockade, the petroleum production in the Persian Gulf region started to outpace its storage capacity and exports, and the countries in the region cut down their petroleum production by approximately 10 million barrels per day[4]. Even after a Pakistan-brokered ceasefire has led to the opening of the Straits since 7th April 2026, the uncertainty about who is controlling it is still making the Gulf petroleum producers keep their production low. While the Iranian authorities continue to threaten its closure, the naval blockade by the US forces of Iran's seaports has only increased the potential of the conflict to flare up again. The failure of the second round of mediation by countries like Pakistan to put a permanent end to the war has further heightened this uncertainty.[5]

The global impact of these developments is certainly both pronounced and severe. For Pakistan in particular, the war is not simply a regional security crisis; it is also a massive energy security shock. Trade data shows that Pakistan's total imports from the Gulf states stand at about 17.1 billion US dollars in 2024, with crude oil and petroleum products alone accounting for roughly 13.96 billion US dollars[6]. It is not surprising that the war-induced disruption in this trade led the Pakistani government to announce several increases in petrol and diesel prices in the last eight weeks which have cumulatively hiked these prices more than 50 percent above their pre-war levels . Even though these prices have come down a little after the ceasefire, they are still way above their pre-war levels.[7] Pakistan, therefore, has a vested interest in ensuring that the ceasefire continues and a permanent peace accord is signed between all the parties concerned.

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1. https://www.reuters.com/business/energy/iran-wars-energy-impact-forces-world-pay-up-cut-consumption-2026-03-21/
2. https://www.reuters.com/business/energy/iran-wars-energy-impact-forces-world-pay-up-cut-consumption-2026-03-21/
3. https://tribune.com.pk/story/2599118/renewables-in-focus-over-oil-crisis
4. https://iea.blob.core.windows.net/assets/01fe3dd7-21c1-4b16-8c5b-7df1aca6d6ff/Shelteringfromoilshocks.pdf
5. https://www.aljazeera.com/news/2026/4/12/us-and-iran-fail-to-reach-peace-deal-after-marathon-talks-in-pakistan
6. https://www.geo.tv/latest/655846-caught-in-the-gulf-crosswinds
7. https://www.reuters.com/business/energy/pakistan-hikes-fuel-prices-by-over-50-amid-spiralling-mideast-conflict-2026-04-02/

The fragility of Pakistan's energy balance is underscored by one small shift: Only weeks before the war, the country could not absorb all the LNG it had contracted to import from Qatar (roughly 90 percent) and Italy, mainly because solar-powered distributed generation had reduced its reliance on LNG-fired power plants[8]. Pakistan was, indeed, diverting a significant portion of LNG cargoes arriving at its terminals to other markets to handle surpluses. Yet, just as Qatar stopped its LNG supplies in the wake of the war, Pakistan's power generation started to suffer, leading to outages lasting several hours each day across the country. These outages explain why Pakistan is asking Qatar to provide it with at least four cargoes of LNG as an emergency measure[9]. Similarly, the government has launched a successful, though highly expensive, bid to procure three LNG cargoes from the spot market.[10] LNG is typically traded either through long-term supply contracts at fixed or formula-based prices, or on the spot market, where individual cargoes are bought and sold at prevailing market rates for immediate or near-term delivery. When a country faces a sudden supply disruption, as Pakistan is now, it often cannot wait for contracted deliveries and must turn to the spot market to secure emergency cargoes quickly. The trade-off is cost: spot market LNG is almost always significantly more expensive than contracted LNG. These cargoes have a price range of 17-18 US dollars per million British thermal units (MMBtu)[11] , which is significantly higher than the price of cargoes received from Qatar at 7.68 US dollars per MMBtu.

The price shocks of the energy crisis are also serious. Research by the Pakistan Institute of Development Economics (PIDE), a government-affiliated think tank, estimates that every 10 US dollar increase in global oil prices raises Pakistan's annual petroleum import bill by roughly 1.8-2.0 billion US dollars[12]. For a country already facing external financing pressures and struggling with a weak economy, a more than 40 percent increase in global oil prices within a span of two months is too huge a shock to bear without external support. As mentioned earlier, petrol and diesel prices in Pakistan have risen by more than 50 percent in the last two months, as is evident from Figure 1. This increase has resulted in serious implications for transport and production costs and household expenditure. The price shock is not only an energy-sector issue; it is also an economy-wide problem.

8. https://tribune.com.pk/story/2580611/govt-claims-rs1tr-savings-by-diverting-lng
9. Pakistan in discussion with Qatar for supply of LNG cargoes amid electricity shortfall - DAWN.COM
10. Pakistan secures three bids for spot LNG cargoes - Newspaper - DAWN.COM
11. Strait of Hormuz closure pushes Pakistan into expensive $18.4 per mmBtu LNG deal - Pakistan - DAWN.COM
12. https://pide.org.pk/research/world-oil-price-volatility-middle-east-geopolitics-and-pakistans-in%EF%AC%82ation-dynamics/

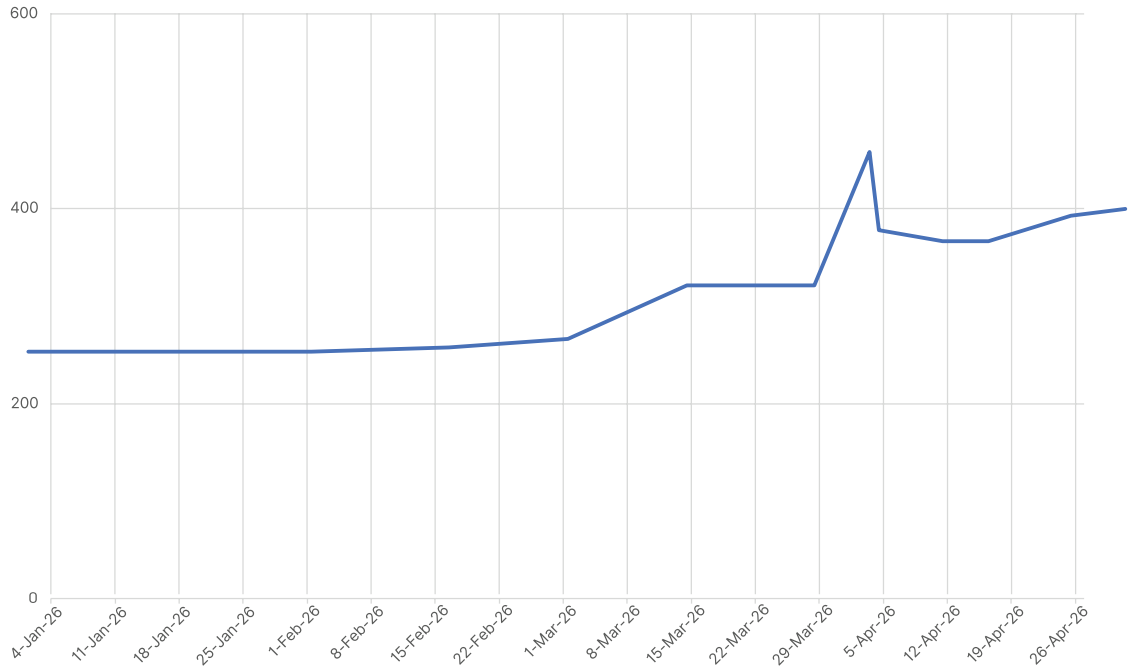


Figure 1: *Weekly Petrol Prices (based on data from the Ministry of Energy (Petroleum Division))*[13]

The curious case of re-liquified natural gas (RLNG) makes the situation even more complex than it already is. To make sense of it, we must go back to 2013-2018, when the incumbent government was scurrying to set up power plants running on coal and RLNG to overcome the problem of long power outages throughout the country. It was then that the government signed long-term agreements with Qatar for the supply of a fixed number of RLNG cargoes each year[14]. A similar deal was signed with Italy in 2017 to procure one cargo of LNG monthly until 2032[15]. The gas price set in these agreements was higher than its spot rates in the market at that time. The government, however, argued that the long-term nature of the agreements would protect Pakistan from uncertainties and volatilities in the market. The government also allowed private firms such as LNGFlex and Tabeer Energy to set up RLNG terminals to offload the imported gas, promising them guaranteed capacity payments regardless of whether they handled any gas or not[16].

Come 2022 energy crisis caused by the Russia-Ukraine war, and both Qatar and Italy refused to provide RLNG to Pakistan under those long-term agreements, chasing higher profits in European markets. The Pakistani government could not do anything to enforce the very agreements that it had signed to protect itself from the kind of market volatility prevailing then. Later, after RLNG cargoes started arriving in Karachi again, Pakistan realized that it

13. Ministry of Energy (Petroleum Division)
14. Pakistan's Long-Term LNG Deals with Qatar: Minister Malik Highlights Key Agreements and Future Negotiations - Economy.pk
15. Pakistan cancels 21 LNG cargoes under long-term deal with Italy's Eni
16. Let there be LNG; China Chemical, and LNG-Flex get ball rolling with private LNG terminals - Profit by Pakistan Today

had contracted to import more gas than it could consume. So, it started diverting a large number of them to other markets, sometimes at a discounted rate.

As estimated in a March 2026 study, Pakistan needed less RLNG than it had originally anticipated because of the mushroom growth of decentralized solar power in most parts of Pakistan. The authors of the study argued that this solarization helped Pakistan save around 12 billion US dollars[17] that it would have otherwise spent on importing RLNG between 2020 and 2025. This figure is debatable, mainly because it does not account for the 7.1 billion US dollars[18] spent by Pakistani citizens to import solar panels during the same period. It, similarly, does not factor in the money that Pakistan lost from having to divert excess RLNG cargoes to other markets at lower than its import prices and the capacity payments being made to RLNG terminal owners – at an exorbitant rate of around 538,535 US dollars a day[19] – even when they have been handling far fewer cargoes than they were originally expected to. Solarization's net benefits to the national exchequer, therefore, may be much less than 12 billion US dollars.

Fast forward to March 2026, and Pakistan started facing another paradox. As explained in Box 1, when its RLNG imports dried up due to the war in the Persian Gulf, it suddenly realized that it might not be able to keep the lights on constantly without ensuring RLNG supplies. Ironically, this realization owes itself to the same solarization process that has brought down the demand for expensive RLNG. As is well known in the power sector, solarization has led to the growth of a duck curve in electricity demand – that goes down during the day but suddenly peaks as soon as the sun sets.

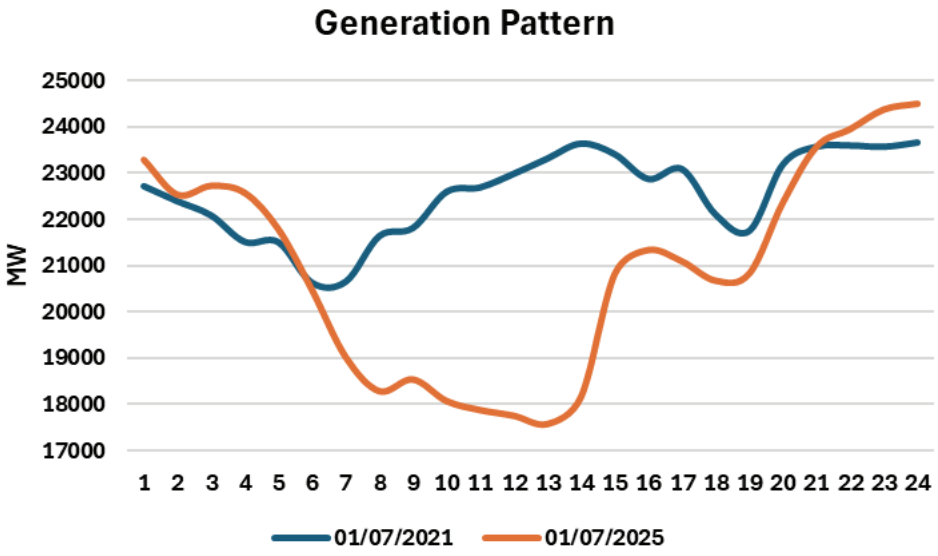


Figure 2: *Pakistan's summer generation pattern represented by a duck curve*

17. https://renewablesfirst.org/resources/blogs/the-hedge-that-paid-off-how-pakistan-s-solar-boom-is-shielding-it-from-the-hormuz-crisis
18. https://ember-energy.org/data/china-solar-exports-data/
19. Despite QatarEnergy force majeure, Pakistan bound to pay $538,535 daily as capacity charges to two RLNG terminals under contracts - Exclusive Waves

This problem has two technical solutions:

1. Keeping flexible generation plants on standby, which can start producing electricity within minutes around sunset – that is, they have the capacity to ramp up quickly;[20]
2. Setting up battery energy storage systems at the utility scale.

If we apply the first solution, we will certainly need RLNG-run power plants because they have the highest ramp-up rate. This means that Pakistan requires these plants more than it ever did if it wants to protect its grid and its electricity consumers from the negative technical fallout of the duck curve. The second solution can handle the peak demand problem caused by the duck curve without requiring power plants that can ramp up quickly, but this will require time and money before it can be put in place. In other words, until Pakistan can add large-scale battery energy storage into its electricity system, ensuring RLNG supplies is the only way to avoid long outages, especially during the peak demand hours starting with sunset.

With summers approaching amid RLNG shortages, the nation may experience more power outages this year than it did during the 2023-2025 period. The average household demand for electricity increases from 120 units per month in winter to 400 units per month in summer[21]. This massive rise in demand might be easy to handle during the day through solar power, but evenings this summer could be highly sweltering if RLNG supplies are not ensured on an urgent basis.

Box 1: Analyzing seasonal variations in Pakistan's RLNG consumption

RLNG demand in summer:

Based on available official data, Pakistan's daily consumption of re-liquified natural gas (RLNG) in June 2025 was approximately 914 million cubic feet per day (MMCFD). This included 501 MMCFD of RLNG used in power plants each day to meet the peak summer demand for electricity. Taking 914 million as a baseline number, we assume that the average monthly RLNG consumption during each summer month stood at 27,420 MMCFD.

RLNG demand in winter:

According to Pakistan's National Electric Power Regulatory Authority (NEPRA), RLNG consumption for power generation declined to 150 MMCFD in November 2025, reflecting an overall reduction in electricity demand and underscoring the fact that gas-fired power generation loses its critical importance during winter months. On the other hand, RLNG consumption increases significantly in the residential sector during winter months due to heightened heating requirements. In November 2025, RLNG consumption by the residential sector stood at 250-400 MMCFD. If these numbers can be used as a reference point, average daily RLNG consumption during winter months is estimated at around 700 MMCFD. The average monthly consumption during the same months thus stood at 21,000 MMCFD.

20. RLNG-based power plants are flexible generation plants that offer relatively high ramping capability compared to other thermal options
21. https://www.agora-energiewende.org/fileadmin/Projekte/2025/2025-12_PST_Gas_Pakistan/AEW_Reconfiguring_traditional_gas_appliances_in_Pakistans_residential_sector_WEB.pdf

When these seasonal variations in RLNG comparison are juxtaposed with its imports, we find out that the average monthly quantity of imports roughly corresponds with average monthly demand, allowing the system to remain relatively balanced. That is why Pakistan was accepting on average only 10 RLNG cargoes each month (as is shown in the table) and diverting additional contracted cargoes to avoid surpluses.

Month/Period	No of Cargoes received by PSO and PL	Quantity/MMBTU	Cost/US dollars	Quantity/MMCFD
January 2025	11	33635535	394504442	32034
February 2025	9	27731357	331632807	26411
March 2025	8	25095675	268632807	23901
April 2025	8	24626750	310038361	23454
May 2025	10	31397865	305711763	29903
June 2025	10	31364139	305123279	29871
July 2025	10	31381002	297218226	29887
August 2025	10	31373397	301489485	29879
September 2025	8	25100936	247544133	23906
October 2025	8	25084072	252307825	23890
November 2025	6	18444701	210832102	17566
December 2025	10	30786372	336142905	29320
January 2026	12	36873325	383984311	35117
February 2026	8	24556827	257076197	23387
March 2026	2	6139207	76686836	5847

The problem occurred when Pakistan received only two cargoes in March this year – compared to eight that it received in March 2025 -- impinging heavily on the availability of RLNG both for power generation and other purposes. Since this trend is set to continue until Pakistan can make new arrangements for RLNG procurement -- as is obvious from the fact that Pakistan did not receive even a single RLNG cargo in the first three weeks of April -- its power sector will seriously fail to meet its high seasonal electricity demand during the summer months, which have already started.

Some in the policymaking circles argue that one possible response to this shock could be fuel substitution, something that many countries tried after the Russia–Ukraine war started in 2022 with varying degrees of failure. As the war disrupted Russia's gas supplies to Europe and LNG prices surged everywhere, many countries in Europe and beyond sought to replace gas with coal, raising coal prices to nearly 400 US dollars per ton[22], as is evident from the trends shown in Figure 3. The resulting surge in fuel costs raised global power generation costs and forced many countries, including Pakistan, either to increase electricity tariffs enormously or to suffer major fiscal losses for having to subsidize the cost of power generation.

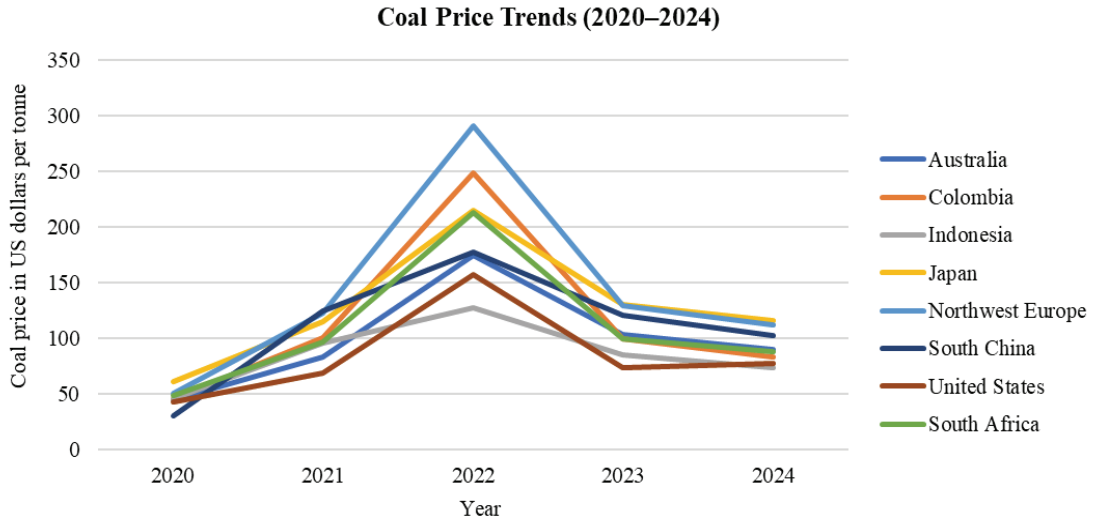


***Figure 3**: Global coal price trends from 2020 to 2024 (graph created using data from Our World in Data)*[23]

The ongoing war in the Persian Gulf also seems to lead to a similar scenario. As shown in Figure 4, recent spot coal prices display a clear upward trend, with a noticeable spike following the escalation in the conflict. As LNG becomes more expensive and less available due to uncertainty in its flow through the Strait of Hormuz, and because of its reduced production capacity in Qatar, many countries are turning towards coal as an alternative fuel, increasing its demand and putting upward pressure on its price.

This scramble for coal, however, will affect different countries differently. For those partially or fully dependent on imported coal – including Pakistan - this means that they will be exchanging one vulnerability with another. While trying to shield themselves from a gas shock, they will only expose themselves to a coal shock. This suggests that fuel replacement is not always the best way to navigate an energy crisis – at least for countries that aspire to get out of an energy import trap.

22. https://www.ft.com/content/4495eeae-7a89-44d0-a926-b9380112714d?syn-25a6b1a6=1
23. https://ourworldindata.org/grapher/coal-prices

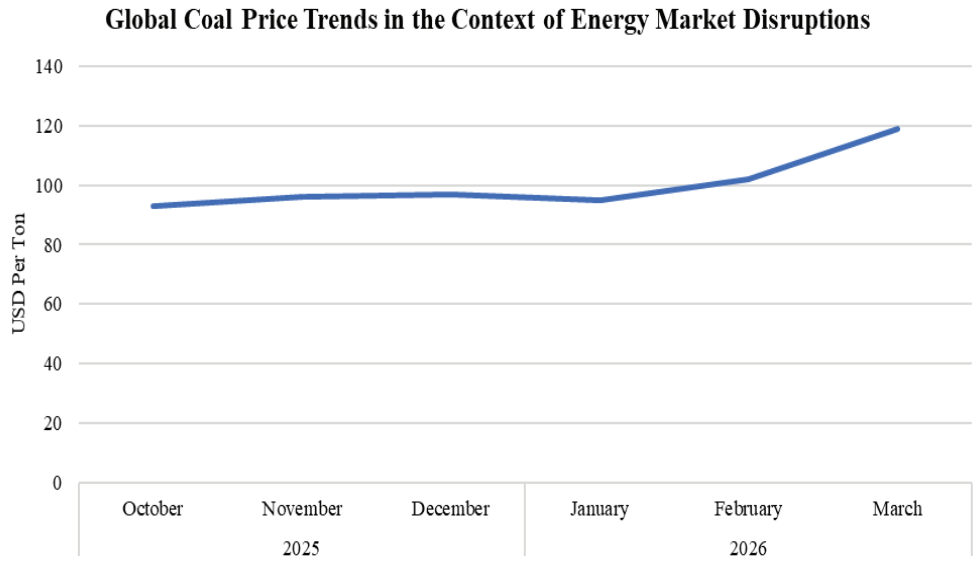


Figure 4: *Global coal prices in the last six months. (graph created using data from Business Insider)*[24]

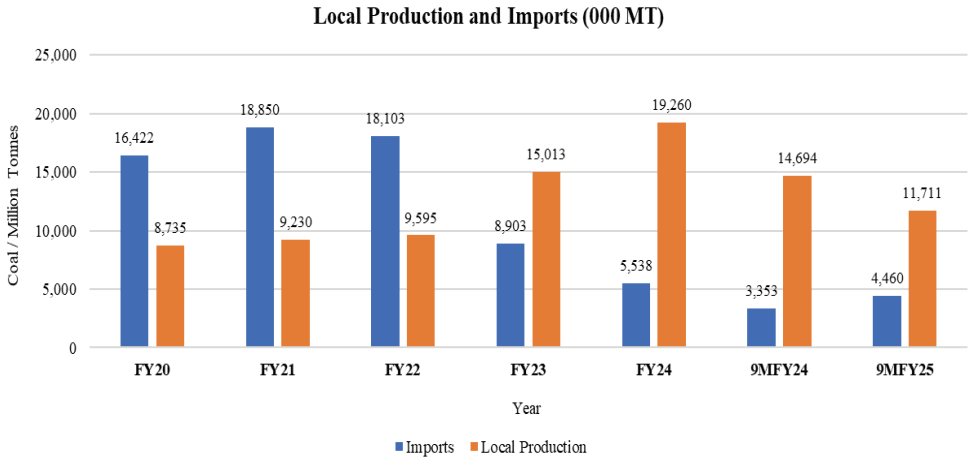


Figure 5: *Pakistan's coal production and imports over the years (based on data from PACRA)*[25]

24. https://markets.businessinsider.com/commodities/coal-price
25. https://www.pacra.com/view/storage/app/Coal%20Mining%20and%20Trading%20-%20PACRA%20Research%20-%20July%2724_1720620292.pdf

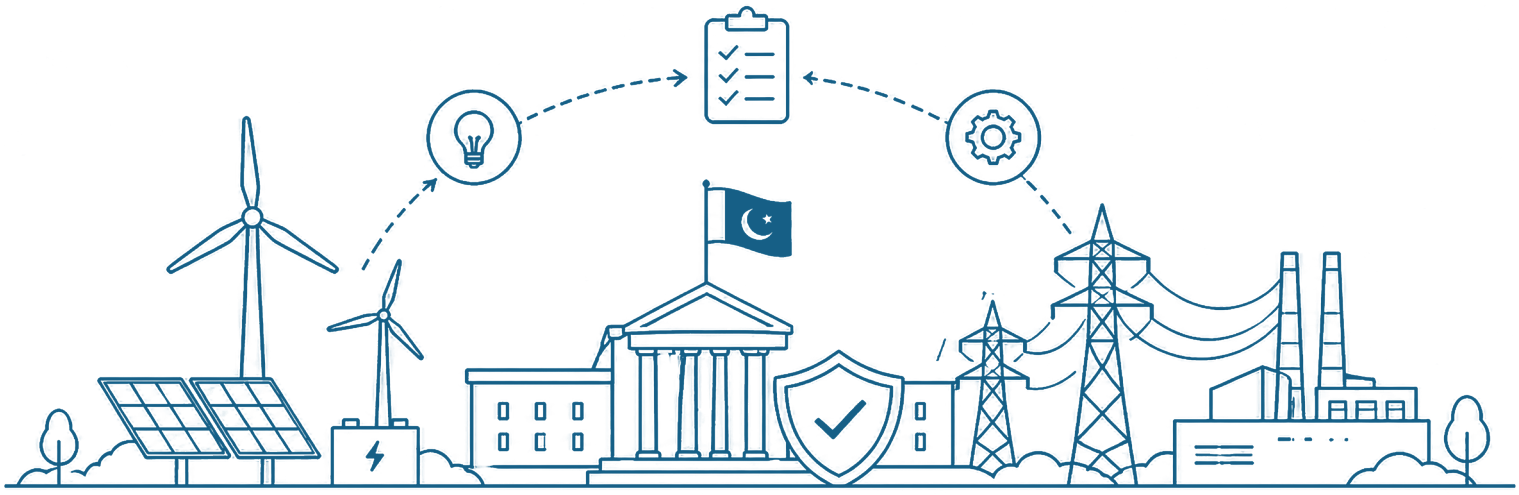
Pakistan's energy sector clearly illustrates the extent of this paradox. As Figure 5 highlights, the county relied heavily on imported coal between 2017 and 2022 for power generation because of low domestic coal production. Although the use of local coal for power generation started surpassing the use of imported coal for the same purpose in fiscal year 2023, the latter still remains a significant contributor to the energy mix. Its share can increase again if Pakistan chooses to replace RLNG with it, but we can safely argue that this pathway will keep Pakistan beholden to volatile conditions in the international energy markets.

Another measure that the government is taking to keep the lights on during the evenings is utilizing furnace oil[26]. It could work as a short-term replacement for RLNG, though it will certainly increase power generation costs. The rise will ultimately be borne by the consumers through fuel cost adjustments in their monthly bills. These monthly adjustments, as per the government's own estimates, will range from 10 to 12 rupees per unit this summer. This is essentially the cost of not being able to utilize LNG-run power plants[27].

26. Ogra allows Cnergyico to export 40,000 tonnes furnace oil in April as surplus builds - Profit by Pakistan Today
27. https://www.dawn.com/news/1986639

Chapter 2

Holding the Line: How Pakistan Is Managing the Energy Crisis



Pakistan's vulnerability to global economic shocks stems from the structure of its imports. Fuel and food items account for 40 percent of its annual import bill -- amounting to 24 billion US dollars -- and make up nearly half of the Consumer Price Index (CPI), a benchmark used for measuring inflation[28].

Any external energy shock, therefore, directly imposes a macroeconomic strain on foreign reserves, current account, and inflation – as import bills increase, necessitating higher payments in foreign exchange for higher imports, and inflation escalates. These developments soon start to put pressure on the rupee-dollar exchange rate and cause economic growth to slow down and tax collection to decrease.

The biggest economic problem with the ongoing energy crisis is that it has unfolded just when Pakistan is coming out of a three-year period of high-inflation and low growth, characterized by massive currency depreciation. The data released by the State Bank of Pakistan shows that the national consumer price index (CPI) inflation averaged at 26 percent in the two fiscal years between 2023-2024 and 2024-2025[29], Gross Domestic Product (GDP) grew at a very low average annual rate of less than 2 percent from the middle of 2022 to the middle of 2025[30], and interest rates remained above 18 percent between July 2023 and June 2025[31], making new loans for investment unviable. The Pakistani rupee lost its value by more than 35 percent during the same period[32].

The energy shock caused by the war in Iraq has the potential to bring back those days of low growth and high inflation if prudent measures are not taken to keep the economy afloat. When The Economist, a British news magazine, identified Pakistan as one of two nations with the weakest buffers and highest exposure to potential oil shocks arising from conflict in the Middle East[33], it was not without reason.

28. https://thedocs.worldbank.org/en/doc/972c49ee47cc09d4face97b09ea64362-0310012025/original/Pakistan-Development-Update-Staying-the-Course-for-Growth-and-Jobs-October-2025.pdf
29. https://www.sbp.org.pk/publications/Inflation_Monitor/index2.htm
30. https://economy.finance.gov.pk/fiscal-development
31. https://www.sbp.org.pk/ecodata/sir.pdf
32. Pakistan Rupee - Quote - Chart - Historical Data - News
33. Which country is the biggest loser from the energy shock?

A former deputy governor of the State Bank of Pakistan, therefore, warned in a recent article that the country's economic growth rate could plummet to zero if global oil prices remain at 100 US dollars per barrel or above till the year-end. According to him, the rupee could lose 10–20 percent of its value, and inflation could surge into double digits[34] during the same period. These forecasts are in sharp contrast to the World Bank's current 3 percent growth rate projection for 2026-27[35].

Compounding these problems is Pakistan's heavy financial reliance on countries in the Persian Gulf region. Remittances sent back home by Pakistanis working in Saudi Arabia and the UAE were 739.6 million US dollars and 694.2 million US dollars, respectively, in January 2026 alone. Collectively, these two amounts accounted for roughly 41 percent of the 3.5 billion US dollars that Pakistan received in remittances from across the globe in the same month[36]. These two countries have also often given Pakistan a financial lifeline by depositing billions of US dollars into the State Bank of Pakistan and allowing Pakistani companies to import oil from them at deferred payments[37]. The latter arrangement is so crucial to Pakistan's financial stability that Saudi Arabia had to step in immediately with a deposit of 3 billion US dollars when the return of a similar 3.5 billion US dollar to the UAE became due this April[38,39]. This makes Saudi Arabia the single largest depositor of dollars into the State Bank of Pakistan. Its deposits now total around 8 billion US dollars[40].

Pakistan's options to tackle these problems, however, are severely restricted by the fact that it is undergoing a monetary and fiscal consolidation program under the IMF's tutelage. The two IMF assistance packages that the country is receiving – a three-year 7 billion US dollar extended fund facility and a shorter resilience and sustainability fund facility worth around 1.3 billion US dollars[41] – prevent the government from...

- Reducing taxes to allow people to have more money at their disposal to spend and invest
- Reducing interest rates to spur investment
- Increasing government spending on public sector development programs to increase employment and generate economic activity
- Providing subsidies to the sections of the society that cannot bear the energy shock without falling further down the poverty ladder.

34. https://www.thenews.pk/print/1405775-a-war-pakistan-cannot-affor
35. https://thedocs.worldbank.org/en/doc/972c49ee47cc09d4face97b09ea64362-0310012025/original/Pakistan-DevelopmentUpdate-Staying-the-Course-for-Growth-and-Jobs-October-2025.pdf
36. Remittances — vital lifeline – Pakistan & Gulf Economist
37. Pakistan to import Saudi oil on deferred payment for one year
38. Pakistan receives $1bn from Saudi Arabia as second tranche of $3bn deposit - Business - DAWN.COM
39. Pakistan completes repayment of $3.45 billion to UAE | Khaleej Times
40. $1 Billion Deposited By Saudi Arabia in Pakistan Reserves, Another $2 Billion Expected From Other Friendly Country
41. First review of $7bn EFF, and new $1.3bn RSF arrangement: SLA reached; IMF praises performance - Business Recorder

If anything, the government is constrained to take measures that are the exact opposite of those listed above. Taxes, such as the petroleum development levy[42], as well as interest rates[43] and inflation[44], have already increased; budgetary allocations for the public sector development program have been cut by more than 100 billion rupees to absorb the impact of the rising fuel import bill; and subsidies are being kept to a minimum so that the IMF does not object to them. Additionally, the government has introduced a series of austerity measures, which are as follows:

- Shortening the work week to four days;
- Announcing school holidays until mid-April;
- cutting government fuel allowances by 50 percent.[45]
- Increasing petrol and diesel prices by more than 50 percent and adopting a weekly price revision mechanism.[46]

The government has also launched extensive diplomatic efforts to ensure that energy shipments bound for Pakistan continue to pass through the Strait of Hormuz. [Notably, the first non-Iranian cargo to pass through the strait following its blockade was an oil shipment destined for Pakistan[47]]. It has asked Saudi Arabia to supply oil to it via its Red Sea ports as an alternative[48]. Similarly, it has introduced a Gas Load Management Plan under which 78 MMCF of gas supply to the fertilizer industry has been suspended. Cutting down gas supply to CNG stations is being considered, and the flow of around 350 MMCFD of previously curtailed domestic gas has been allowed into the system to help ease supply pressures[49].

42. https://www.dawn.com/news/1994919
43. Central bank increases policy rate by 100bps to 11.5pc - Business - DAWN.COM
44. Inflation update: power bills and produce push inflation to 6.98pc - Business - DAWN.COM
45. https://www.google.com/url?q=https://www.reuters.com/world/asia-pacific/pakistan-announces-austerity-measures-save-fuel-amid-mideast-conflict-2026-03-09/&sa=D&source=docs&ust=1774449861896103&usg=AOvVaw3kt27GK5VE9dNg_9sM7Q-o
46. https://www.reuters.com/business/energy/pakistan-raises-retail-fuel-prices-by-about-20-due-middle-east-tension-2026-03-06/
47. https://www.reuters.com/world/asia-pacific/pakistan-bound-oil-tanker-passes-through-hormuz-strait-amid-iran-war-2026-03-16/
48. https://www.nytimes.com/2026/03/14/world/asia/pakistan-oil-prices.html
49. https://exclusivewaves.com.pk/lng-imports-halted-gas-rationed-as-hormuz-crisis-deepens/

Chapter 3

The Cost of Coal dependence

Pakistan has approximately 186.0 billion metric tons of coal reserves, with 99 percent of them in Sindh province. Out of these, only around 3.5 billion metric tons are proven reserves, while the rest are indicated (around 12 billion metric tons), inferred (around 57 billion metric tons), and hypothetical (113 billion metric tons). In terms of proven coal reserves, Pakistan ranks 20th globally[50].

The first power plant fired by local coal came online in 2019 in the Tharparkar district of Sindh province. Several other power plants running on local coal have also started generating electricity in the same district. Their combined generation capacity now stands at 3.3 gigawatts. Two large open-pit mines have been dug near these plants to feed coal to them.

Over the last few years, policymakers have been propagating the idea that the mining of indigenous coal should be expanded so that it can be used in power plants that are running on imported coal. One of the major elements behind this suggestion was the extraordinary rise in coal prices between 2022 and 2024 – from less than 100 US dollars per metric ton. The other was to shift LNG-fired power plants to local coal to bring down the need to import gas. The overall objective was to reduce dependence on imported fuels, thereby ensuring national energy security and saving precious foreign exchange.

Although the government has not been able to ensure the technical and financial resources required for the conversion of power plants running on imported coal and imported gas to local coal, a railway line is still being laid down in Tharparkar to facilitate the transportation of local coal to other parts of the country. The argument until now has been that this coal could be used in other industries if converting power plants to it is not technically and financially feasible. The government of Sindh also made plans to convert local coal into gas so that it could be used in the fertilizer industry as feedstock. The war in Iran has given a new lease on life to these old ideas of, at the very least, converting power plants running on imported coal to local coal. Consequently, Tharparkar's coal is once again being touted as Pakistan's best bet to ensure its energy security - even as obstacles to make this happen are already known.

50. https://www.pacra.com/view/storage/app/PACRA%20Research%20-%20Coal%20Mining%20and%20Trading%20-%20July%2725_1752152725.pdf

Firstly, Tharparkar's coal is lignite, while the power plants running on imported coal use sub-bituminous coal. The former has a calorific value of approximately 14.52 megajoules per kilogram (MJ/kg)[51] while the latter has a much higher calorific value – 31-32 MJ/kg[52]. This means that more than twice as much lignite coal is required to generate the same amount of power that the imported sub-bituminous coal generates. The government of Pakistan's own estimates state that mining expansion alone will cost 480 million US dollars if only two additional power plants are converted to local coal[53]. If the cost of converting the machinery of each plant to local coal – estimated to be anywhere between 250 million US dollars and 500 million US dollars – is added to mining and coal transportation costs, the power tariff of the converted plants will inevitably be higher than 19.99 rupees per unit, the cost of electricity generation charged in January 2026 by the power plants running on imported coal[54].

Apart from these financial considerations, coal power has other so-called 'external' costs which never find a way into its tariff determination. In the case of Tharparkar's lignite coal reserves, these costs have been documented in detail by several organizations. A CREA study conducted in 2020-21, for instance, forecast that coal-based power generation in Tharparkar could lead to several thousand additional deaths every year due to diseases resulting from environmental pollution and degradation. PRIED's surveys show that the villages located closer to coal mines and power plant sites report a significantly higher incidence of respiratory illnesses, including cough, asthma, and shortness of breath, compared to more distant settlements. Residents of these villages also describe a noticeable deterioration in air quality. Elevated levels of contaminants, including chloride, total dissolved solids, mercury, lead, fluoride, and arsenic, have also been found in groundwater samples taken from Tharparkar's coalfields and tested by Sindh's Mehran University. These environmental stresses are also reflected in local ecology, with visible deterioration in vegetation such as neem trees, suggesting broader ecosystem impacts associated with coal mining and related activities[55].

Table 1: Is it viable to use local coal in power plants designed for imported coal?

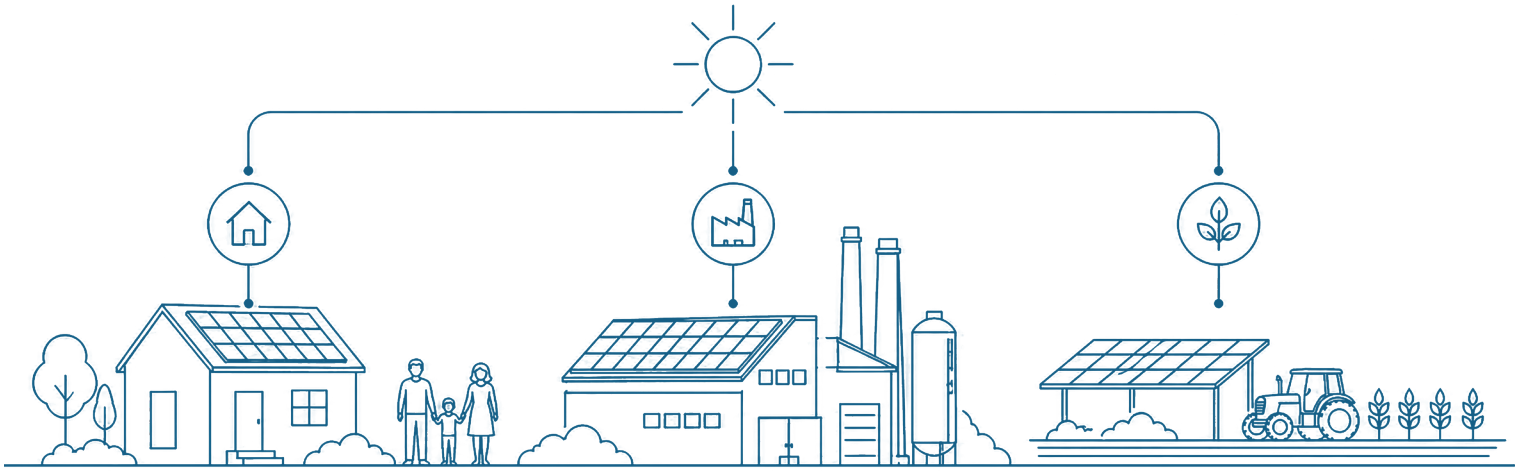
Criterion	Imported coal	Local coal	Policy implication
Fuel price	Rs 50,362/ton	Rs 7,891.83/ton	Local coal appears cheaper at the fuel price level
Generation cost	~Rs 19.9986/kWh	~Rs 10.4692/kWh	Local coal seems cheaper operationally

51. https://www.sciencedirect.com/science/article/pii/S2590123024012933
52. https://toolkit.pops.int/publish/Annexes/A_28_Annex28.html
53. https://tribune.com.pk/story/2462720/all-plants-to-shift-to-local-coal
54. https://nepra.org.pk/tariff/Tariff/IPPs/003%20Coal/China%20Power%20Hub%20Generation%20Company%20(Private)%20Limited/2026/TRF-342%20CPHGCL%20FPA%20JANUARY%202026%2023-02-2026%203848-52.PDF
55. https://www.priedpk.org/wp-content/uploads/2023/11/project-brief-01-Health-Hazards.pdf

Calorific value	31–32 MJ/kg	14.52 MJ/kg	More than twice as much local lignite coal is needed for the same heat output generated by imported coal
Foreign exchange exposure	High	Nil	Local coal reduces import dependence
Suitability for existing plants	Already aligned with existing plants running on imported coal	Limited alignment with existing coal plants running on imported coal	Full switching is not technically possible without large-scale investments; even partial blending (up to 20 percent) will require substantial investments
Technology fit	Plants designed to use imported coal have critical or supercritical technologies	Plants designed to use local coal have sub-critical technologies	A major retrofit will be needed to convert the plants running on imported coal to local coal
Flexibility for peak demand	Limited	Limited	Coal cannot easily replace RLNG for meeting and balancing peak demand
Upfront enabling cost	Import and transportation chains already exist	Mining expansion and new transportation infrastructure are required	Switching requires major capital spending
System role	Baseload	Baseload	Neither imported nor local coal is ideal for fast ramping
Environmental/ social cost	Emissions related to offloading, transportation, and burning (supply chain emissions)	Emissions related to mining and transportation; water contamination; health hazards; social and economic displacement; livelihood losses	Shifting to local coal also shifts its environmental and social costs domestically
Overall assessment	Costly and vulnerable to external shocks	Feasible only in the short-run but not a long-term solution because of its 'external' costs and the investments needed for conversion and building coal infrastructure	Local coal is an imperfect substitute for imported coal

Chapter 4

The Alternative: Boosting the Solar Momentum



As the Persian Gulf war began, Pakistan's ability to cushion itself from the immediate energy supply disruption was hailed globally, thanks largely to the rapid expansion of decentralized solar power over the last three years. This growth has helped the country reduce its reliance on imported fuels, such as LNG, in the power sector by offsetting a significant share of daytime grid demand.

As the Institute for Energy Economics and Financial Analysis (IEEFA), a British think tank, argues, Pakistan entered the war-induced energy crisis with an LNG surplus. This surplus, according to IEEFA, was caused by a weakening demand for grid electricity, rising supply of distributed solar power, and rigid long-term supply contracts that Pakistan had signed with Qatar and Italy that left no room for it to reduce imports when demand went down. If war had not pushed Qatar to revoke those contracts under force majeure provisions, Pakistan would receive 177 RLNG cargoes between 2026 and 2031 that would have been surplus to its needs[56].

To understand this shift, we first need to look at how Pakistan's energy mix has changed between 2015 and 2025. In 2015, the share of indigenous gas in Pakistan's national energy mix stood at a staggering 28.7 percent. By 2025, this came down to 9.3 percent. Oil also almost disappeared during this decade as a contributor to the energy mix, even though its share was as high as 35.3 percent in 2015. This massive shift happened mainly because the shares of local coal, imported coal, imported RLNG, renewables, and nuclear power all increased in the energy mix. Going by the 2025 energy mix, RLNG was a critical pillar of Pakistan's energy diversity.

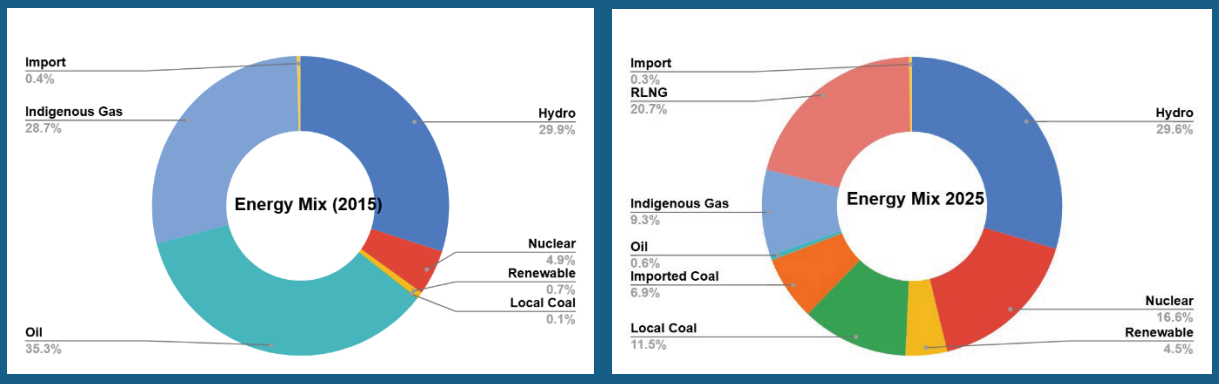


Figure 6: *a&b: Pakistan's energy mix - 2015-2025 (side by side comparison)*

56. https://ieefa.org/sites/default/files/202603/IEEFA%20Briefing%20Note_Pakistan%E99%80%2s%20LNG%20surplus%20crisis%20-%20Assessing%20evolving%20energy%20dynamics%20and%20the%20need%20for%20flexibility_March2026.pdf

Table 2: Grid Electricity Generation by Fuel (Source: NEPRA)

Source	FY 2015		FY2025	
	GWh	Share	GWh	Share
Hydro	32,594	29.9%	39,973	29.6%
Nuclear	5,349	4.9%	22,452	16.6%
Renewable	811	0.7%	6,029	4.5%
Coal	102	0.1%	24,892	18.4%
*Indigenous Coal	102	0.1%	15,548	11.5%
*Imported Coal	-	0.0%	9,344	6.9%
Oil	38,402	35.3%	811	0.6%
Gas	31,215	28.7%	40,468	30.0%
*Indigenous Gas	31,215	28.&%	12,498	9.3%
RLNG	-	0.0%	27,970	20.7%
CASA Import	443	0.4%	454	0.3%
Total	108,917		135,078	

Even though Table 2 shows that the share of renewables (that is, utility-scale solar and wind power) in the current energy mix is less than 5 percent, the real transition has occurred elsewhere. The government's own figures state that grid-connected solar power systems installed across Pakistan now have the capacity to produce around 7,000 megawatts of electricity. Meanwhile, the combined capacity of the solar power systems installed in the country that are not connected to the grid could be higher than 26,000 megawatts, according to a study done by PRIED and Transition Zero in 2025[57]. This massive solarization is, at least partially, to blame for more than a ten percent decrease in demand for electricity from the national grid between 2022 and 2025. This reduced demand in turn allowed the government to decrease its dependence on the power generated using expensive imported RLNG. This explains how RLNG's share in the energy generation mix has dropped from 22 percent in FY2020-21 to 20.7 percent in FY2024-25[58].

In other words, even before the war broke out, solarization had lessened Pakistan's exposure to imported RLNG in particular and imported fuels in general.

57. https://www.priedpk.org/wp-content/uploads/2026/04/Energy-Monitor-.pdf
58. nepra.org.pk/publications/State of Industry Reports/State of Industry Report 2025.pdf

Solar Dividends: What has Solar Power Replaced?

The concept of energy autonomy first appeared in Pakistan as an economic premise. Troubled by rising electricity tariffs and frequent outages, Pakistanis needed an energy solution that gave them control over how much electricity to use and at what price. Hence, the solar rush. From homeowners to shopkeepers and from agriculturists to industrialists, everyone opted to install a solar system of their own.

As explained above, the massive solarization that took place in Pakistan between 2023 and 2025 has led to a serious reduction in the import of costly RLNG. That's not the whole story, though. Demand for diesel, another imported fuel, dropped 34 percent in the agriculture sector as farmers, especially those with small landholdings, started running their tube-wells on solar power, mainly because diesel had become extremely expensive for them due to the removal of government subsidies on it. This shift has allowed farmers better control over their irrigation practices and helped them with better profit recoveries[59].

In the industrial sector, too, solarization is replacing captive power plants run on gas and is serving as a supplement to the grid-provided electricity. Hundreds of enterprising industrialists have gone a step further, supporting their solar systems with battery energy storage to decrease their reliance on the grid to a minimum. Many of them, especially those in the textile sector, have been motivated to go solar to avoid the impacts of the Carbon Border Adjustment Mechanism (CBAM), a European Union measure that will tax imports flowing into Europe on the basis of carbon content – or lack thereof – in the electricity used in their production.

Solar Limits: What Can Solar Power Replace; What it Can't?

Solar power adoption has undoubtedly improved the reliability of electricity supply, especially during daytime hours, for roughly 18 percent of Pakistanis. The remaining citizens of the country are still dependent on the unreliable and costly grid. Even the solarized ones have to return to the grid after sunset – unless they have batteries as a backup. Figure 6 illustrates this shift in grid electricity during a 24-hour cycle, comparing year-on-year demand from July 2024 and July 2025. As evening approaches, all that demand that was being met through solar power during most of the day suddenly rushes back to the grid. Or perhaps even more, since peak consumption time in Pakistan has been between sunset and around midnight – when all members of a family are supposed to be at home. This has given rise to a phenomenon called 'duck curve' – as shown in the figure below. Also, as mentioned earlier, with summer approaching, the average monthly household electricity demand in Pakistan will rise to 400 units as opposed to 120 units per month required in winter. This roughly three times increase is primarily due to higher cooling needs during summers[60].

59. The Perfect Storm Fueling Pakistan's Solar Boom | World Resources Institute
60. https://www.agora-energiewende.org/fileadmin/Projekte/2025/2025-12_PST_Gas_Pakistan/A-EW_Reconfiguring_traditional_gas_appliances_in_Pakistans_residential_sector_WEB.pdf

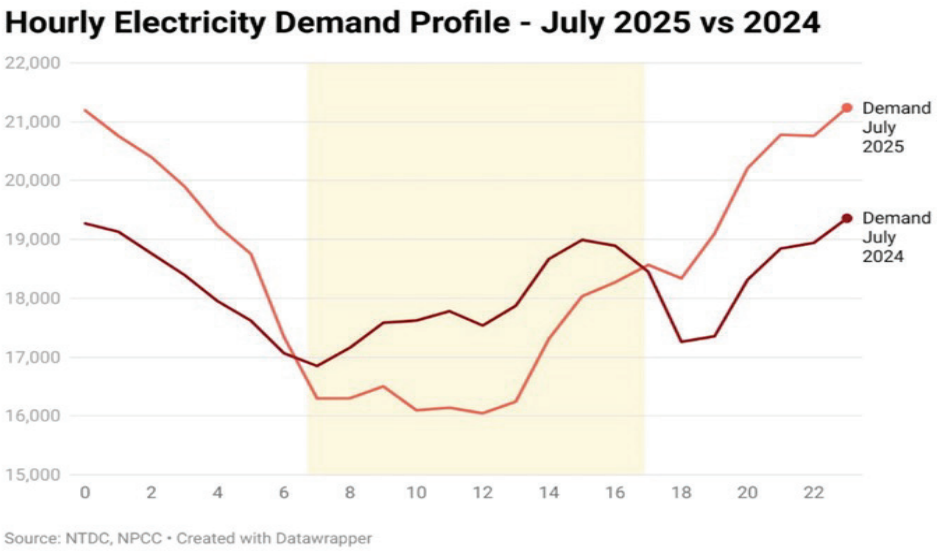


Figure 7: *Hourly Electricity Demand Profile – Year-on-year*

The duck curve is not just a fancy graphic. It, indeed, illustrates the dilemma that the grid operators are increasingly facing in Pakistan. They have to shut down a large number of power plants as soon as the sun is out and people shift to solar power. In the evening, they have to switch on a large number of power plants as consumers return to the grid in droves. In technical terms, they have to ramp down power generation in the morning and ramp it up in the evening. The peak evening demand shown in the duck curve necessitates that this ramping up has to be fast; otherwise, the power system will lose its balance, resulting in large-scale outages. The problem is that this quick ramping up cannot be achieved through any other plants but the ones run on gas – RLNG to be specific. This is something that solar cannot replace on its own – at least for now.

As explained earlier, an alternative being mulled over by Pakistani policymakers is to increase the use of coal, but according to Ember, a global energy think tank, this solution is costlier than hybridizing solar power with large-scale battery energy storage systems. The levelized cost of electricity (LCOE) from coal is around 76 dollars per megawatt-hour, which is nearly double the cost of solar-battery hybrid systems, which cost around 40 dollars per megawatt-hour[61]. So, solar power can definitely replace coal on its economic merit, if not based on its environmental and social benefits as well.

61. https://ember-energy.org/latest-insights/overcoming-fossil-lock-in-is-pivotal-for-asia-to-buffer-against-energy-shocks/

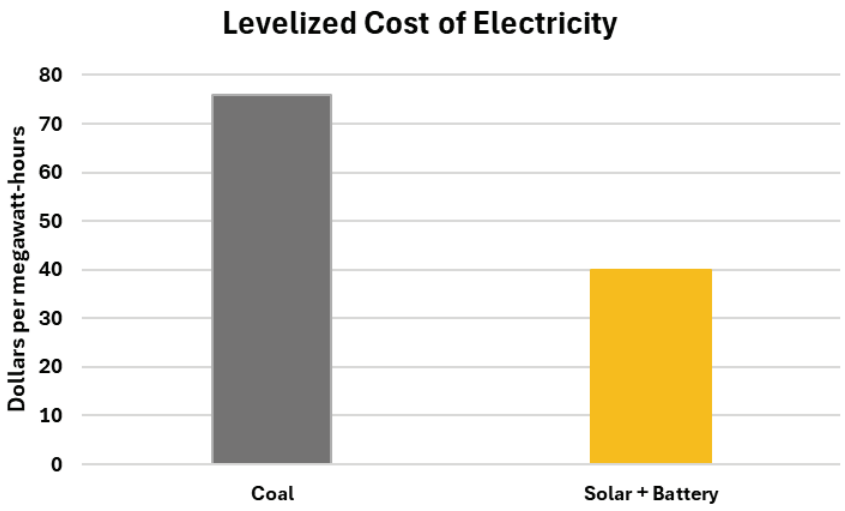


Figure 8: *Levelized cost of electricity comparison between coal and solar-battery hybrid*

A solar-battery hybrid, however, is a medium to long-term solution. In the short term, it is neither feasible nor possible due to the fact that grid-scale batteries have very high prices, and importing and installing them takes time. Individual homeowners and businesses, however, might start to opt for smaller batteries as they are already being locally made.

Solar Suitability: A Stronger Candidate for Import Substitution

Based on 2024 estimates by Ember, installing 1000 megawatts of solar capacity costs approximately 100 million dollars (assuming a 0.1-dollar cost per watt). With this one-time cost, this system can generate about 1.5 terawatt-hours (TWhs) annually for 25-30 years at an average capacity factor of 17 percent. In comparison, the same amount of money spent on gas imports can generate 1.5 TWh of electricity only once.[62]

Going by these numbers, if Pakistan installs all of its more than 48 gigawatts of solar imports, it will generate 1,650 TWh of electricity -- equivalent to about 15 years of the country's current annual grid-supplied electricity consumption.[63] Producing the same volume of electricity from coal- and gas-based power plants will require an estimated 330–400 metric tons of oil equivalent of primary fossil fuels, which will cost 100–120 billion US dollars at 2024-25 prices and exchange rates.

62. https://ember-energy.org/latest-insights/three-facts-that-show-how-solar-and-wind-strengthen-energy-security/
63. https://uploads.renewablesfirst.org/Electrons_In_Hydrocarbons_Out_Pakistan_s_Quest_for_Economic_and_Resource_Efficiency_9fbd5225d6.pdf

Solar Alignment: Climate Benefits and Energy Autonomy

Solarization aligns energy security with climate policy. Pakistan's energy sector emissions stood at 213.28 million metric tons of carbon dioxide equivalent in 2021, accounting for 40.9 percent of the country's total greenhouse gas emissions. The latest iteration of its Nationally Determined Contributions (NDCs) commits to reducing these emissions by 50 percent by 2035. Acceleration and expansion of solar-battery hybrid systems can help the government achieve this target faster than any other pathway can.

In addition to avoiding greenhouse gas emissions, solar farms installed on croplands and grasslands serve as carbon sinks and offer greater sequestration potential for the already emitted greenhouse gases. Forecasts suggest that the global mitigation potential of utility-scale solar farms will increase exponentially over the coming decades as the total areas under them will expand to 54,000 square kilometers by 2050[64]. Pakistan must contribute to this expansion commensurate with its energy sector's size and the volume of its current and projected emissions of greenhouse gases.

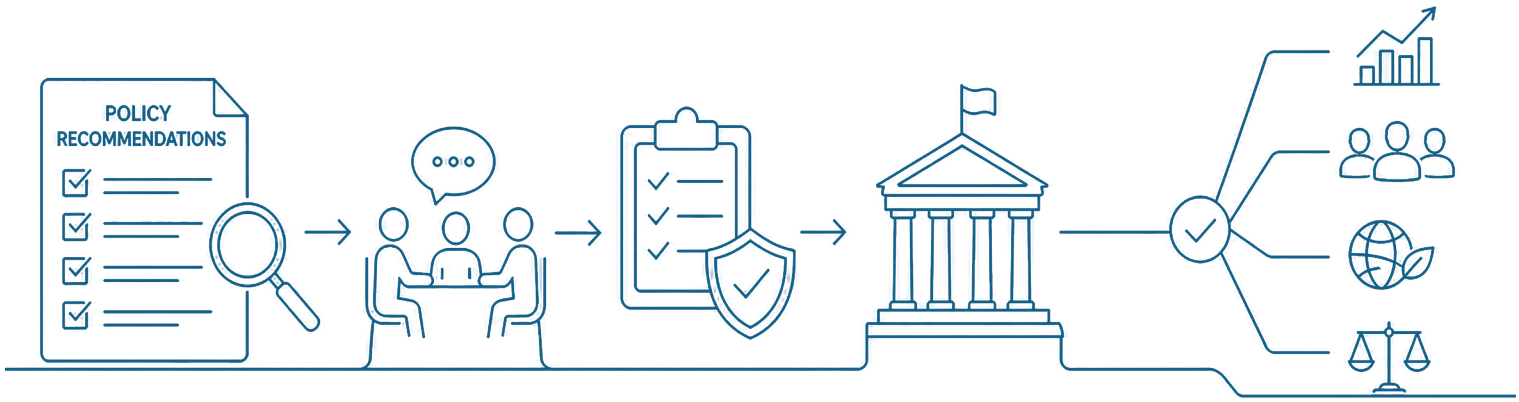
Table 3: What Solar can Replace in the current crisis?

System Need	Contribution of Solar Power	Main Limitation of Solar Power	What is needed additionally?
Day-time electricity demand	High	Output depends on sunlight	Better grid integration
Backing up imported LNG use for power generation	Moderate to high during daytime	Cannot serve night-time demand	Battery Energy Storage and Demand-Side Management
Evening peak demand and ramping	None on its own	Solar output falls after sunset	Battery Energy Storage, flexible hydro, or flexible gas
Household and farm energy autonomy	High for adopters	High upfront cost excludes many potential users	Consumer finance and concessional credit
Long-term import dependence	Strong reduction potential	Transition takes time	Battery Energy Storage, transmission system upgrades, and stable policy

64. https://www.nature.com/articles/s41561-025-01716-1

Chapter 5

Policy Recommendations



Pakistan's energy sector has been reeling from the aftereffects of ill-conceived policy planning, which has pushed the country into overreliance on fossil fuels, both local and imported, and led to the accumulation and compounding of a circular debt worth around 1.5 trillion rupees even after massive repayments recently. As explained in this policy brief, the ongoing war in the Persian Gulf has laid bare the country's energy vulnerabilities in the starkest way possible. Here, we suggest a slew of measures as a corrective to these problems:

Protect essential imports, not all imports: Prioritize fuel flows that support transport, agriculture, and essential industry, and improve summertime reliability of the power generation system. Use diplomacy and shipping security to preserve access to energy, but avoid panic buying that ultimately translates into financial burden for consumers.

Diversify gas procurement and improve contractual flexibility: Pakistan's pre-war RLNG glut shows that the problem is not just the volume of imports but rigid contracting in a volatile market. Future procurement should value optionality, seasonal flexibility, and storage access.

Review and lift regressive taxes on solar panels: The 10 percent general sales tax (GST) imposed on solar panels and their ancillary components places undue financial constraint and burden on those who wish to partake in Pakistan's solar rush. It also undermines Pakistan's global commitment to accelerate the integration of clean, renewable sources of electricity into its energy mix.

Ease prosumer regulations and mediate a smoother transition towards the net-billing regime: The disincentives introduced for new customers – such as the negative difference between the price of electricity they will produce and the one they will consume – and other non-tariffs, operational snags such as licensing requirements and licensing fees – are increasing the cost of setting up grid-connected solar systems. These hurdles must be done away with through a smoother transition to a regime that creates a balance between the needs of the consumers and the requirements of the grid.

Accelerate storage and flexibility by facilitating the import of batteries: The government should fast-track power demand response measures, feeder-level management, and time-of-use pricing so that excess daytime solar power saved through batteries can serve evening demand. Also, the high rate of taxes on imported batteries – roughly in the range of 40 percent of their original price – is an artificial barrier in the way of Pakistan's energy transition. Removing it can facilitate a battery rush that can increase energy access while keeping its prices down due to a decreased need to invest heavily in transmission lines.

Decarbonize energy-intensive sectors through electrification: Starting with the promotion of two-wheeler and three-wheeler electric vehicles (EVs) through targeted subsidies, the government should eventually move towards totally electrified residential and industrial sectors in the long run.

Use domestic fuels as a bridge, not as a new lock-in: Without burdening the environment and electricity consumers, the government should optimize the use of existing domestic energy sources, particularly local gas and hydroelectric power. It should, however, avoid committing itself to any new long-term contracts involving the use of environmentally hazardous local and foreign fossil fuels, as well as hydroelectric projects. Positioning new local coal and other fossil fuel mega projects as the central pillar of an energy resilience strategy could prove counterproductive because – as we have already seen in the case of existing power generation from fossil fuels - this approach is likely to create greater long-term economic and structural challenges.

Reallocation of fuel-associated taxes: Taxes such as the petroleum development levy (PDL) and the carbon levy should be imposed on the producer end as a deterrence to continued investments in fossil fuel projects. These taxes should also be ringfenced to subsidize the integration of EVs into the transport mix to cut greenhouse gas emissions and reduce air pollution.

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