



WHY PAKISTAN CAN NO LONGER AFFORD TO DELAY ITS CLEAN ENERGY TRANSITION

Lessons from Global Energy Shocks and the Case for Clean Energy Investment and Financing

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Since 2007, Pakistan has experienced three rounds of global shocks affecting energy prices: 2007-2008, 2022, and the latest episode in 2025-26, which is linked to the Middle East conflict. Every shock has followed almost the same

sequence of events, such as, a depletion of foreign exchange reserves, weakening of the currency, increase in inflation, and vanishing fiscal space to deal with anything else. Table I highlights the parallels among the three shocks with different causes, but the same mechanism of transmission and the same short-run policy response.

Table I. Three Global Energy Shocks and Pakistan's Exposure

Period	Trigger	Peak Oil Price / Impact	Currency & Inflation	Outcome
2007–08	Global commodity price surge	Oil price roughly doubled, June 2007–June 2008	Reserves fell from >\$13bn buffer, inflation increased, FDI declined by < 20%, foreign exchange reserves fell to \$5bn	Growth slowdown, subsidy-led measures
2022	Russia–Ukraine war	Crude rose > \$120/barrel	Inflation 20%; currency depreciation 28% by mid-2023	LNG cargoes lost to higher bidders; IMF bailout
2025–26 ⁶⁵	Middle East conflict / Strait of Hormuz risk	Monthly oil import bill jumped from \$300m to \$800m	Trade deficit up 43.5% m/m (April 2026)	Renewed austerity; reserve-crisis risk flagged

This isn't a tale of a bad year, but a tale of structural dependency. Only 10% of Pakistan's power comes from indigenous sources (6% from renewable and 4% from nuclear sources). Pakistan's dependency on imported fuel to meet 40% of energy demands has increased its vulnerability in terms of increasing fuel prices globally. For instance, in the 2022 shock alone, Pakistan's cost for LNG imports reached \$4.9 billion per annum, and according to Bloomberg, Pakistan lost the cargoes to richer nations that could afford to pay triple the price, eventually securing replacements at prices 230% higher than the usual rate⁶⁶. Meanwhile, the peak cost of coal imports was \$419/tonne in 2022. These consequences had a far-reaching effect that went beyond the control, such as plant closures, doubling or tripling of household energy bills (that accounted for 15–20% of their income), nationwide strikes, and even an IMF bailout to prevent default. An estimate is that every \$10 rise in Brent crude adds \$1.8–2.0 billion to Pakistan's annual import burden⁶⁷. These episodes teach the same lesson that a country relying on the energy generated mostly by imported fuel will never be able to control its own destiny. The lesson is impossible to ignore now for the next episode.

2- ONE SHOCK AFFECTING EVERY LEVEL OF THE ECONOMY

Dependency on imported fuels serves as a transmission mechanism, driving a global price change into the entire national economy via the whole range of channels, including trade balance and household electricity bills. The fuel shocks increase transport costs and food prices, reducing the purchasing power and raising the cost of living. The perfect example here is the power sector circular debt that continues growing despite the government's efforts to reduce it through refinancing rather than through any structural reforms. Pakistan failed to meet its own IMF target of bringing down its circular debt to Rs 1.614 trillion by end-FY26, and the actual figure stood at about Rs 1.92 trillion in May 2026⁶⁸.

65. Global oil shock shatters Pakistan as trade deficit balloons in April: Report

66. Energy Crisis in Pakistan: New Policy Approach Is Crucial

67. Pakistan's energy challenge

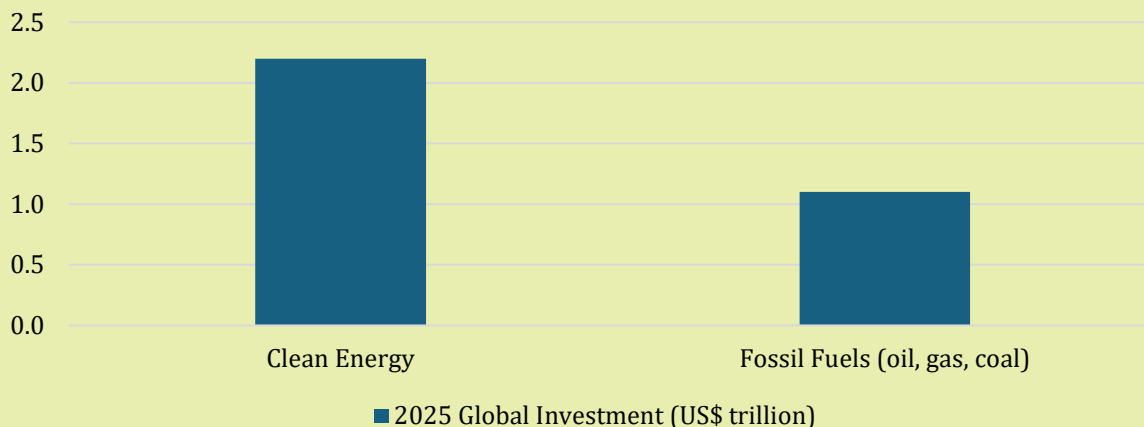
68. Circular debt hits Rs1.84tr

3. THE GLOBAL MONEY SHIFTS TOWARDS CLEAN ENERGY

Calculating the economic costs of fuel reliance, the world has made a decisive shift to invest in clean

energy, which now attracts roughly two times more capital than fossil fuels (Figure 1). The latest IEA's World Energy Investment 2025 forecasts record high global energy investment of \$3.3 trillion in 2025 in clean energy technologies⁶⁹.

Figure 1. Global Energy Investment by Category, 2025 (US\$ trillion)



Globally, investments in solar PV were forecast to attract \$450 billion in 2025⁷⁰. An indigenous shift towards solarization is already underway. Pakistan has imported around 17 GW of solar PV panels in 2024 alone, the highest volume by far for any country in the world that year. Total imports by mid-2025 are estimated at 45-51 GW of solar PV, matching the total installed capacity of the national grid itself⁷¹. Net-metered rooftop solar capacity has grown from 583 MW in 2022-23 to 1,181 MW in 2023-24 and then jumped again to 2.8 GW in only ten months of the FY2024-25 year, taking the total past 5-6 GW⁷². One estimate suggests a total on-grid and off-grid installed solar PV capacity of roughly 34 GW⁷³. One recent industry estimate suggests that this bottom-up solar transition in Pakistan has already resulted in cumulative savings of \$12 billion in avoided fuel imports since 2020, and will continue to deliver savings of \$6.3 billion in FY2026⁷⁴.

4. PAKISTAN NEEDS TO WORK WITH ALREADY EXISTING INDIGENOUS RESOURCES

Pakistan's indigenous renewable resource base is sufficient, so it does not have to import resources for clean energy (Figure 2). The indigenous energy resources sidestep the ship route, the currency exchange, or the Strait of Hormuz to remain accessible. They are the sole energy investment type for which Pakistan's financial outlays remain in-country rather than being exported as an import bill.

69. Executive summary – World Energy Investment 2025 – Analysis – IEA

70. Record energy investment forecast and more top energy stories | World Economic Forum

71. The Perfect Storm Fueling Pakistan's Solar Boom | World Resources Institute

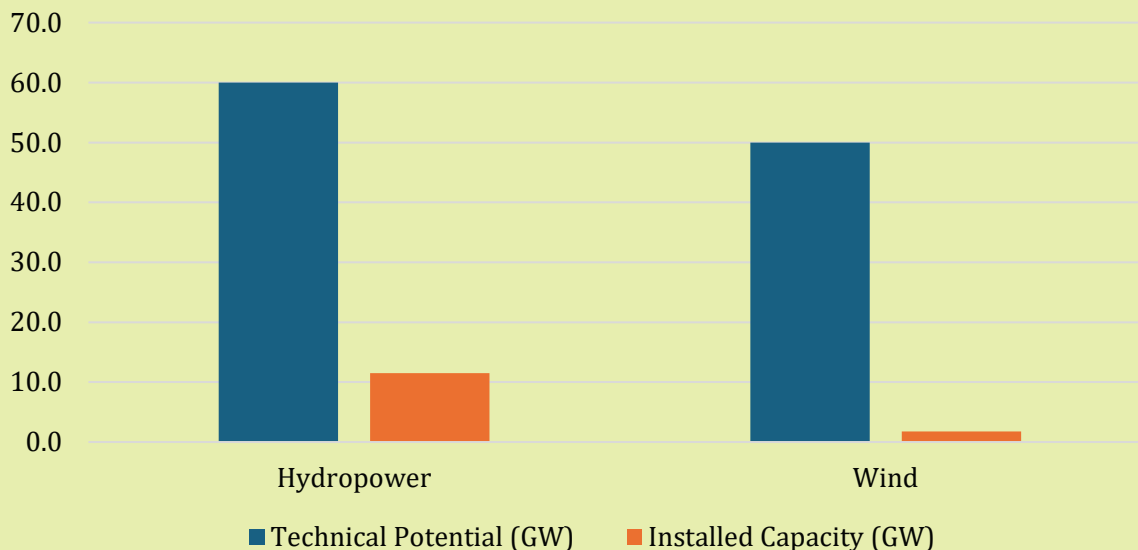
72. GSR 2025 | Snapshot: Pakistan

73. Ibid

74. TransitionZero

75. Pakistan's energy challenge

Figure 2. Hydro and Wind: Technical Potential vs. Installed Capacity (GW)



The technical potential of indigenous renewable resources of Pakistan is significant and is underutilized. A Comparison between technical potential and existing installed capacity⁷⁶ illustrates the magnitude of the opportunity (Table 2).

Biomass supplies an additional 25 million tons/year of feedstock from agricultural and industrial residues (bagasse and crop residue), a resource which is inherently local and rural, not related to port terminals.

Table 2. Pakistan's Indigenous Renewable Potential vs. Installed Capacity (GW)

Resource	Technical/Economic Potential	Installed Today	Utilization
Hydropower	60 GW (IRENA)	11.5 GW	19%
Wind	50 GW (Sindh/Balochistan corridor, IRENA)	1.8 GW	4%
Solar (utility-scale)	Abundant; not resource-constrained	0.8 GW utility + 5.7 GW net-metered	Rapidly growing
Biomass	25 million tonnes/year feedstock	0.25 GW (bagasse)	Early stage

Source: <https://www.irena.org/News/pressreleases/2018/Apr/Pakistan-RRA>

76. Renewable Energy Can Build Prosperity and Improve Energy Security in Pakistan

5. THE FINANCING INSTRUMENTS

Pakistan already has financing instruments that serve as functioning access points into the global clean-capital pool. These financial instruments have been employed previously (Table 3). The problem does not rest on the nonexistence of tools but rather their scale and reliability. A United Nations Common Country Analysis reflects that Pakistan's

international adaptation financing has lagged, when compared to climate-vulnerable counterparts such as Bangladesh and the Philippines, with inferior fiscal buffers. Likewise, Pakistan's adaptation financing gap is significantly larger than its mitigation gap⁷⁷. In late 2026, the Finance Minister of Pakistan emphasized the need to focus more on an efficient utilization of existing tools to build out indigenous capital markets⁷⁸.

Table 3. Pakistan's Green Financing Instruments in Use

Instrument	Year	Size	Purpose
Green bond ⁷⁹	2021	\$500 million	First sovereign green bond issuance
Green Sukuk ⁸⁰	2025	PKR 20 billion	Domestic Islamic green financing instrument
ADB climate resilience loan ⁸¹	2024	\$500 million	Climate & disaster risk reduction; supports green sukuk issuance
Panda bond (ADB/AIIB-backed) ⁸²	2026	CNY 1.75bn (\$258m)	First RMB sovereign bond; water, energy & health infrastructure

According to the analysis by the International Growth Centre (IGC)⁸³, Pakistan's climate action plan aims for 60% of renewable energy generation and 30% of electric vehicles by 2030. The funding required for it will be 15% internal, while 35% will come internationally.

6. WAYS FORWARD AND CONCLUSION

In less than twenty years, Pakistan has had the same shock of imported energy for the third time, and in all instances, the transmission channel has always been the same, fuel prices in international markets increase, import bill increases, reserves deplete, currency depreciates, and inflation ensues, with

households facing the final cost via electricity and food prices. Around the world, financial markets have long figured out that the solution lies in clean energy, with \$2.2 trillion being invested in it in 2025. There is no need for Pakistan to rely on importing itself out of such a cycle; it already has one of the least-tapped hydropower and wind energy resources in the region, a genuine grassroots solar revolution underway, and a few but growing number of instruments for green financing which it has shown it knows how to utilize.

The following are some recommendations to tackle this issue.

1. Institutionalize and manage the risks associated with a citizen-driven solar revolution rather than penalizing it with taxes.

77. CCA 2024 update UN Pakistan_climate financing_CLEAN_ed_26feb25_.pdf

78. Pakistan pursuing green bonds, sukuk to mobilise climate finance: FinMin 9

https://unfccc.int/sites/default/files/2025-09/Pakistan_NDC3.0_24%20Sep.pdf

80. Ibid

81. ADB Approves \$500 Million Loan to Support Climate and Disaster Resilience in Pakistan | Asian Development Bank

82. AIIB, ADB Support Panda Bond Issuance for Green Projects in Pakistan

83. How Pakistan can finance its greenhouse gas emissions reduction | International Growth Centre

The current explosion of rooftop solar projects in Pakistan is clear evidence of the existence of genuine need for energy independence, which is being met through the funding of households and corporates; however, it has been organic in nature and has now led to issues of cost-sharing (equity issues) and integration in the grid as the NEPRA rethinks the net metering policies. Policy can actually harness this trend in its favor by combining the latest changes in the net metering and buy back policies with concessional financing schemes to increase adoption among lower and middle class households.

2. Direct the investments of new electricity generation capacity towards indigenous hydro, wind and solar capacities. Given the fact that there is 60 GW hydro and 50 GW of wind power yet to be harnessed, any additional megawatt of indigenous power generation will reduce the vulnerability of the economy against any future fuel shocks in addition to decreasing the reliance on fuel-import-indexed contracts and thus reducing the circular debt issue. This should be one of the criteria in the IGCEP.

3. Expand green capital market access in a planned and purposeful manner by leveraging the existing tools that have been demonstrated to work. Green sukuk, ADB/AIIB-enabled bonds, and the recently introduced Panda bond demonstrate the potential for Pakistan to access both concessional and market-based green capital provided the instruments are structured properly. The approach would be to leverage these instruments as the financing template – larger and more frequent green bonds or sukuk, blended finance models involving MDBs' guarantees to attract private finance (the Panda bond's guarantee approach) and a focus on adaptation finance, which is lagging behind peers with similar vulnerability levels.

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