



BEYOND OIL PRICE SHOCKS

Building Pakistan's Energy Security & Strategic Resilience

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ENERGY SECURITY IN AN ERA OF GEOPOLITICAL UNCERTAINTY

Renewed tensions involving the USA, Israel, and Iran have again exposed the fragility of worldwide energy markets. Any escalation around the Strait of Hormuz, via which nearly 1/5th of global oil supply passes (Power, 2026), raises immediate concerns over supply disruptions and price volatility. For a country like Pakistan, this vulnerability is not merely a result of Middle Eastern geopolitics but a symptom of deeper energy-security weaknesses: heavy reliance on imported energy, an ageing refining sector unable to meet domestic fuel demand, inadequate

strategic petroleum reserves, and delays in critical energy reforms.

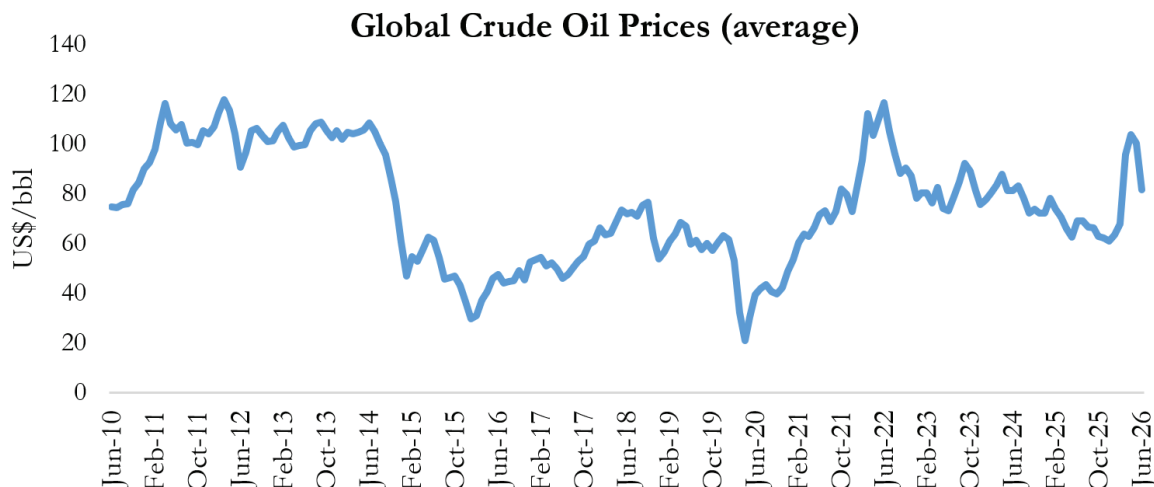
Energy security goes beyond physical availability of fuels and rests on 04 complementary pillars: availability, accessibility, affordability, and resilience. Pakistan faces severe gaps across all pillars, with inadequate local production and refining capacity that sustains import dependence, and reliance on a single maritime route exposes energy supplies to external disruptions.

MIDDLE EAST CONFLICTS & GLOBAL OIL MARKET VOLATILITY

Since 2010, international crude oil prices have experienced repeated cycles of geopolitical shocks, supply disruptions, and changes in global demand. Prices remained elevated at around US\$ 80-110 per barrel during 2010-14 before falling sharply in 2014-16 as US shale production expanded and OPEC maintained output. Prices recovered to about US\$ 70 per barrel by 2018 but fell sharply

during the COVID-19 pandemic, reaching roughly US\$ 23 per barrel in 2020 amid the collapse in global demand. As economies reopened, prices surged above US\$ 120 per barrel in 2022 (World Bank, 2026) following Russia's invasion of Ukraine and tightening global supply conditions. Renewed geopolitical tensions in the Middle East later pushed crude prices close to US\$ 120 per barrel, reaching US\$ 119.5 amid concerns over disruptions via the Strait of Hormuz, before averaging about US\$ 81.7 per barrel in June 2026 (Figure I).

Figure I: Month-wise Global Crude Oil Price Trend



Source: World Bank Commodity Prices

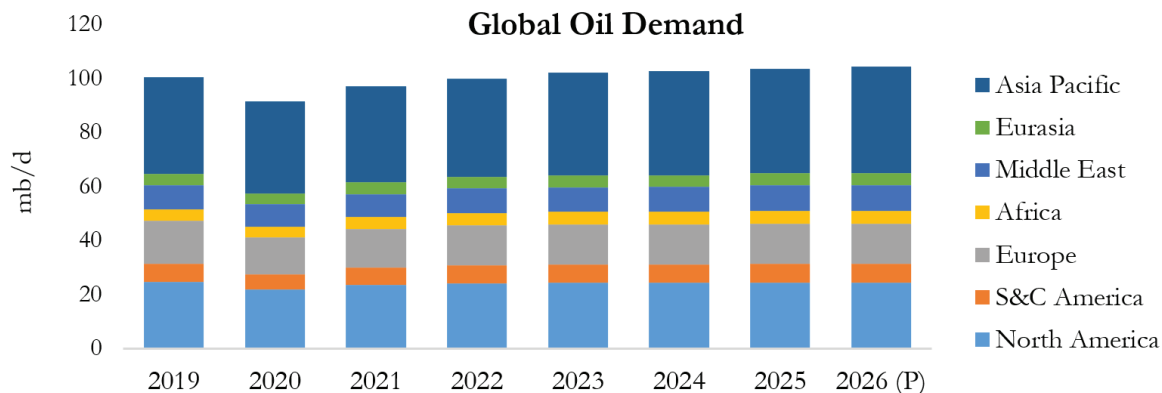
*Crude oil, average spot price of Brent, Dubai and West Texas Intermediate, equally weighted.

*Historical prices are presented in nominal terms; therefore, comparisons across periods can be interpreted with caution as they do not account for inflation.

What has changed is the scale of underlying demand pressing against that supply. Global oil consumption, having fallen from 101 million barrels per day in 2019 to 92 million barrels per day at the height of the pandemic, has since recovered to roughly 105 million barrels per day

(IEA, 2025), driven overwhelmingly by industrial growth across Asia-Pacific alongside steady consumption in North America and Europe (see figure 2). Other regions, including the Middle East and Africa, have seen gradual increases, reflecting rising energy needs in developing economies.

Figure 2: Yearly Global Oil Demand Trend & Projections

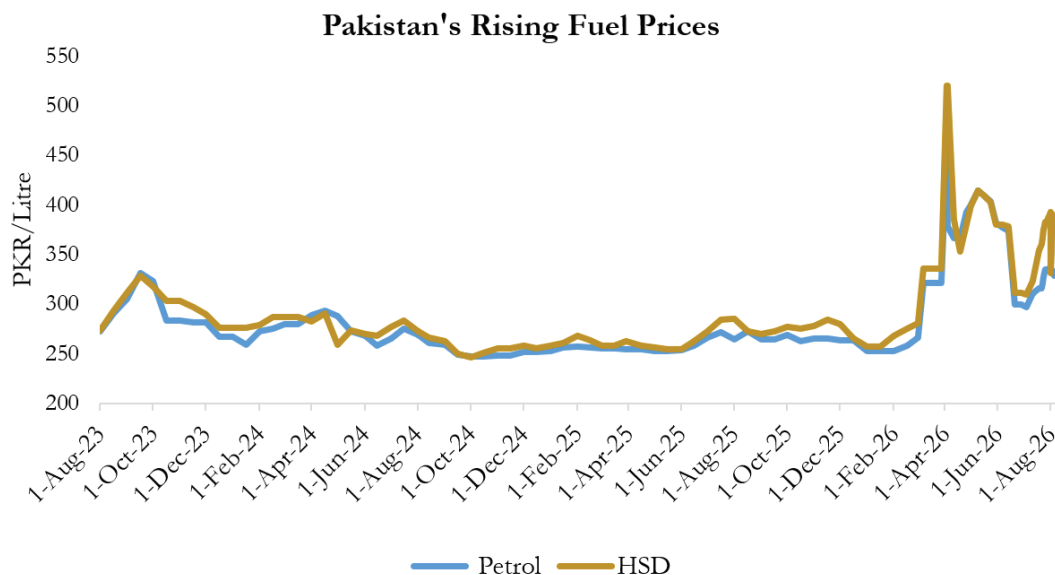


Source: IEA, Oil 2025 Analysis and Forecast to 2030

Pakistan transmits these external shocks into its domestic market almost immediately. As global oil prices rise, the impact is quickly passed through to local fuel prices via government adjustments, as happened when consumer fuel prices were revised upward in Sept-2023, and again through the recent

escalation tied to the US-Israel-Iran conflict. As a result, petrol and diesel prices rose from PKR 272.9 and PKR 273.4 per litre on 1-Aug-2023 to PKR 324.98 and PKR 382.79 per litre by 13-Aug-2026 (Ministry of Energy, 2026), respectively (Figure 3), raising transportation, food and industrial costs across the economy.

Figure 3: Pakistan's Rising Fuel Prices Amid Geopolitical Tensions



Source: Ministry of Energy (Petroleum Division)'s Public Notifications

*The prices reported here are therefore explicitly dated to 13-Aug-26.

PAKISTAN'S STRUCTURAL ENERGY VULNERABILITY

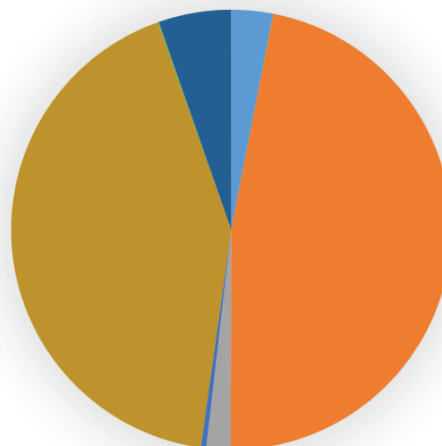
Pakistan's exposure operates via key macroeconomic channels: the current account and foreign exchange, imported inflation, fuel-price adjustments and transport & production costs. The country imported about 8.2 million tonnes of oil equivalent in petroleum products in FY25 alone (HDIP, 2025), on top of constant crude imports

that reached 9.8 million tonnes, a 19.4% increase driven by refineries scrambling to lift capacity utilization and meet transport-led fuel demand. The transport sector, which alone consumed 14.59 million tonnes of petroleum products in FY25 and accounts for 89% (HDIP, 2025) of petroleum-product consumption when petrol (Motor Spirit) and HSD are combined (Figure 4), transmits these cost shocks directly into freight rates, food prices and household budgets.

Figure 4: Pakistan's Petroleum Products Consumption Share by Fuel (FY25)

Pakistan's Petroleum-Products Consumption Share

- Aviation Fuels
- Motor Spirit 87 RON
- HOBC
- Kerosene
- HSD
- LDO
- Furnace Oil

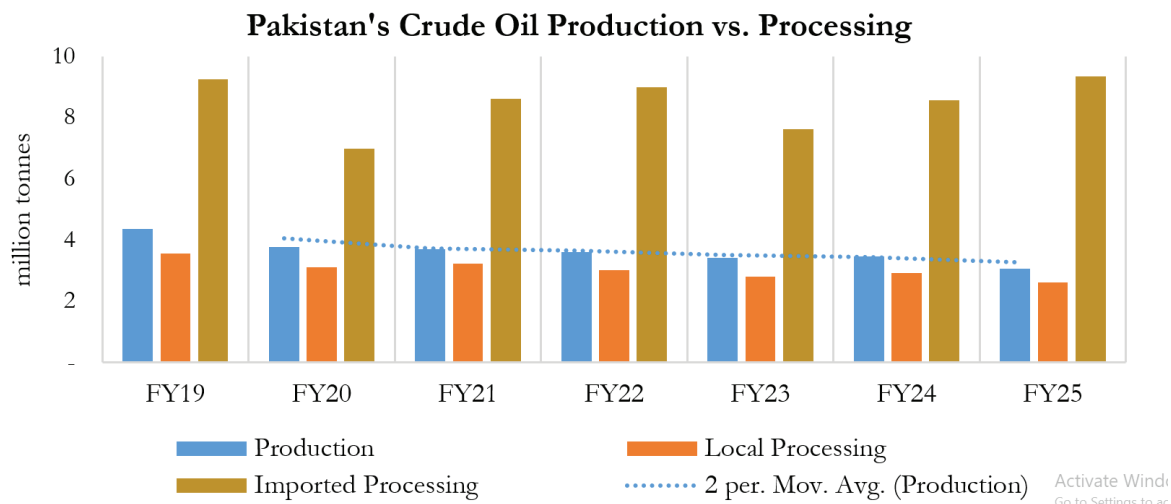


Source: HDIP, Pakistan Energy Yearbook 2024-25

The country's own crude production offers little relief. Domestic output has declined steadily over the past six years, falling to 3 million tonnes of oil equivalent in FY25, with the sharpest contraction

occurring between FY19-20 amid COVID demand collapse and subsequent underinvestment in exploration. Thus, Pakistan's crude throughput remains heavily import-dependent.

Figure 5: Trend Analysis of Pakistan Crude Oil Production vs. Processing

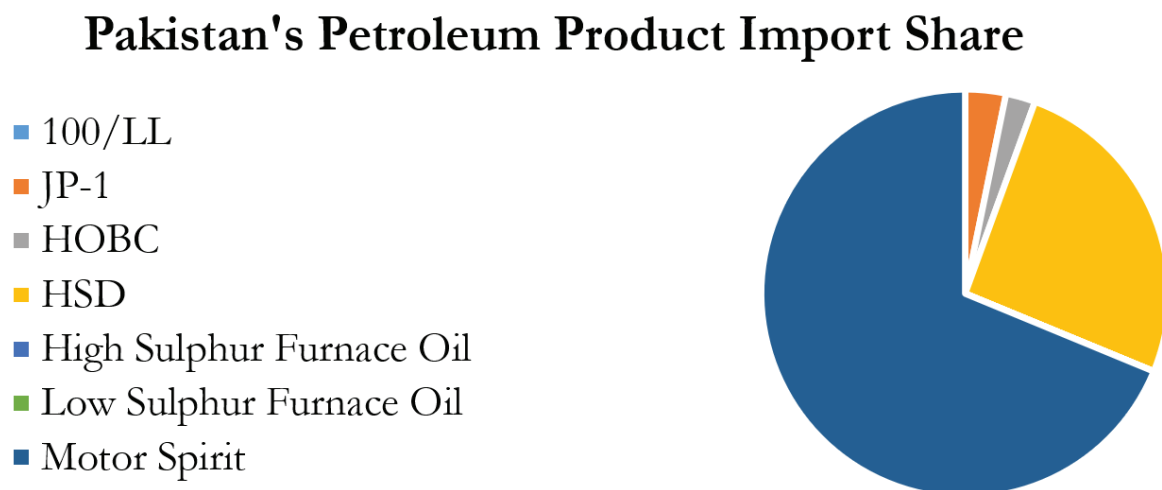


Source: HDIP, Pakistan Energy Yearbook 2024-25

The composition of these imports has also shifted structurally toward transport fuels: motor spirit (petrol) dominates the import basket with a 69% share in FY25 (HDIP, 2025), while furnace oil imports have fallen to near zero as power generation has moved away from oil-fired plants. This is, in

one sense, a positive structural adjustment, but it also means Pakistan's import bill is now concentrated almost entirely in the fuels for which domestic refining capacity is least able to compensate.

Figure 6: Pakistan's Petroleum Products' Import Share by Fuel (FY25)



Source: HDIP, Pakistan Energy Yearbook 2024-25

Import dependency varies substantially across petroleum products. Motor Spirit has the highest IDR at 69%, with imports of 5.35 million tonnes against domestic production of 2.38 million tonnes, indicating a strong reliance on imports. JP-1 has an IDR of 37%, while HSD stands at 29%, reflecting moderate import dependence.

Kerosene and Furnace Oil show 0% IDR because they recorded no imports during the period, although Furnace Oil had significant exports. Overall, the results highlight that transport fuels, particularly motor spirit, remain the most import-dependent segments of Pakistan's petroleum market.

IDR is calculated as:

$$\text{IDR} = (\text{Quantity of Imports}) / (\text{Quantity of Domestic Production} + \text{Quantity of Imports} - \text{Quantity of Exports}) * 100$$

Calculations:

Table I: IDR Calculations – Petroleum Products

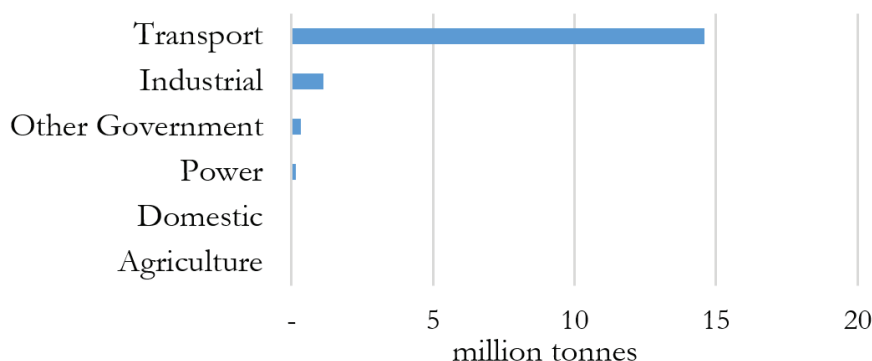
Product	IDR Calculation	IDR
Motor Spirit	$\frac{5,353,022}{2,375,035 + 5,353,022 - 0} * 100$	69%
Kerosene	$\frac{0}{127,763 + 0 - 0} * 100$	0%
HSD	$\frac{1,996,377}{4,947,171 + 1,996,377 - 6,204} * 100$	29%
JP-1	$\frac{250,489}{423,487 + 250,489 - 0} * 100$	37%
Furnace Oil	$\frac{0}{2,496,292 + 0 - 1,473,024} * 100$	0%

Unit: All quantities are in tonnes—data Source: HDIP, Pakistan Energy Yearbook 2024-25 and OCAC.

The values taken for import, production and exports are of FY25.

Figure7: Pakistan's Sectoral Petroleum Consumption by sector (FY25)

Pakistan's Sectoral Petroleum Consumption by Sector (FY25)



Reducing petroleum dependence requires demand-side measures, particularly as transport is the largest consumer of petroleum products. Expanding public transport and accelerating EV adoption can reduce reliance on imported fuels and strengthen resilience to external oil-price shocks. Pakistan should fast-track BRT systems, the Circular Railways, and Pakistan Railways' freight services to shift passengers and freight away from petroleum-intensive road transport. Implementing Karachi's planned BRT projects could potentially save US\$ 0.8-1 billion annually in fuel imports (PRAC, 2026). At the same time, investment in EV charging infrastructure, battery-swapping facilities, and local EV manufacturing can support the gradual electrification of two- and three-wheelers, buses, and other high-use vehicles.

STRATEGIC PETROLEUM RESERVES: THE MISSING PILLAR OF ENERGY SECURITY

Pakistan's greatest energy security gap is the absence of Strategic Petroleum Reserves (SPRs), which buffer economies against external supply disruptions. The IEA requires member countries to maintain oil stocks equivalent to at least 90 days of net imports, providing a global benchmark for emergency stockholding (IEA, 2026). Pakistan, thus, lacks a comparable emergency reserve, leaving short-term supply distortions to quickly affect fuel prices and inflation.

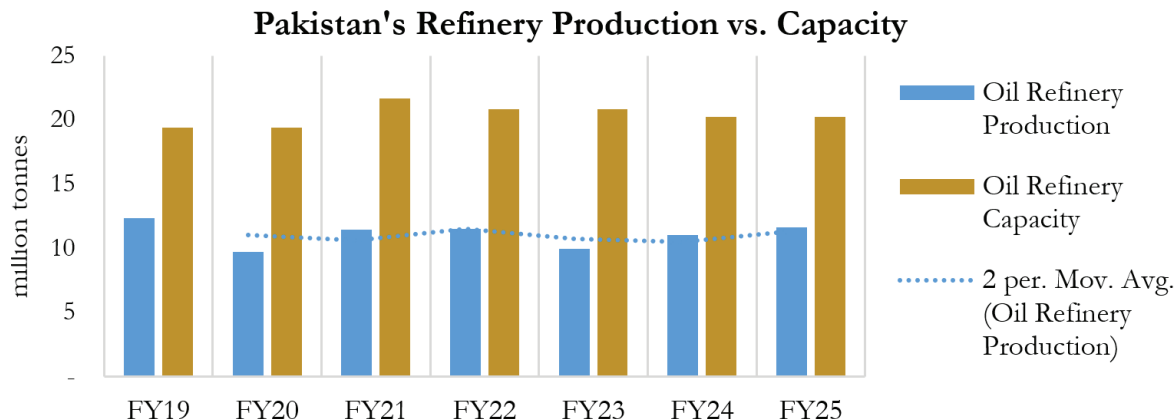
Pakistan should establish a phased SPR, initially targeting 30 days of net petroleum import cover, rising to 45 days by 2030. Based on FY25 petroleum-products imports of 8.2 million tonnes (HDIP, 2025), a 30-day gross-import benchmark is about 0.67 million tonnes; the final requirement

should be based on net imports and critical fuel needs. Storage can be developed around the Hub-Port Qasim corridor, with financing through a ring-fenced petroleum levy. A government framework reported by Reuters proposes allocating PKR 10 per litre (US\$ 0.0359) from the existing petroleum levy, expected to generate around US\$ 700 million annually (Shahid, 2026), while also developing strategic and commercial storage. Stocks must follow a first-in, first-out (FIFO) rotation, with releases limited to formally declared supply disruptions and followed by replenishment. Since initial stock acquisition will require foreign exchange, procurement should be phased to manage pressure on external reserves.

GAP BETWEEN PAKISTAN'S REFINERY PRODUCTION & CAPACITY

Refineries sit at the centre of this vulnerability because they are the one link in the chain where imported crude is converted into the specific fuels an economy actually consumes. Pakistan currently operates six refineries, led by Cnergyico Pk Ltd. & Pak Arab Refinery (PARCO), followed by National Refinery Limited (NRL), Attock Refinery Limited (ARL) and smaller contributions from Pakistan Refinery Limited (PRL) and the ENAR Petroleum Refining Facility, with a combined nameplate capacity of roughly 417,000 to 450,000 barrels per day. Yet actual throughput has hovered closer to 232,000 barrels per day, reflecting capacity utilization in the range of 50 to 60% (HDIP, 2025), a gap visible in the persistent shortfall between refinery production and capacity over FY19-FY25.

Figure 8: Gap between Refinery Production & Capacity



Source: Source: HDIP, Pakistan Energy Yearbook 2024-25

STRUCTURAL AND POLICY CHALLENGES HINDERING REFINERY MODERNIZATION

Sales Tax Non-Recovery: Petroleum products remain exempt from sales tax, preventing refineries from recovering input taxes. The existing reimbursement mechanism is temporary and uncertain, creating persistent liquidity constraints and weakening financial sustainability.

Provincial CESS: CESS imposed by Sindh and Balochistan on imported crude increases refinery operating costs (The Express Tribune, 2025). Since petroleum prices are regulated, these additional costs cannot be passed on to consumers, directly eroding refinery margins.

Petroleum Levy (PL) and Climate Support Levy (CSL): The imposition of PL and CSL on furnace oil has significantly reduced local demand, forcing refineries to export surplus furnace oil at discounted prices and incur financial losses.

Regulatory and Policy Uncertainty: Persistent tax disputes, frequent policy revisions, and delays in executing refinery upgrade agreements have weakened investor confidence and slowed modernization efforts.

High Financing Costs and Exchange Rate Volatility: Refineries are expected to finance more than 70% of the planned US\$5–6 billion upgrade programme themselves, but their limited capacity to undertake projects of this scale has prompted calls for foreign financing (Dilawar, 2026). High interest rates, exchange rate volatility, and macroeconomic uncertainty have increased project risks.

Institutional Fragmentation: Overlapping responsibilities among the Petroleum Division, OGRA, the Ministry of Finance, and provincial governments have created coordination delays, preventing the timely implementation of refinery reforms.

BROWNFIELD REFINERY POLICY: PROGRESS AND PERSISTENT GAPS

Recognizing the need to modernize its ageing refining infrastructure, Pakistan introduced the Pakistan Oil Refining Policy for Upgradation of Existing/Brownfield Refineries (2023), amended in 2024. The policy aims to upgrade existing refineries to Euro-V standards, improve fuel quality, and reduce dependence on imported petroleum products through fiscal incentives,

escrow accounts, tariff protection, and structured upgrade agreements.

Five refineries have signed under the policy with planned investments of approximately US\$ 5–6 billion (Business Recorder, 2026), targeting a 98.5% increase in petrol production, a 47.3% increase in HSD output, and a 77.8% reduction in Furnace Oil production¹²⁵. However, implementation has progressed slowly due to persistent tax disputes, regulatory uncertainty, financing constraints, exchange rate volatility, and institutional coordination failures.

POLICY PRIORITIES: THE WAY AHEAD

Pakistan's energy security cannot be achieved through short-term price interventions or isolated refinery upgrades. Building resilience requires an integrated approach that combines refinery modernization, strategic petroleum reserves, diversified crude import sources, local exploration, and downstream market reforms. Refinery upgrades will only achieve meaningful import

substitution if structural distortions are addressed through a transparent pricing framework that allows legitimate costs to be recovered. Institutionalizing a permanent sales tax refund mechanism, adopting market-based foreign exchange settlement for crude imports, and rationalizing Provincial CESS, PL, and CSL would significantly improve refinery viability and encourage long-term investment.

Strategic petroleum reserves must be complemented by adequate storage and transportation infrastructure to ensure effective emergency response during supply disruptions. Diversifying crude import sources should be accompanied by refinery upgrades capable of processing multiple crude grades, while a data-driven Petroleum Import Management Framework, linking import approvals to refinery inventories, capacity utilization, and domestic demand, would reduce unnecessary imports and strengthen domestic refining. Above all, Pakistan requires stronger institutional coordination through a dedicated Refinery Reform Coordination Cell comprising OGRA, SBP, FBR, Petroleum Division & provincial governments.



125. Author's Calculation using current production capacity data from the Energy Year Book 2024-25 and the Brownfield policy document (<http://www.mpn.gov.pk/SiteImage/Downloads/AmendedBrownfieldPolicy23.pdf>)

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