

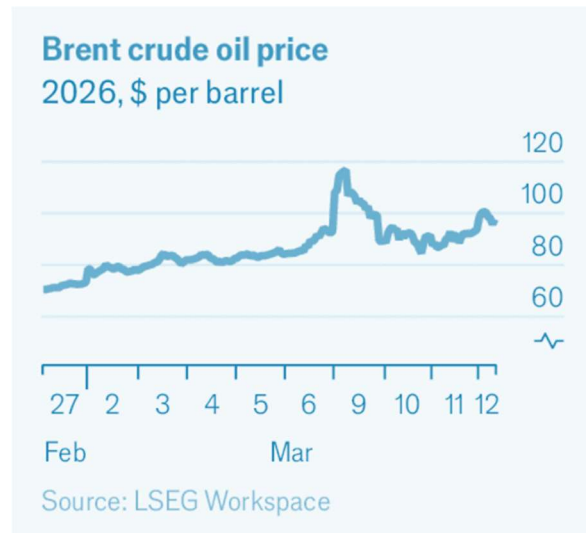
# Rising Energy Costs and the Future of Sustainable Industry in Pakistan

## Issue Brief



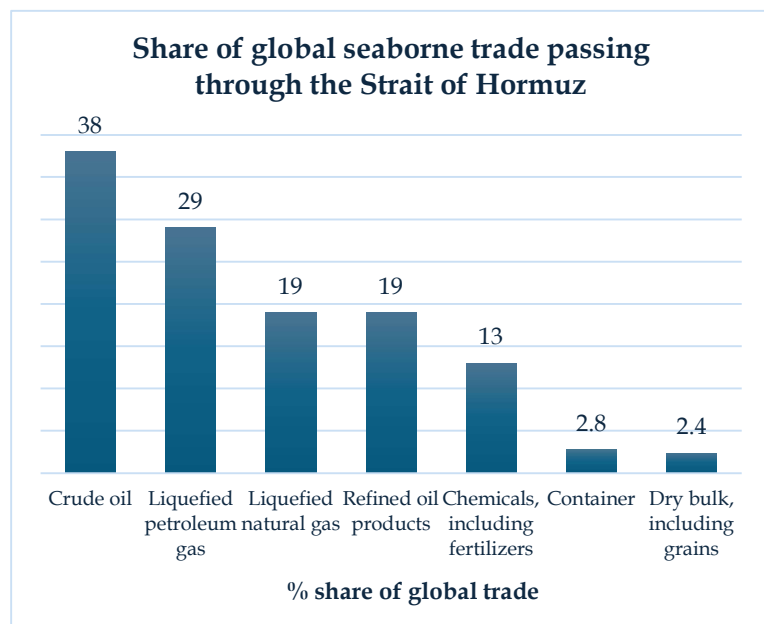
## Background: The Energy Polycrisis

The global energy sector is currently experiencing one of the most severe supply disruptions in modern history, with roughly 20% of global oil supply temporarily unavailable, due to the closure of Strait of Hormuz coupled with tensions in the Middle East leading to the declaration of force majeure and subsequent shut down of Qatar's Ras Laffan LNG plant, coupled with destruction of oil refineries in the Iran-US-Israel war. This has been the largest supply shock ever recorded, producing a "double-barrel" crisis characterized by uncertainty over the availability and price of both oil and gas. Over the past month alone, oil prices have surged by roughly 33%, while LNG markets have also tightened sharply. For Pakistan, the exposure is particularly acute: 11 of its 12 LNG cargoes originate from Qatar, which is currently unable to guarantee delivery schedules amid regional instability. As a result, the country faces not only price volatility but also significant risks to energy supply continuity.



**Figure 1:** Fluctuations in Brent crude prices, the global benchmark for oil, reflecting intense price volatility amongst recent geopolitical tensions, as per *The Economist*.

Scenario analysis by SDPI suggests three possible trajectories for global oil prices. The first assumes a moderate shock, with prices rising from \$80 to \$130 per barrel, reflecting typical geopolitical volatility. The second models an extreme shock, with prices increasing to \$150 per barrel, representing a severe global supply disruption. The third outlines a dynamic price path, where oil rises to \$130 for three months, peaks at \$150 for two months, then declines to \$100-120 for three months, and stabilizes at \$90-100 over the following six months. These scenarios incorporate empirical estimates of oil price pass-through to domestic inflation and subsequent effects on economic growth, while accounting for uncertainty through supporting and contrasting evidence in the literature.



**Figure 2:** Share of global trade passing through the Strait based on average flows during the week preceding the military escalation beginning on 28 February, as per UN Trade and Development (UNCTAD), based on data provided by *Clarksons Research 2026*.

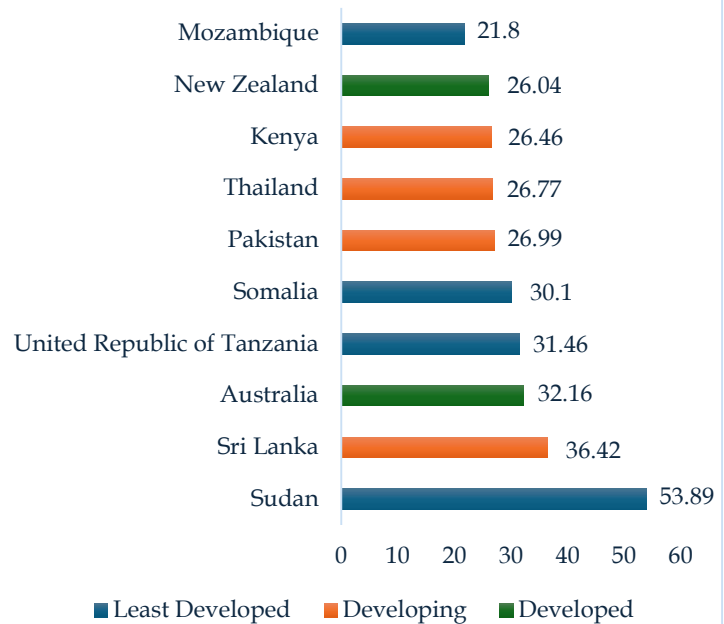
For Pakistan, the macroeconomic consequences could be substantial: (i) inflation may double from 5-7%, as per State Bank of Pakistan's (SBP) target, to 11-13%; (ii) GDP growth may slow to 3.0-3.3%, due to oil price rise, inflation spikes, and rationing of gas to industry. It may even drop below 3%,

in case tensions prolong; and (iii) the import bill is projected to increase by approximately \$6.2 billion. If LNG shortages persist for 3-4 months, industrial gas rationing may further deepen the crisis, shifting it from a price shock to a broader energy supply constraint.

These global shocks compound deep structural weaknesses in Pakistan's domestic energy economy. Industrial expansion has already slowed amid rising energy costs and policy shifts that have disrupted self-generation models. Although in February 2026, the industrial power tariff cut of Rs 4.04 per unit was initially welcomed, it was largely offset by a fuel charge adjustment (FCA) of Rs 1.78 per unit and additional quarterly adjustments. The Off-Grid (Captive Power Plants) Levy Act, 2025, imposing Rs 1,243 per MMBtu on gas supplied to captive plants, has further undermined export competitiveness, particularly in energy-intensive sectors such as textiles. Meanwhile, the industrial sector faces a structural "triple threat" of rising fuel prices, high electricity tariffs, and escalating logistics costs. Energy now accounts for roughly 45% of operational costs in heavy industry, while a Rs 55 per litre petrol increase has imposed an estimated 12% inflationary burden on industrial logistics. Declining domestic gas production and gas sector debt reaching Rs 3.28 trillion further constrain the system. The Oil and Gas Regulatory Authority (OGRA) announced an increase in the price of imported re-gasified liquefied natural gas (RLNG) for March 2026, reflecting rising international LNG prices and higher import costs amid regional geopolitical tensions. This has resulted in a significant escalation of RLNG prices at the distribution stage for both Sui gas companies, with SNGPL increasing by 19.6% from \$11.34/mmBtu in February to \$13.55/mmBtu in March, and SSGCL rising by 22% from \$10.27/mmBtu to \$12.54/mmBtu over the same period. These adjustments further elevate energy input costs for industry, reinforcing concerns over industrial competitiveness and supply security during a period of heightened global energy market instability.

Moreover, transmission and distribution (T&D) losses at 17.5% (costing about Rs 265 billion annually) and Pakistan's significant energy cost disadvantage compared with regional competitors creating a compounding impact. Electricity prices in Pakistan average 13-15 cents/kWh, nearly double those in India (approx. 6-9 cents) and Vietnam (approx. 8 cents), and substantially higher than Bangladesh (approx. 9 cents). Similarly, gas prices in Pakistan (\$13.5/MMBtu) exceed those of India (\$6.5/MMBtu), Vietnam (\$11.69/MMBtu), and Bangladesh (\$10/MMBtu). As a result, energy accounts for a significant share of industrial operating costs, highlighting a major competitiveness gap for Pakistan's industrial sector. Together, these converging pressures illustrate a broader energy

**Share of fertilizers imported by sea and originating from the Persian Gulf region in 2024 (%)**



*Figure 3: The closure of the Strait of Hormuz has paralyzed fertilizer supply chains. For countries like Pakistan, where agriculture is the backbone of the economy, the resulting shortage of urea and Diammonium Phosphate (DAP) is a direct hit on food prices, threatening the food security of millions. Data source: UN Trade and Development, based on based on an unpublished detailed version of UNCTAD seaborne trade data. The published version of the data is available at <https://unctadstat.unctad.org/datacentre/>.*

polycrisis, reflecting the need for coordinated technical and policy interventions to stabilize supply, manage costs, and safeguard industrial growth.

In the context of the energy polycrisis discussed above, marked by global supply shocks, rising fuel prices, and Pakistan's structural challenges, this brief develops its analysis and recommendations using a mixed-method approach. It provides a comprehensive desk review of national energy policies, industrial cost structures, and international best practices. In addition, the brief integrates key insights from the policy dialogue titled "[Webinar on Rising Energy Costs and the Future of Sustainable Industry in Pakistan](#)", organized by the **Sustainable Development Policy Institute (SDPI)** under its **Network for Clean Energy Transition (NCET)** and the **Pakistan Industrial Decarbonization Program (PIDP)**. The dialogue brought together a diverse set of experts, spanning global energy markets, the industrial sector (the textile industry in particular), the gas sector, and the industrial electrification domain, to examine how rising energy prices are affecting industrial competitiveness and energy system efficiency. By combining market and policy analysis with expert qualitative insights from these sector specialists, the brief develops a policy-oriented framework aimed at addressing structural inefficiencies, managing energy costs, and identifying pathways for a more resilient and competitive energy-industry nexus in Pakistan.

**Objectives:** Based on the scope and approach defined above, this policy brief aims to address the following key objectives:

To assess the impact of rising global energy prices and geopolitical disruptions on Pakistan's industrial competitiveness, particularly in energy-intensive sectors.

To examine structural challenges in Pakistan's energy system, including high electricity tariffs, RLNG dependency, declining domestic gas supply, and policy misalignments affecting industrial energy use.

To identify practical policy and technical pathways, such as industrial electrification, renewable energy integration, and improved energy market mechanisms, to enhance energy security, reduce costs, and support sustainable industrial growth.

## Key Messages

- **Global energy realignment & refining gaps:** Non-OPEC producers (Ghana, Argentina, Brazil) are expanding output, while Russia continues supplying markets like China and Turkey. Pakistan's hydro-skimming refineries yield 35-40% furnace oil but only 10-15% high speed diesel (HSD), misaligned with domestic demand. Upgrading to hydrocracking refineries and shifting toward low-sulfur, cleaner fuels could require \$1-2 billion but generate equivalent annual import savings, reduce pollution, and enhance fuel security.
- **Industrial competitiveness & energy costs:** Energy-intensive sectors relying on captive power, especially textiles, face increased energy costs of \$15-16/unit vs. \$7-8 in regional competitors, compounded by volatile global prices. Transitioning to cleaner fuels and efficient energy use can lower costs and strengthen industrial competitiveness.
- **Gas sector misalignment & integrated planning:** Declining Sui sales (approx. 15%) and 400 mmmcf of underused RLNG reflect outdated demand assumptions. Artificial residential demand expansion drives inefficiency, with gas sector debt near PKR 3.28 trillion. Coordinated planning across gas, electricity, and industrial energy, including electrification, cleaner fuels, is critical for efficiency, emissions reduction, and sustainable industrial growth.

- **Electrification & demand expansion:** Despite surplus generation, high tariffs and circular debt persist. Scaling electricity demand through transport electrification (e-bikes, EVs) and cleaner industrial processes can reduce fossil fuel imports, cut emissions, and lower tariffs to Rs 24-25/unit (8-9 cents). Household solar/battery adoption highlights the potential for a resilient, electrified, low-carbon energy economy, while green hydrogen can serve as a long-term solution for hard-to-abate sectors.

## Key Challenges

Pakistan's industrial growth faces acute challenges due to its heavy dependence on oil and gas amid ongoing geopolitical volatility. WTI crude prices have fluctuated between USD 75–110 per barrel, currently around USD 100, while vulnerabilities in LNG supply chains, including shrinking gas supply to the power sector ([from 300 mmcfd down to 130 mmcfd](#)) and underutilized RLNG imports ([approximately 400 mmcfd](#)), highlight structural exposure. The country's [LNG surplus](#) reflects a long-term structural crisis, where inflexible take-or-pay contracts have outpaced actual domestic demand. This surplus is driven by two main factors: the rapid, uncoordinated growth of distributed solar and high LNG-linked power tariffs, which have priced industrial consumers out of the market. While the current Middle East conflict and the temporary closure of the Strait of Hormuz have masked the problem through supply disruptions, Pakistan remains contractually committed to a projected surplus of 177 LNG cargoes through 2031. Without urgent renegotiation, particularly during the March 2026 Qatar Petroleum price review, the country faces a \$5.6 billion liability and potential physical risks to pipeline infrastructure from excessive pressure.

Domestically, high energy costs for captive power especially hiked by levies (Rs 1,243/MMBtu), along with variable electricity Rs 12.6/unit, and LNG weighting of Rs 19-20/unit, combined with FCA (Rs 1.78/unit) and have slowed industrial expansion, particularly in export-oriented sectors like textiles. Compounding these challenges are misalignments in national electricity planning and policy: Extended Fund Facility (EFF) frameworks often ignore efficiency levels and technologies, failing to differentiate between combined heat and power (CHP) vs. low efficiency systems, while the National Electricity Plan (NEP) provides such distinctions but lacks enforcement mechanisms. Exploration and production companies remain narrowly focused on short-term capital expenditure and immediate returns, insufficient to support long-term industrial resilience and energy security.

Moreover, Pakistan's Nationally Determined Contributions (NDCs) and provincial climate targets are largely aspirational: for instance, Punjab's Climate Policy 2035 targets at least 500 industrial units without clear implementation pathways, and no other provinces have actionable frameworks. IMF-mandated reforms, while structurally necessary, have disrupted industrial cost models without supporting efficiency or competitiveness. Levies on petrol and gas, further increase operational costs and exacerbate circular debt rather than incentivize efficiency. An integrated approach is urgently needed, aligning reform measures, energy policies, investment incentives, and industrial strategies, to ensure efficiency improvements, affordable electricity, technological upgrades, and climate targets are achievable while reducing circular debt and strengthening overall industrial and energy system resilience.



### Technical Challenges

Industrial electrification is constrained by high-temperature processes and limited grid efficiency, despite surplus generation. Domestic gas and RLNG imports remain underutilized due to infrastructure and contractual gaps. Pakistan's hydro-skimming refineries produce furnace oil majorly but only limited HSD, misaligned with domestic demand, and upgrading to hydrocracking refineries remains a medium- to long-term requirement to produce cleaner, higher-value fuels. Renewable integration is limited by curtailment and storage gaps, while electrification of transport and industrial fleets remains partially implemented. Captive power and decentralized generation often operate below optimal efficiency, reducing potential gains from existing assets.

### Financial Challenges

Firstly, volatility in global energy markets creates cost uncertainty that compounds financial pressures. Secondly, domestic energy costs are high: gas price for captive power \$15-16/unit, variable electricity Rs 12.6/unit, LNG weighting Rs 19-20/unit. Temporary relief, such as Rs 4.04/unit tariff cuts, is offset by FCAs and levies. Industrial energy investments (solar, wind, combined heat and power systems) can constitute nearly 25% of balance sheets, but without improved profitability. Circular debt, combined with IMF-mandated reforms, limits the ability to spread fixed costs across a larger consumer base to reduce tariffs.

### Institutional Challenges

National electricity policies, the Extended Fund Facility, and NDCs often misalign with industrial needs, creating disincentives for efficient investment. E.g. EFF frameworks fail to differentiate between technologies (e.g., CHP vs. low-efficiency technologies), while National Electricity Plan (NEP) distinctions exist but lack enforcement. Exploration and production companies focus on short-term capital returns, limiting long-term industrial resilience and energy security. Aspirational climate targets lack concrete mechanisms at the provincial level. Levies and surcharges on gas and electricity increase operational costs, worsening circular debt instead of supporting efficiency.

### Socio-economic Challenges

Geopolitical exposure and fuel import dependence translate into economic uncertainty, import bill pressures, and inflationary impacts on households and industry alike. Spikes in fuel prices directly increase transport costs, affecting logistics, supply chains, and the movement of goods. Energy-intensive households face rising costs, while short-term austerity measures (salary cuts, school closures, reduced allowances) impose social burdens without significantly alleviating energy pressures. High industrial energy costs impact competitiveness in global markets, particularly for textiles and other export-oriented sectors. Public adoption of solar, batteries, and EVs is growing, but scaling requires fiscal incentives, regulatory clarity, and infrastructure investment.

## Phased Policy Recommendations

### Near-Term Recommendations

- **Fast-track distributed solar through targeted fiscal and regulatory support:** Pakistan's rapid rooftop solar expansion, already delivering over USD 12 billion in avoided fuel imports, is acting as a critical buffer against external shocks, strengthening the case for accelerated renewable integration. In the short term, the government should streamline interconnection approvals, accelerate the approval and implementation of wheeling reforms, and revisit recent changes to net-metering by restoring more favorable export tariffs, particularly for commercial and industrial consumers. A predictable and supportive policy environment, combining the incentives of net-metering with open access to the grid, would significantly improve economics for businesses, enabling faster uptake of distributed solar, reducing peak demand on the grid, and lowering reliance on LNG and oil imports during a period of heightened supply risk.
- **Implement targeted energy allocation and pricing reforms to stabilize demand:** In the immediate term, fuel allocation should be prioritized by economic value, agriculture, freight, industry, then personal transport, to protect productive sectors, given that transport accounts for nearly 80% of petroleum consumption. At the same time, pricing distortions must be avoided by allowing cost pass-through for higher-income consumers, while

shielding vulnerable households through targeted cash transfers. This approach preserves price signals, prevents further buildup of circular debt, and ensures limited energy supplies are directed toward growth-critical activities.

- **Protect export-oriented industries through targeted industrial and logistics measures:** The government should implement a comprehensive industrial relief framework to shield export-oriented sectors, particularly textiles, from escalating costs amid the current geopolitical and energy shocks. Measures should include: easing monthly fuel and quarterly electricity tariff adjustments for industrial consumers, rationalizing cross-subsidies that disproportionately penalize productive sectors, and introducing a freight and logistics support program to address disruptions caused in the Strait of Hormuz and Red Sea routes. This logistics package should involve risk-sharing arrangements for marine insurance premiums, facilitating trade financing, freight and insurance relief, through the Ministry of Commerce and SBP, coordinating with shipping lines to stabilize costs and transit times, which are expected to rise by 15-20 days with freight surcharges potentially increasing up to 300%. Collectively, these targeted interventions would contain industrial cost escalation, preserve export competitiveness in global markets (EU, UK, US), and maintain uninterrupted production in strategic sectors during external shocks.
- **Execute strategic Contractual Volume Reductions to mitigate Surplus Liabilities:** During the critical March 2026 price review with Qatar Petroleum, Pakistan must move beyond traditional price-slope negotiations and formally request [a structural reduction in the 60-cargo annual commitment](#). This reduction is necessitated by a permanent demand destruction in the domestic power sector, where the rapid adoption of 34GW of distributed solar and high LNG-based power tariffs have rendered long-term "take-or-pay" obligations obsolete. Failing to align these volumes with the country's actual declining grid demand will result in a projected surplus of 177 LNG cargoes through 2031, potentially triggering \$5.6 billion in additional liabilities and exacerbating an energy circular debt that already above Rs. 3 trillion (\$11 billion).
- **Mitigate Transport Sector Vulnerabilities and Promote Electrification:** Introduce targeted incentive-based measures to cushion the impact of fuel price volatility on logistics and supply chains, including tax rebates or credits for freight and agricultural transport, priority fuel access for essential goods movement, and temporary reductions in tolls and logistics-related charges. In parallel, accelerate the electrification of transport fleets through incentives for EV adoption, such as reduced import duties, supportive financing frameworks, and expansion of charging infrastructure. Complement these efforts by promoting household and commercial solar and battery storage (BESS) to reduce reliance on imported fuels and lower energy costs. Coupled with reforms to reduce electricity tariffs and broaden the consumer base to distribute fixed system costs, this approach enhances energy security, strengthens industrial competitiveness, and aligns with trends seen in countries such as China, India, Nepal, and Ethiopia, where EV adoption combined with distributed renewables has reduced fossil fuel dependence and improved energy resilience.
- **Maximize domestic refining and reduce fuel import intensity through efficiency and substitution:** To reduce exposure to external shocks, the government should support domestic refineries to operate at higher and more efficient capacities through expedited upgrades and incentives. At the same time, policies should encourage fuel substitution where feasible, particularly by shifting industrial and commercial demand toward electricity and renewables. Improving refining output while gradually reducing reliance on

imported refined products can help stabilize supply, contain costs, and complement longer-term efforts to transition toward a more resilient and diversified energy mix.

### Medium-Term Recommendations

- **Scale renewable integration through grid readiness and market reform:** With solar already displacing significant imported energy, the immediate constraint is no longer adoption but integration and system efficiency. Pakistan should transition from ad hoc deployment to system-wide renewable integration by investing in grid modernization, storage, and flexible load management mechanisms, including time-of-use tariffs to better absorb variable supply. In parallel, enabling competitive procurement frameworks (such as auctions or Contracts for Difference) and expanding wheeling and open-access regimes will create a more investable and efficient market for clean energy. Supporting battery storage and hybrid systems for industrial and commercial users can further reduce reliance on gas-based generation and ensure continuity during supply disruptions. Together, these measures would allow renewables to evolve from distributed relief into a reliable, cost-competitive backbone of the power system, reducing import dependence while supporting sustained industrial electrification.
- **Continued Electrification to enable the Energy Transition:** Expand electrification of transport fleets (EVs, e-bikes) and low- to medium-temperature industrial processes to systematically reduce dependence on oil and gas. Integrate with grid modernization and flexible load management to enhance efficiency, absorb surplus electricity, and lay the foundation for a broader low-carbon energy transition.
- **Institutionalize Contractual Flexibility and De-risking:** Pakistan's energy procurement agencies should transition away from rigid take-or-pay frameworks toward agile contracts that incorporate [Downward Quantity Tolerance \(DQT\)](#) and destination-flexibility clauses, allowing the country to scale imports based on real-time domestic needs.
- **Reduce Industrial Energy Costs and Remove Distortive Levies:** Lower industrial electricity tariffs to Rs 24-25 per unit by reprofiling capacity payments through renegotiation and rescheduling of IPP contracts, shifting from rigid take-or-pay structures toward more flexible arrangements, and securitizing portions of circular debt to spread costs over time rather than front-loading them into tariffs. At the same time, rationalize pricing by phasing out cross-subsidies and broadening the consumer base to distribute fixed system costs more efficiently. Distortive charges should be removed by withdrawing the Off-Grid Captive Power Plants levy, reducing fuel price adjustments through better generation mix planning, and aligning surcharges with actual system costs rather than fiscal needs. Together, these measures can structurally lower tariffs, restore industrial competitiveness, and create a predictable pricing framework for long-term investment.
- **Integrate Advanced Demand Forecasting:** Implement electricity and gas demand forecasting at both industrial and system levels to optimize generation, reduce curtailment, and inform investment in infrastructure and renewables. Accurate forecasting enables better scheduling of EV charging, industrial electrification, and green hydrogen production, ensures efficient utilization of surplus electricity, and supports a smoother transition away from oil and gas dependence.
- **Industrial Efficiency and Technology Upgrades:** Incentivize deployment of CHP technology ([able to achieve 85% efficiency](#)), waste heat recovery, and optimized captive power plants, improving operational efficiency and reducing energy intensity per unit of production.

- **Refinery Upgrades and Cleaner Fuel Production:** Transition from hydro-skimming refineries producing 35-40% furnace oil and 10-15% HSD to hydrocracking refineries capable of producing higher-value, low-sulfur fuels aligned with domestic demand and environmental standards. This shift could generate \$1-2 billion annually in import substitution, reduce furnace oil dependency, lower emissions, and enhance fuel security during global supply disruptions.

### Long-Term Recommendations

- **Green Hydrogen Deployment for Hard-to-Abate Sectors:** Utilize green hydrogen in high-temperature and energy-intensive industrial processes where electrification is technically unfeasible. Link hydrogen production to surplus renewable generation, particularly wind energy, through sector coupling to optimize resource use, reduce costs, and lower emissions, supporting scalable industrial decarbonization.
- **Integrated Energy and Industrial Planning:** Align gas, electricity, and industrial policies with actionable NDC targets and measurable industrial efficiency goals. Embed concrete, enforceable mechanisms at the national and provincial level to ensure energy security, decarbonization, and industrial competitiveness.
- **Diversified Energy Basket Strategy:** Implement a balanced energy mix combining renewables, cleaner fuels, and emerging technologies, reducing reliance on oil and gas while maintaining energy reliability.
- **Infrastructure and Policy Enablers for Electrification and Renewables:** Expand EV charging networks, grid storage, and transmission systems with enhanced flexibility to manage variable renewable energy (VRE) and industrial electrification demand. Provide regulatory clarity, fiscal incentives, and effective investment frameworks to accelerate adoption of renewable energy and electrified industrial processes while ensuring grid stability and efficiency.

## Acknowledgements

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