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Jordan and Its Neighbourhood

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Energy Resilience Amid Geopolitical Tensions

What the Hormuz Crisis Reveals About Jordan's Energy Transition

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Executive Summary

The 2026 Hormuz crisis exposed a weakness in conventional approaches to energy security. A country can maintain physical supply while remaining vulnerable to disruption elsewhere in the energy system. The subsequent cycle of escalation, attempted ceasefire, renewed military action, and diplomatic openings reinforced the same lesson. Against this background, the paper asks what the Hormuz crisis reveals about the vulnerabilities of Jordan's energy transition and how the Kingdom can strengthen its energy resilience amid persistent regional geopolitical tensions.

Jordan enters this period with significant achievements, particularly in the electricity sector. However, the wider energy economy remains far more exposed. Oil products accounted for 63% of final energy consumption, natural gas remains crucial for power system balancing, and water security is becoming increasingly dependent on reliable and affordable electricity. The central problem is that progress in one part of the energy system has not produced equivalent resilience across the economy. Vulnerability persists through fuel price transmission, fiscal pressure, power system inflexibility, and regional gas dependence. The paper argues that energy resilience provides a more useful strategic objective than literal energy independence. For a small, resource-constrained, and trade-dependent economy, eliminating external dependence is neither realistic nor necessarily desirable. The more relevant objective is to prevent dependence from becoming a source of systemic failure. The paper assesses this through four interdependent capabilities: continuity, flexibility, affordability, and optionality.

Jordan should move from possessing individual resilience assets to organizing them within a coherent national resilience architecture. This requires institutionalized stress testing, stronger continuity of fuel imports and distribution through the Aqaba port, product-specific strategic stocks and contingent supply, greater power system flexibility, disciplined development of the Risha gas field, and closer integration of transport and water into energy planning. The broader lesson extends beyond Jordan. Import-dependent economies do not become resilient simply by replacing one fuel, supplier, or route with another. The relevant measure of success is whether disruption in any one external link becomes progressively less able to cascade into a wider crisis of supply, affordability, public finance, and essential services.

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1 The Hormuz Crisis[1]

The 2026 Hormuz crisis was not a temporary oil price episode or a geographically contained military confrontation. Rather, it was a systemic stress test of the international energy, trade, and financial architecture on which import-dependent economies rely. The war that began on 28 February 2026 disrupted traffic through the Strait of Hormuz, a route that carried an average of 20 million barrels per day (MMbpd) of crude oil and petroleum products in 2025, equal to around one quarter of global seaborne oil trade.[2]

The importance of Hormuz lies not only in the volumes that pass through it, but also in the absence of a like-for-like substitute. Saudi Arabia and the United Arab Emirates possess export infrastructure that can bypass the Strait. Nonetheless, their available capacity covers only a limited share of the normal flows through Hormuz.[3] Diversifying suppliers, therefore, does not eliminate exposure when a large share of global supply remains dependent on the same transport corridor. The disruption also constrained access to Gulf production capacity at the very moment when global markets needed additional supply most urgently.[4]

The crisis was equally consequential for gas and refined products. Around one-fifth of global liquefied natural gas (LNG) trade moved through Hormuz in 2025, while Gulf exporters also relied on the route for refined oil products, liquefied petroleum gas (LPG), and refinery feedstocks.[5] The result was not merely a crude oil shock, but a disruption to the wider energy system, affecting LNG, LPG, diesel, jet fuel, refinery operations, industrial inputs, freight markets, and food supply chains.[6]

The scale of the resulting physical disruption confirmed that the Hormuz crisis had become a systemic energy shock. Global oil output fell to 94.5 MMbpd in May 2026, 13.6 MMbpd below pre-conflict levels. A partial recovery followed in June, when global supply rebounded to 98.8 MMbpd, although output remained 9.4 MMbpd below its pre-war level[7]. The International Energy Agency (IEA) projects that the average global oil supply will decline by 3.7 MMbpd in 2026, provided that transit conditions improve and renewed hostilities do not prevent the recovery of Gulf production[8]. Global refinery runs are projected to decline by 2.4 MMbpd in 2026, while global oil demand is expected to contract by 1 MMbpd before recovering in 2027[9].

Emergency reserves softened the immediate shock but did not remove the underlying vulnerability. On 11 March 2026, IEA member countries agreed to release 400 million barrels of emergency oil stocks, the largest collective release in the Agency's history[10]. After declining by 73 million barrels in May, global observed oil inventories increased by 21 million barrels in June, largely due to higher volumes of oil remaining in transit at sea. Onshore pressure nevertheless persisted; stocks in member countries of the Organisation for Economic Co-operation and Development (OECD) fell by a further 62 million barrels in June, including an estimated 44 million barrels released from government reserves, while non-OECD crude inventories declined by 37 million barrels[11]. Strategic stocks can buy time and moderate market panic, but they cannot indefinitely replace safe shipping access, normal refinery operations, commercially viable insurance, or predictable transit arrangements.

The crisis also demonstrated why a declared ceasefire and the formal reopening of Hormuz cannot be equated with durable market normalization. On 17 June 2026, the United States and Iran signed an interim memorandum that declared the termination of military operations, provided for the resumption of commercial traffic through the Strait, and opened a 60-day period for negotiations toward a final agreement[12]. The announcement raised expectations that the conflict was moving toward negotiated termination, and Brent crude fell below US$80 per barrel

as markets anticipated a gradual restoration of Gulf production and shipping[13]. However, the memorandum deferred major disputes to subsequent negotiations and did not rule out renewed military action[14].

That expectation proved premature, and hostilities resumed on 7 July following renewed attacks on commercial vessels and subsequent U.S. strikes on Iran[15]. The conflict thereafter assumed an increasingly stop-start character, in which renewed military escalation was followed by periods of relative restraint and fresh diplomatic openings without producing a durable settlement. By 7 August, no U.S. strikes on Iran had been reported since 29 July, while a U.S. official said progress in negotiations between Iran and Oman could soon lead to an agreement facilitating the restoration of commercial traffic through Hormuz[16]. However, the following day Iran said that an agreement with Oman, although close, would not by itself be sufficient to reopen the Strait and linked reopening to wider conditions involving the United States, including sanctions, compensation, and an end to U.S. threats and military action[17].

The defining feature of the conflict by August was uncertainty over whether each pause represented de-escalation, tactical respite, or the beginning of a durable settlement. For energy security planning, this stop-start pattern reinforces a central distinction: a pause in military operations is not equivalent to the termination of war, just as diplomatic progress toward reopening a maritime corridor does not necessarily restore safe, predictable, and commercially viable passage.

For Jordan, whose resilience advantage partly rests on Red Sea access, the relevant planning risk is not only prolonged closure but also false normalization, in which a temporary improvement leads to emergency measures being relaxed before the underlying conflict has been resolved. This is also where a global crisis becomes a national policy problem. In terms of energy, Jordan was not exposed in the same way as Gulf exporters or East Asian LNG importers. Its energy exposure remained primarily indirect but economically consequential through international oil and refined-product prices, freight and insurance costs, regional gas uncertainty, transport and industrial costs, and the fiscal burden of limiting price pass-through to households and firms[18]. Renewed hostilities nevertheless produced direct security spillovers. The Jordanian Armed Forces reported that between 9 and 25 July, they neutralized 95 Iranian aerial threats entering Jordanian airspace[19]. The cumulative pattern demonstrated that Jordan's exposure during renewed escalation was no longer solely economic, even though the principal energy security transmission channels remained indirect. **Figure 1** traces how such a conflict affects the country.

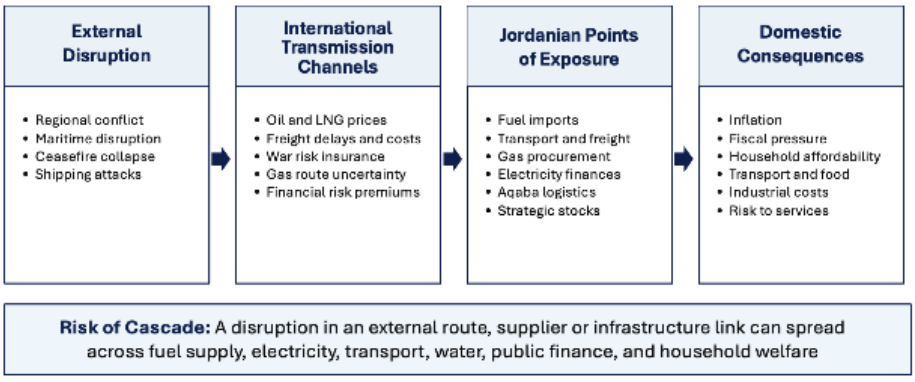

Figure 1: How a Hormuz-type shock reaches Jordan – Source: Author's synthesis.

The policy challenge is whether Jordan can preserve essential supply, affordability, and fiscal capacity during a prolonged external disruption without postponing the investments required for long-term energy security. A stress test asks not only whether the lights remain on, but which operational, financial, and institutional buffers are exhausted first, who ultimately bears the cost, how long protection can be sustained, and whether recovery depends on decisions beyond national control.

Based on this, the paper asks what the Hormuz crisis reveals about the vulnerabilities of Jordan's current energy transition model and how Jordan can strengthen its energy resilience amid regional geopolitical tensions. It argues that the appropriate objective is not literal energy independence, but the reduction of single points of failure and the preservation of viable options across fuels, routes, infrastructure, finance, and demand. Section 2 places Jordan's energy transition in context and distinguishes electricity sector progress from whole-economy resilience. Section 3 examines the constraints that hinder energy independence. Section 4 develops a resilience framework based on continuity, flexibility, affordability, and optionality, while Section 5 translates that framework into a set of policy recommendations. The paper's broader aim is to show how import-dependent economies can strengthen resilience without rejecting interdependence.

2 Jordan's Energy Transition in Context

Jordan's energy transition has been substantial, rapid, and strategically meaningful. Over a little more than a decade, solar and wind have moved from a marginal role in the power system to becoming material sources of electricity generation, investment, and energy security. However, the transition must be assessed with methodological discipline. Renewable capacity, renewable generation, electricity purchased through the transmission network, and total national electricity generation are related but distinct measures. Treating them as interchangeable risks overstating both the scale of progress and the degree of strategic insulation that progress has produced.

Jordan's progress in renewable energy is evident in both generation and installed capacity. In 2023, renewables accounted for 18% of electricity purchased through the National Electric Power Company (NEPCO) transmission network and almost 27% of total electricity generation when auto production and distribution-level generation are included[20]. By the end of 2025, Jordan had 2,843 megawatts (MW) of renewable power capacity, equivalent to 39% of total installed electricity capacity[21].

Measure	Latest reported value	What it measures
Renewable electricity purchased through the transmission network	18% in 2023	Renewable electricity delivered through the NEPCO connected transmission system
Renewable share of broader electricity generation	27% in 2023	Generation including auto-production and distribution-level output
Renewable installed capacity	2,843 MW in 2025	Physical renewable capacity across the national system
Renewable share of installed electricity capacity	39% in 2025	Share of total national generating capacity

Table 1: Jordan's renewable energy progress across different accounting boundaries – Source: MEMR and DAI, Technical Support to MEMR to Formulate Jordan Energy Sector Strategy JESS (2025–2035); IRENA, Renewable Capacity Statistics 2026.

These figures answer different policy questions. The 18% figure measures renewable electricity purchased through the transmission network, whereas the 27% figure includes auto production and distribution-level generation. The 2,843 MW and 39% figures describe installed capacity rather than electricity actually generated or available at a particular hour. Installed capacity indicates the physical scale of the transition, but not by itself the system's dispatchability, flexibility, or performance under stress.

These distinctions matter because Jordan's electricity transition remains embedded in a broader energy economy that is still dominated by hydrocarbons. Oil products accounted for 63% of final energy consumption in 2023, while electricity accounted for 28%[22]. Crude oil and petroleum products represented 58.9% of Jordan's energy imports in the same year, compared with 39% for imported natural gas[23]. A shock that raises the cost or disrupts the movement of refined fuels can therefore affect household budgets, freight, food distribution, industry, and public finances, even when domestic solar and wind generation continues as normal.

Within the power sector, the transition has nevertheless produced tangible operational gains. Between 2022 and 2023, peak electricity demand rose from 4,010 MW to 4,240 MW, available renewable capacity increased from 1,583 MW to 1,617 MW, transmission losses fell from 1.92% to 1.81%, and unsupplied energy declined from 836 megawatt-hours (MWh) to 155 MWh[24]. These improvements show that Jordan has not merely added renewable assets but also improved parts of the system that must integrate them.

The structure of dispatch remains more complex than a renewable replacement narrative suggests. In 2023, conventional electricity purchased through the transmission network was 83% natural gas and 17% oil shale[25]. Renewable deployment has reduced fuel exposure and carbon intensity in the electricity sector, but gas-fired capacity remains central to balancing, dispatch, and supply outside solar hours. As renewable penetration rises, the binding challenge shifts from adding megawatts to managing variability, congestion, curtailment, storage, forecasting, demand response, and transmission capacity.[26]

The future trajectory is thus conditional rather than predetermined. The Cabinet-approved Energy Sector Strategy 2025-2035 targets 40% of the electricity mix from renewable energy by 2035.[27] The technical report of the Energy Sector Strategy provides the scenario basis behind this target, where its Reference Pathway reaches 33% by 2030 and 40% by 2035, while its Optimistic Pathway reaches 50% by 2033 and 55% by 2035 under stronger energy efficiency measures, faster electrification, higher economic growth, and more ambitious investment in storage and grid reinforcement.[28] The higher figures are then scenario outcomes rather than adopted national targets.

The same pathways show why renewable expansion cannot be equated with energy independence. Under the Reference Pathway, import dependence could decline from around 76% in 2025 to around 10-11% by 2035, while the more demand-intensive Optimistic Pathway projects import dependence of around 21% despite higher renewable penetration because stronger growth raises total energy demand.[29] These are modeled pathway outcomes rather than guaranteed national gains and depend on assumptions concerning domestic gas development, infrastructure delivery, demand growth, energy efficiency, and investment.

Taken together, these indicators show substantial diversification within Jordan's electricity sector, but not equivalent insulation across the wider energy economy. The next section examines the structural constraints that explain this gap and continue to make energy independence difficult.

3 Why Energy Independence Remains Difficult

For Jordan, energy independence remains difficult because electricity is only one component of national energy exposure. Although renewable power has reduced imported fuel use within electricity generation, final demand remains heavily dependent on oil, particularly in transport, which accounted for 45% of final energy consumption in 2023[30]. The constraints examined below operate through five connected channels, encompassing (i) international fuel price transmission and fiscal exposure, (ii) limited power system flexibility and financial capacity, (iii) dependence on regional and imported gas, (iv) the conditional value of regional interconnection, and (v) the growing electricity requirements of water security.

Jordan's difficulty is not simply that it imports energy; it is that reducing one form of exposure can preserve or reveal another. Renewable electricity lowers fuel use when it displaces conventional generation, but it increases the importance of transmission, storage, balancing capacity, and demand flexibility. LNG infrastructure broadens procurement options, but it preserves exposure to maritime markets, freight rates, and insurance conditions. Domestic gas could reduce imports, but only if production, pipelines, and commercial delivery perform as planned. Regional interconnection can share capacity across borders, but it can also transmit political, technical, and security risks. Consequently, energy resilience depends less on eliminating every external link than on ensuring that no single link becomes a critical point of failure.

3.1 Fuel price transmission and fiscal exposure

Price transmission is one of the clearest examples. Jordan's Fuel Pricing Committee reviews domestic oil product prices monthly through a formula that incorporates international Platts prices, freight, insurance, exchange rates, domestic logistics, and taxes[31]. The seaport in Aqaba gives Jordan an important maritime supply advantage, and the country maintains operational and strategic petroleum stocks for crisis conditions[32]. Yet these assets cannot fully insulate the economy from the international costs of transporting, insuring, and financing fuel.

The fuel pricing response during the crisis showed how quickly an external supply shock can become a fiscal challenge. In May, the government absorbed approximately 68 million Jordanian dinars (JOD) through the domestic fuel pricing mechanism by keeping the prices of several petroleum products below their international cost levels. This broad price support benefited households and other domestic users across the economy, including transport, commercial, and productive activities. Separately, the government provided approximately JOD 2.9 million in additional support specifically for the industrial sector by limiting the increase in the price of gas supplied to factories. It also maintained the selling price of a 12.5-kilogram household LPG cylinder at JOD 7, although its reported cost had reached JOD 12.22[33]. Hence, the government passed through only part of the increase in international prices, reflecting around 60% of the actual increase in Octane 90 gasoline and around 16% of the increase in diesel prices, while fully absorbing the increase in kerosene prices[34]. By the end of June, the government reported that subsidies and price differentials absorbed since the beginning of the crisis had reached approximately JOD 198 million, excluding the cost of subsidizing household LPG cylinders. The government also continued supporting industrial LPG in July, with the additional cost estimated at approximately JOD 3.2 million[35]. Physical supply can thus be maintained while the fiscal cost of affordability protection rises sharply.

3.2 Power system flexibility and financial capacity

A further constraint is system flexibility. Renewable energy reduces fuel imports when it generates electricity, but solar and wind do not deliver the same output every hour, season, or under system stress. In 2023, natural gas supplied 83% of conventional electricity purchased through the transmission network, underlining its continued role in balancing the system alongside renewable generation and oil shale[36]. The Energy Sector Strategy model for a 50% renewable electricity scenario in 2033 finds that, in addition to the Mujib pumped hydro project, a further 1,500 MW of four-hour storage would be required to eliminate unserved energy. Even then, renewable curtailment would remain at approximately 283 gigawatt-hours (GWh) annually[37].

The importance of these modeled results lies in what they demonstrate, i.e., higher renewable penetration changes the energy security problem from one of generating more electricity to one of absorbing, storing, transmitting, and dispatching it reliably. Demand-side management is thus a resilience instrument rather than a marginal efficiency measure. The technical report of the Energy Sector Strategy identifies its capacity to shift load away from peak periods, reduce reserve requirements, and support variable renewable generation, while noting that Jordan's existing market arrangements currently limit broad end-user participation[38].

These technical requirements are inseparable from financial capacity. Storage, grid reinforcement, reserve capacity, and emergency fuel procurement require sustained investment and liquidity. A power system may possess increasingly diversified assets yet remain vulnerable if the institutions responsible for operating them cannot finance maintenance, procurement, and emergency response without creating additional fiscal pressure.

3.3 Gas and regional interconnection as strategic options

Gas illustrates the importance of strategic optionality since Jordan's supply security depends on a layered portfolio of contracts, delivery routes, and backup import capacity. The largest component is pipeline gas from the Leviathan field under a 15-year sales agreement. It provides for 300 million cubic feet per day (MMcfd), with an option to purchase up to an additional 50 MMcfd, and is expected to run until 2035[39].

Jordan also maintains a separate long-term pipeline gas contract with the Egyptian Natural Gas Holding Company. The contractual availability is up to 220 MMcfd through 2033, of which 35 MMcfd is identified as firm[40]. Here, the 220 million figure represents the maximum volume available under the contract, rather than evidence that Jordan continuously receives that quantity. The gas should also be described as gas contracted from the Egyptian company and delivered through the Egypt-Jordan pipeline system, rather than necessarily as Egyptian-produced gas.

Jordan also has the infrastructure access agreement signed by NEPCO and the Egyptian company in December 2024. Under that arrangement, Jordan can procure LNG from international markets, use Egyptian floating storage and regasification units to convert it back into natural gas, and transport it to Jordan. The agreement gives Jordan priority access to up to 350 MMcfd of capacity when required and remains in effect until the end of 2026, without imposing fixed charges when the capacity is not used[41]. It therefore functions primarily as an emergency and supplementary procurement route. Separately, Jordan is advancing the Sheikh Sabah LNG Terminal Development Project in Aqaba. On 26 July 2026, the government laid the foundation stone for its permanent onshore regasification unit, which is expected to be completed around mid-2027 with a capacity of up to 700 MMcfd[42]. Collectively, these arrangements broaden Jordan's

procurement options, but they do not produce independence. Depending on the arrangement, Jordan remains exposed to some combination of imported gas availability, regional pipeline stability, infrastructure reliability, global LNG shipping conditions, and the financial capacity to secure alternative supplies.

The temporary shutdown of the Leviathan gas field following the escalation of 28 February 2026[43], followed by its restart on 2 April 2026[44], illustrates why regional gas dependence must be treated as a security issue as well as a commercial one. The episode does not imply that Jordan should abandon gas. It demonstrates that gas security depends on route diversity, contractual flexibility, alternative procurement capability, and a power system that progressively reduces the indispensability of any single supplier or corridor.

Domestic gas from the Risha gas field could materially improve Jordan's resilience if production, infrastructure, and commercial delivery assumptions are realized. However, reported field capacity, contracted deliveries, and long-term production targets should not be treated as interchangeable. The first agreement to supply Risha gas to Jordan's electricity generation system, signed in January 2026, provides for an initial volume of approximately 2.5 MMcfd, rising gradually under an agreed timetable to 20 MMcfd[45]. This represents the first stage of actual power sector delivery, rather than the field's total production capacity or its longer-term development potential.

The Cabinet-approved Energy Sector Strategy subsequently targeted Risha production of 418 MMcfd by 2029 and 812 MMcfd by 2035, with a roughly 320-kilometer pipeline expected to connect the field to the Arab Gas Pipeline in Mafraq Governorate by 2029.[46] The Arab Gas Pipeline originates in El Arish, Egypt, reaches Jordan through Aqaba, and extends northward through the Kingdom to the Syrian border. The planned connection would therefore integrate Risha gas into Jordan's principal gas transmission network, which is physically connected southward to Aqaba and Egypt and northward to Syria. A later Cabinet statement in June 2026, describing the National Petroleum Company's implementation strategy, cited a target of 418 million standard cubic feet per day by 2030 and 810 million standard cubic feet per day by 2035, while retaining 2029 as the expected pipeline operating date[47]. The difference between the approved strategy target and the subsequent implementation timeline indicates that the pace of production expansion remains subject to operational planning, infrastructure delivery, and field performance.

Risha is therefore neither a guaranteed substitute for imports nor a strategic option that should be dismissed. Its resilience value depends on independently verified reserves, sustained well deliverability, processing and pipeline readiness, delivered cost, demand absorption, and compatibility with renewable integration. Until those conditions are demonstrated, projected field capacity should not be treated as equivalent to commercially available gas.

Regional interconnection can similarly strengthen resilience without eliminating dependence. Jordan's connection with Egypt operates via a 550-MW submarine cable, and Jordan imported 266.4 GWh from Egypt in 2023, accounting for 1.2% of total purchased electricity[48]. The link is a real resilience asset, but not a substitute for domestic generation, fuel security, or system flexibility. Other links with Saudi Arabia, Iraq, Syria, Lebanon, and the Palestinian territories could broaden future options, but their practical value depends on completion, dispatch arrangements, transit politics, and the reliability of partner systems.

3.4 Water security as an electricity sector exposure

The same principle applies to water security. Jordan's water sector consumes around 9% of

national electricity, while electricity accounts for more than half of water utilities' operating costs, and annual water utility deficits are estimated at JOD 200-300 million[49]. The Aqaba-Amman Water Desalination and Conveyance Project is designed to desalinate and transport 300 million cubic meters of water annually, covering about 40% of municipal needs by 2030 and 45% by 2040[50]. This will strengthen water security but also increase the importance of dependable, affordable electricity. Water security is therefore becoming an electricity planning issue.

These constraints do not negate Jordan's transition gains. They explain why those gains have not yet produced full strategic insulation. Jordan remains exposed through oil-intensive final demand, fuel price transmission, constrained system flexibility and financial capacity, gas route uncertainty, regional interdependence, and rising water-related electricity demand. Energy independence remains difficult, not because the transition has failed, but because each resilience asset addresses only part of a system-wide vulnerability and may preserve or create new dependencies elsewhere.

4 From Energy Independence to Energy Resilience

The constraints identified above shift the policy question from whether Jordan can eliminate external dependence to whether it can prevent that dependence from becoming a source of systemic failure. For a small and resource-constrained economy, literal energy independence would require a degree of domestic supply, route control, and insulation from external price and geopolitical shocks that is neither realistic nor necessarily desirable. Taking this into account, energy resilience is a more useful policy objective, encompassing the capacity to prepare for disruption, maintain essential operations during a shock, and recover without exhausting strategic, fiscal, or institutional buffers[51]. In Jordan's case, this capacity can be assessed through four linked tests: continuity, flexibility, affordability, and optionality. These tests are analytically distinct but operationally interdependent, i.e., weakness in one can compromise the others.

Test	Core question	Jordanian resilience assets	Main vulnerability if test fails
Continuity	Can essential fuel, electricity and water services continue during disruption?	Aqaba port, stocks, storage terminals, contingent supply	Physical shortage and interruption of essential services
Flexibility	Can the system adapt to changing supply, demand and renewable output?	Grid upgrades, storage, gas flexibility, demand response	Curtailed renewables, outages, and costly fuel switching
Affordability	Can households, firms and public finances absorb the shock?	Targeted social protection, transparent pricing, fiscal buffers	Inflation, social pressure, and unsustainable subsidies
Optionality	Does Jordan retain several viable pathways rather than one dominant dependency?	Renewables, Risha gas field, LNG, pipeline imports, interconnections	Single point dependence on a route, supplier or planning assumption

Table 2: Four tests of energy resilience for import-dependent economies – Source: Author's framework, informed by IEA, Energy System Resilience; IEA, Oil Security and Emergency Response; MEMR and DAI, Technical Support to MEMR to Formulate Jordan Energy Sector Strategy JESS (2025–2035); IMF, Responding to the Energy and Food Price Shock.

First, continuity asks whether essential fuel, electricity, and water services can be maintained during disruption. The port of Aqaba, strategic stocks, storage terminals, and contingent supply arrangements provide Jordan with important buffers, but their resilience value depends on tested release procedures, port and road logistics, fuel-switching capability, and clear crisis communication[52]. Continuity concerns not only the existence of physical assets but also whether those assets can be activated quickly and coordinated effectively under stressed conditions.

Second, flexibility refers to the ability of the electricity system to respond to changes in fuel availability, renewable output, and demand without compromising reliability or affordability. The security value of renewable generation depends on transmission capacity, storage, reserve margins, forecasting, demand response, and operational control. Without these capabilities, diversification can coexist with curtailment, costly fuel switching, or outages. Flexibility is therefore what converts installed capacity into dependable system value.

Third, affordability concerns whether households, firms, and public finances can absorb a shock without lasting damage. Full price pass-through can undermine household welfare and productive activity, while broad and prolonged price suppression can exhaust fiscal resources and weaken the investment needed for future resilience. The appropriate balance is temporary, targeted protection within a transparent, fiscally bounded framework[53]. Thus, affordability is not separate from energy security; it determines whether physical continuity can be maintained without producing a parallel social or fiscal crisis.

Fourth, optionality asks whether Jordan retains several viable pathways rather than replacing one dominant dependence with another. Renewables, pipeline gas, LNG capability, domestic gas, strategic stocks, and regional interconnection should be treated as a portfolio whose components reduce different categories of risk, not as mutually exclusive alternatives. Optionality does not require every pathway to be used simultaneously; it requires credible alternatives to remain available when prevailing arrangements fail or become prohibitively expensive.

Finally, recoverability is the combined outcome of these four capabilities. It is the ability to restore essential services quickly after disruption without exhausting strategic stocks, public finances, or institutional capacity. Success is not a symbolic claim of independence, nor is it simply a higher share of renewable energy. It is a lower probability that a maritime shock, gas field outage, price spike, or cyber incident will simultaneously undermine fuel availability, electricity reliability, public finances, and essential services.

5 Policy Recommendations

The resilience framework developed above implies a practical standard for policy where each intervention should reduce a single point of failure, increase the system's capacity to absorb disruption, or shorten the time required to restore essential services. The recommendations below should be implemented as a single resilience portfolio. Expanding strategic stocks without demand management, adding renewable capacity without system flexibility, or developing domestic gas without independently verified stage gates would shift risk rather than reduce it.

5.1 Institutionalize national energy resilience planning and stress testing

The Cabinet should establish a National Energy Resilience Framework, with the Prime Ministry providing political oversight and the Ministry of Energy and Mineral Resources coordinating

implementation. The framework should give energy resilience a permanent institutional basis rather than leaving cross-sector coordination to ad hoc crisis management. It should include an annual public assessment of exposure across oil products, LPG, natural gas, electricity, water, transport, and critical infrastructure, supported by a confidential annex covering commercially or nationally sensitive vulnerabilities.

The framework should build on the system modeling already undertaken for the Jordan Energy Sector Strategy[54], while extending it from long-term planning assumptions to operational crisis preparedness. Jordan should conduct an annual Cabinet-led national stress test, supported by semiannual technical tabletop exercises. Scenarios should include a prolonged partial disruption of Hormuz, a temporary reopening followed by ceasefire collapse and renewed attacks, simultaneous impairment of Hormuz and Bab el-Mandeb, loss of a major regional gas source, an outage affecting Aqaba port or LNG infrastructure, a cyber incident affecting dispatch or fuel logistics, and a summer heatwave coinciding with high water pumping demand.

Each exercise should identify which physical, financial, and institutional buffer would fail first, which authority would activate the response, how long essential services could be maintained, and which intervention would provide the greatest resilience gain per dinar spent. Findings should be translated into budget, procurement, and regulatory decisions.

5.2 Secure fuel continuity through Aqaba, product-specific stocks, and contingent supply

Jordan should treat Aqaba, the Jordan Oil Terminals Company, refinery storage, LPG facilities, and fuel distribution networks as strategic national infrastructure. Regulation No. 58 of 2020 already provides a legal basis for oversight of stockholding, inventory management, and emergency release[55]. The immediate priority is to convert this architecture into a tested continuity system covering port access, marine handling, customs, storage, road distribution, cybersecurity, and public communication.

A strategic stock adequacy review should calculate stressed, product-specific cover for crude oil, diesel, gasoline, jet fuel, kerosene, and LPG rather than relying on a single aggregate measure. Diesel and LPG warrant particular attention due to their importance in freight, agriculture, water pumping, backup generation, and household consumption. Stock adequacy should be evaluated against realistic disruption scenarios, including slower shipping, elevated insurance costs, congestion at alternative ports and simultaneous pressure on several products.

Jordan should also pre-negotiate contingent supply arrangements that specify volumes, pricing formulae, delivery locations, shipping and insurance responsibilities, force majeure provisions, and activation timelines. These supply-side measures should be accompanied by a graduated emergency demand management protocol. Initial measures should rely on public information, public-sector fuel savings, and voluntary freight consolidation; more serious disruptions should trigger temporary restrictions on non-essential consumption and prioritized allocations for hospitals, water utilities, civil defense, food distribution, public transport, and agriculture.

5.3 Prioritize power system flexibility and emergency operating capability

Jordan should continue expanding renewable generation, but the next phase of power sector investment should prioritize the assets that convert installed capacity into dependable system value, encompassing transmission reinforcement, substations, storage, forecasting, ancillary services, demand response, dispatch capability, and digital grid management. Jordan's own modeling demonstrates that high renewable

penetration will require substantial additional storage and flexibility while still presenting a risk of curtailment[56].

NEPCO should prepare an Integrated Flexibility, Grid, and Emergency Operation Plan covering priority network investments, storage procurement, fuel contingencies, reserve margins, maintenance, liquidity requirements, and cybersecurity. This should build on existing grid upgrade programs while identifying which investments provide the greatest value under both normal and crisis conditions[57].

Future projects should be evaluated through a resilience-weighted appraisal framework. In addition to financial return and installed capacity, appraisal should consider whether a project reduces fuel import exposure, lowers outage risk, protects essential services, limits renewable curtailment, strengthens recovery capability, and remains operable under stressed conditions.

5.4 Develop the Risha gas field through independently assured stage gates

Jordan should avoid two equally unhelpful assumptions: that domestic gas will automatically solve import dependence, or that gas investment is inherently incompatible with the energy transition. The objective should be to preserve strategic optionality across domestic production, pipeline imports, LNG capability, renewable energy, storage, and demand management.

The divergence between the approved Risha production targets and the subsequent implementation timetable reinforces the need for independently assured decision gates. Before major irreversible investments are approved, the responsible authorities should (i) verify recoverable reserves, sustained well deliverability, and production decline profiles, (ii) assess gathering, processing, compression, and pipeline economics, (iii) compare the delivered cost of Risha gas with alternative supplies, and (iv) test the project's resilience value under different demand and disruption scenarios.

Investment should proceed in stages tied to verified technical and commercial performance rather than projected production alone. Aqaba LNG capability and diversified procurement arrangements should remain available until domestic production, pipeline readiness, delivered cost, and market demand have been demonstrated. Risha can materially strengthen resilience, but only if it creates a credible additional option rather than replacing one uncertain dependency with another.

5.5 Establish a targeted fuel and energy shock support protocol

Jordan should establish a Fuel and Energy Shock Support Protocol before the next crisis. The protocol should (i) define the price, supply, or inflation triggers that activate temporary support, (ii) identify eligible households and essential services, (iii) specify the fiscal ceiling, (iv) set the duration of assistance, and (v) include a clear sunset clause.

Jordan should build on the National Aid Fund and the National Unified Registry, which offer a stronger platform for targeted assistance than broad price suppression[58]. Temporary cash or near-cash support should be the primary instrument for protecting vulnerable households. Narrowly defined assistance may also be justified for water services, public transport, food logistics, and critical productive activities where interruption would produce wider economic or social consequences.

The fuel pricing response during the crisis demonstrated that broad price absorption can protect households and firms in the short term while transferring a substantial share of the shock to the public budget[59]. Broad suppression should remain an exceptional and temporary emergency measure, not the default response to

prolonged international price pressure. Affordability protection should preserve social stability without undermining the fiscal and investment capacity required for longer-term resilience.

5.6 Integrate transport and water into energy resilience planning

Jordan should establish a permanent Water-Energy and Transport Fuel Resilience Compact, jointly led by the Ministries of Energy and Mineral Resources, Water and Irrigation, and Transport. The Compact should align water demand, pumping schedules, tariff design, renewable procurement, storage, backup power, transport fuel efficiency, public fleets, and emergency allocation plans.

This is necessary because transport accounted for 45% of Jordan's final energy consumption in 2023, while oil products supplied 63% of total final energy consumption[60]. A resilience strategy that ignores transport fuel demand cannot materially reduce Jordan's exposure to oil price and logistics shocks. These sectors should therefore be treated as central components of energy resilience planning, not as downstream consumers outside the energy strategy.

Every major water project should include an energy resilience assessment addressing electricity intensity, flexible pumping, renewable supply, backup capability, cybersecurity, and the consequences of prolonged grid disruption. Water utilities should participate in demand response arrangements where technically feasible. Transport measures should prioritize public fleets, taxis, freight efficiency, emergency fuel allocation, and electric mobility, provided that grid capacity and charging infrastructure can support it reliably.

5.7 Use regional interconnection as strategic redundancy

Jordan should continue developing electricity interconnections, but each link should be evaluated according to the firm emergency support it can provide rather than its headline capacity. Existing and planned links can broaden balancing options, support renewable integration, and enable reciprocal assistance, but their resilience value remains conditional on partner system reliability, transit politics, commercial arrangements, and operating protocols.

NEPCO and the Ministry of Energy and Mineral Resources (MEMR) should negotiate emergency operating protocols for priority interconnections. These should define notification requirements, minimum firm support, priority flows, settlement arrangements, restoration procedures, cybersecurity coordination, and contingencies if the connected system is itself affected by the regional crisis.

Interconnection should complement rather than substitute for domestic reserve capacity, fuel security, and system flexibility. Its strategic purpose is to expand Jordan's options without allowing any cross-border link to become a new single point of failure. **Table 3** sets out a phased implementation sequence that translates these recommendations into immediate, medium-term, and longer-term priorities.

Timeframe	Priority actions
First 6 months	• Establish the national resilience steering structure • Launch the Aqaba and product-specific stock review • Design the Fuel and Energy Shock Support Protocol • Conduct the first technical tabletop exercise
6-18 months	• Publish the first National Energy Resilience Assessment • Adopt the Integrated Flexibility, Grid and Emergency Operation Plan • Approve the Risha stage gate framework • Conclude priority interconnection protocols • Conduct the first Cabinet-led national stress test
18-36 months	• Procure priority grid, storage and demand flexibility assets • Address identified stock and port continuity gaps • Operationalize the water-energy and transport resilience compact
3-5 years	• Expand viable redundancy across gas procurement and regional balancing • Repeat national stress tests • Evaluate whether reforms have reduced fiscal exposure, recovery time, and risks to essential services

Table 3: Recommended implementation sequence

6 Conclusion

The Hormuz crisis demonstrated that energy security cannot be reduced to the availability of fuel or the share of renewables in the electricity mix. A country can maintain physical supply while remaining vulnerable to price transmission, freight disruptions, gas route uncertainty, fiscal pressure, and failures in essential services. It can also install significant renewable capacity while remaining exposed through transport fuels, system inflexibility, institutional weakness, and the energy demand of water security. The collapse of the June interim agreement further demonstrated that diplomatic declarations and temporary improvements in shipping cannot be treated as durable planning assumptions when the underlying military, political, and maritime disputes remain unresolved.

Jordan has already built important resilience assets, including Red Sea access through Aqaba port, strategic stockholding arrangements, a diversified electricity mix, expanding renewable capacity, LNG capability, prospective domestic gas production, and regional interconnection. Their strategic value, however, depends on whether they are organized as a coherent national resilience architecture. The policy priority is therefore to convert electricity sector diversification into whole-economy resilience by strengthening continuity of supply, power system flexibility, affordability, and strategic optionality across fuels, routes, infrastructure, finance, and demand. This requires institutionalizing preparedness through regular stress testing, flexible infrastructure, credible contingency arrangements, and targeted protection against future shocks.

The broader lesson extends beyond Jordan. Import-dependent economies do not become resilient simply by replacing one fuel, supplier, or route with another. Nor does resilience require economic isolation or the rejection of

interdependence. It requires external links to remain sufficiently diversified and substitutable that the failure of one does not destabilize the system as a whole. For Jordan, the relevant measure of success is thus not whether it eliminates every external energy link, but whether disruption in any one link becomes progressively less able to cascade into a wider crisis of supply, affordability, public finance, and essential services. That is the standard by which Jordan's next phase of energy transition should be judged.

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