Policy Brief

2026 NO.3

ISETS
INTERNATIONAL SOCIETY FOR ENERGY TRANSITION STUDIES

The Strait of Hormuz as a Chemical Feedstock Chokepoint: Implications for Industrial Resilience and Decarbonisation

Thomas Gao, Xunpeng Shi, Daiyan Rahman

July 2026

ABOUT ISETS

The International Society for Energy Transition Studies (ISETS) is an independent, non-profit global organization headquartered in Sydney, Australia. ISETS is open to anyone who is interested in contributing to the advancement of sustainable energy transitions. Membership registration as an Associate Member is permanently free and can be completed at www.isets.org . Currently, ISETS boasts a diverse community of nearly 2,800 members hailing from more than 100 countries worldwide.

At ISETS, our mission is dedicated to facilitating a just, equitable, and inclusive transition of energy and relevant sectors toward a sustainable low-carbon future. We do so while considering the critical pillars of economic development, social equity, and environmental stewardship through international partnerships.

COPYRIGHT

Printed and bound in Australia.

Published by International Society for Energy Transition Studies.

CITATION

G, Thomas., Rahman, D., and Shi, X. 2026. The Strait of Hormuz as a Chemical Feedstock Chokepoint: Implications for Industrial Resilience and Decarbonisation. Sydney: International Society for Energy Transition Studies, Policy Brief, 2026, NO.3.

International Society for Energy Transition Studies

Barraba Place, Bella Vista, NSW 2153 Australia

Email: isets@isets.org

Website: www.isets.org

Official Website LinkedIn YouTube WeChat Twitter

Key Message

The 2026 Strait of Hormuz crisis has exposed the Strait as not only an energy chokepoint, but also a critical route for chemical feedstocks and products. Disruption is amplified by higher insurance and freight costs, volatile feedstock prices, limited inventories and the difficulty of rapidly switching suppliers or production processes. These pressures can reduce chemical output, disrupt downstream industries and divert capital from long-term decarbonisation. At the same time, low-carbon production pathways—including electrification, renewable hydrogen, Power-to-X, circular feedstocks and diversified regional production—can reduce both emissions and exposure to geopolitical and supply-chain risks.

This brief recommends incorporating critical chemical feedstocks into resilience planning, protecting viable decarbonisation investment during crises, developing regional low-carbon production networks, and aligning trade, infrastructure and procurement policies with supply security. Chemical decarbonisation should therefore be understood not only as climate policy, but also as a strategy for industrial resilience, food security and long-term competitiveness.

Introduction

The 2026 Strait of Hormuz crisis caused a major disruption to global energy and industrial systems, with impacts reverberating far beyond oil markets. Escalating geopolitical tensions in the Gulf significantly constrained maritime traffic through the Strait, a narrow passage through which approximately 20–25% of seaborne oil trade and around 20% of global liquefied natural gas (LNG) flows typically transit[1]. At the height of the disruption, an estimated 9–10 million barrels per day of oil supply were removed from global markets, contributing to price spikes exceeding USD 120 per barrel and intensifying pressures on inflation, industrial production, and global economic stability[2].

The crisis also exposed the vulnerability of the global chemical industry. Approximately 90% of chemical feedstocks are derived from oil, gas, or coal, with petrochemicals accounting for around 14% of global oil demand and 8% of natural gas demand[3]. Disruption to fossil-fuel supply therefore affects not only energy markets, but also the availability and cost of essential chemical feedstocks and products.

Although much of the existing analysis has focused on implications for energy security and the global energy transition, the consequences for the chemical production and decarbonisation have received comparatively less attention. This policy brief addresses that gap by examining how disruptions at the Strait of Hormuz are transmitted through chemical supply chains, how they affect chemical-industry decarbonisation, and which policy measures can strengthen both industrial resilience and the low-carbon transition.

This brief should be read alongside ISETS Policy Brief 2026 No.1: *The Strait of Hormuz Crisis and Its Implications for the Global Energy Transition.*

Beyond Physical Disruption: Systematic Systemic Risks to Chemical Supply Chains

Systemic Risks to Chemical Supply Chains

The Gulf region, which is heavily dependent on transit through the Strait of Hormuz, is not only a major exporter of crude oil and LNG, but also a key supplier of chemical feedstocks and products, including methanol, ammonia and urea (fertilisers), ethylene and its derivatives, and a wide range of hydrocarbon intermediates. They underpin global manufacturing and agricultural systems and

[1] IEA, 2026. Strait of Hormuz Factsheet (updated for 2026)

[2] IEA, 2026. Sheltering From Oil Shocks.

[3] IEA, 2018. The Future of Petrochemicals.

represent hundreds of billions of dollars in annual trade. Gulf producers typically account for 10–20% of exports across major chemical value chains[4]. More specifically, the region accounted for approximately 30–35% of global urea exports and 20–30% of ammonia exports, while up to 30% of all internationally traded fertiliser normally transits the Strait[5].

Major chemical manufacturing hubs, particularly in Northeast Asia, including China, Japan, South Korea, and increasingly India rely heavily on imported hydrocarbons and chemical feedstocks from the Gulf. Disruptions at the Strait therefore affect not only energy availability, but also chemical production, cost structures, and downstream supply chains.

The crisis demonstrates physical supply constraints are amplified by financial, logistical, and systemic factors amplify.

Insurance, Freight and Risk Premium

Higher insurance and risk premium have significantly constrained supply. War-risk insurance premiums for tankers transiting the Strait increased sharply during the crisis, while coverage in some cases became unavailable or prohibitively expensive. This reduced the willingness of shipping operators to enter the region, even where physical transit remains possible.

The resulting delays, higher freight rates and increased transaction costs translated directly into higher input prices and tighter operating margins for chemical producers. This pressure can also divert capital from long-term decarbonisation projects toward immediate operational resilience. The crisis risks therefore crowding out investment in low-carbon technologies when they are most needed.

Feedstock Price Volatility and Production Disruptions

A sharp increase in oil and gas prices has driven rapid inflation, in the cost of naphtha and natural gas, and other key inputs for petrochemicals and fertilisers production. In response, chemical producers may reduce operating rates, temporarily shutting down facilities, or prioritising supply to essential sectors such as energy, heating, and transport.

This dynamic resembles the experience of the Russia–Ukraine War, when high gas prices caused European ammonia production to fall by more than 50% at peak. Fertiliser prices subsequently surged, contributing to global food price inflation[6]. Prolonged disruptions can also result in permanent capacity loss, where facilities become economically unviable and are mothballed or closed.

Cascading and Non-linear Supply Chain Effects

The chemical industry is characterised by highly integrated, capital-intensive production systems that depend on continuous feedstock supply. Even relatively small disruptions can therefore generate disproportionate effects and cascading failures across value chains.

Just-in-time supply models exacerbate this vulnerability because limited inventories provide little protection against prolonged shocks. At the same time, the high capital cost and long lead times associated with chemical infrastructure make it difficult for firms to switch feedstocks, suppliers or production processes rapidly.

Recovery therefore is often slow and uneven. During this period, firms tend to prioritise restoring baseline production rather than investing in new, low-carbon

[4] Gulf Petroleum Chemical Association, 2021. The GCC petrochemical and Chemical Industry Report.

[5] FAO, 2026. Global Agrifood Implications of the 2026 Conflict in the Middle East.

[6] World Economic Forum, 2023. This Is How War in Europe Is Disrupting Fertilizer Supplies and Threatening Global Food Security.

technologies, further delaying the green transition.

How the Crisis Delays Chemical Decarbonisation

These financial, logistical and production shocks can slow chemical-industry decarbonisation through several channels. Higher operating and financing costs reduce the capital available for low-carbon investment, while supply insecurity encourages firms to prioritise short-term production continuity. Emergency responses may also extend the life of fossil-based facilities or encourage investment in new conventional capacity, creating a risk of carbon lock-in.

At the same time, the crisis strengthens the strategic case for low-carbon production pathways that reduce dependence on imported fossil feedstocks. Electrification, renewable hydrogen, Power-to-X, circular feedstocks and regionally distributed production can improve both emissions performance and supply resilience.

Chemical decarbonisation should therefore be assessed not only by its climate benefits but also by its contribution to industrial security, supply-chain stability and reduced exposure to geopolitical disruption.

The Strait of Hormuz crisis reinforces the need to view Chemical decarbonisation should therefore be assessed not only by its climate benefits, but also its contribution to industrial security, supply-chain resilience and reducing exposure to geopolitical risk.

Policy Recommendations

Recommendation 1: Expand Strategic Reserves Beyond Oil & Gas

The crisis exposes an important gap in industrial resilience policy: strategic reserves generally cover fuels, but not the chemical feedstocks essential to agriculture and manufacturing. Governments should identify critical chemical feedstocks according to their economic importance, import dependence, supply concentration, substitutability and storage feasibility, and incorporate them into national resilience frameworks.

Reserve arrangements should be tailored to the characteristics of each product. Methanol and selected liquid feedstocks may be suitable for physical stockpiling, while naphtha reserves could build on existing refinery and terminal infrastructure. Because ammonia is more difficult and costly to store, resilience may be provided through contracted production capacity, diversified supply agreements, minimum commercial inventories or downstream reserves of products such as urea.

Strategic reserves should therefore combine physical stocks, minimum inventory requirements, emergency supply contracts and regional reserve-sharing arrangements. These measures should complement, rather than replace, longer-term efforts to diversify supply and develop low-carbon chemical production.

Recommendation 2: Accelerate Industrial Decarbonisation and Protect Transition Investment

The Strait of Hormuz crisis strengthens the case for accelerating chemical-industry decarbonisation, but it also risks delaying it. Higher feedstock, freight and insurance costs can force firms to redirect capital from long-term low-carbon projects towards immediate operational needs.

Governments should therefore prioritise technologies that reduce both emissions and dependence on imported fossil feedstocks. These include electrification, renewable hydrogen, Power-to-X, circular feedstocks, sustainable biomass and waste-derived inputs, and carbon capture and utilisation where it delivers credible lifecycle emissions reductions.

Policy support should also protect viable transition projects from temporary crisis-related disruption. Contracts for difference, concessional finance, public co-investment, loan guarantees and long-term procurement agreements can help maintain investment during periods of price volatility and financial stress.

Project assessment should recognise resilience benefits alongside emissions reductions, including lower exposure to imported hydrocarbons, maritime chokepoints, freight volatility and war-risk insurance. Emergency assistance to incumbent facilities should be time-limited and, where appropriate, linked to efficiency improvements, feedstock diversification or credible decarbonisation plans.

Recommendation 3: Develop Diversified Regional Low-Carbon Production

Regional production networks can reduce dependence on any single supplier or maritime chokepoint while supporting technology transfer, economies of scale and the expansion of low-carbon chemical markets. The Strait of Hormuz crisis highlights the risks created by geographically concentrated chemical production and dependence on a limited number of supply routes.

Countries should therefore support more diversified regional production networks for essential low-carbon chemicals. The objective should not be complete national self-sufficiency, which would be costly and inefficient, but greater regional redundancy and substitutability.

Governments should identify locations with competitive renewable-energy resources, suitable infrastructure, access to sustainable feedstocks and strong industrial demand, and develop them as low-carbon chemical hubs. Priority measures include investment in shared electricity, hydrogen, storage and port infrastructure; support for flexible and modular production capacity; harmonised certification and carbon-accounting standards; workforce development; and blended finance for early-stage projects.

Regional cooperation should also facilitate technology transfer, coordinated infrastructure planning and the development of mutually compatible standards for low-carbon hydrogen, ammonia, methanol and related products.

Recommendation 4: Align Trade, Infrastructure and Procurement Policies with Supply Security

Governments should ensure that trade, infrastructure and procurement policies support the reliable movement and use of low-carbon chemicals during both normal conditions and periods of disruption.

Trade agreements should facilitate market access for certified low-carbon chemicals and reduce regulatory barriers created by inconsistent technical standards, certification systems and carbon-accounting methods. Greater alignment can improve market liquidity, enable cargoes to be redirected during supply disruptions and support investment in regional production.

Infrastructure planning should address bottlenecks in ports, terminals, storage facilities and transport networks for products such as hydrogen, ammonia and methanol. Governments should also assess whether existing infrastructure can accommodate alternative suppliers and respond flexibly to supply interruptions.

Public procurement can provide stable demand for low-carbon fertilisers, fuels and chemical products. Procurement criteria should recognise lifecycle emissions, supply reliability and resilience benefits, rather than focusing only on the lowest short-term price.

Governments and industry should also conduct regular supply-chain stress tests covering scenarios such as partial closure of the Strait of Hormuz, loss of insurance coverage, prolonged feedstock-price spikes and simultaneous disruption of multiple chemical inputs. The results should inform infrastructure investment, reserve arrangements and emergency-response planning.

Conclusion and Next Steps

The Strait of Hormuz crisis has exposed a critical structural vulnerability in the global chemical industry: its deep reliance on fossil-based feedstocks that are geographically concentrated in geopolitically sensitive regions. Disruptions therefore threaten not just energy supply, but also chemical production, agriculture, manufacturing, and broader economic systems.

Chemical decarbonisation should consequently be treated not only as a climate imperative, but as a strategy for industrial resilience, and supply security. Electrification, renewable hydrogen, Power-to-X, circular feedstocks and diversified regional production can reduce both emissions and exposure to geopolitical and logistical risks.

Governments and industry should now incorporate critical chemical feedstocks into resilience planning, protect low-carbon investment during crises, strengthen regional production networks, and align trade and infrastructure policies with supply security.

Further analysis is needed to assess how different decarbonisation pathways perform under geopolitical and supply-chain stress. This brief calls on International Society for Energy Transition Studies to facilitate further research, convene dialogue among governments, industry and researchers, and explore practical cooperation on resilient and low-carbon chemical supply chains.

Author Biographies

Mr Thomas Gao is Co-Founder & Chief Strategy Office of the Australia-Asia Sustainable Aviation Fuel Alliance and Senior Manager at NSW Chief Scientist & Engineer Office. Corresponding email: thomas.gao@unsw.edu.au

Professor Xunpeng Shi is President of the International Society for Energy Transition Studies, Convenor and Fellow of the Institute for Energy Transition & Sustainability, and Professor at the University of Technology Sydney.

Daiyan Rahman is a renewable energy and powerfuel specialist for Asia-Pacific and EU and a A/Professor at the University of NSW.