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Beyond Oil: Helium, the Strait of Hormuz, and Market Adaptation

Unsurprisingly, most market commentary is treating the current geopolitical shock as an oil story. But it is much more than that. In this piece, we take a high-level look at helium. A large portion of global supply passes through the Strait of Hormuz and it is critical to artificial intelligence among other uses. We take a look at current supply conditions and how the market might adapt given the prevalence of helium supply challenges.

Helium: MUCH More than Party Balloons!

The less well-known industrial uses of helium are many and varied. For example: semiconductor manufacturing, magnetic resonance imaging (MRI) machines, aerospace, and welding. Demand over the last few years has been relatively stable,[1] but the growing need for semiconductors across consumer and military uses may establish a longer-term structural shift.

Helium is particularly notable because it is generally difficult or impossible to substitute and has many attributes that make it unique: it is inert, has the lowest boiling point in the periodic table, is very light, and is not flammable.[2,3] In fact, it has even been described as "…magical. There is nothing else like it in the Universe."[4]

What is the Impact of War in the Middle East?

The U.S. is the top global producer of helium, so it is much less affected than other countries, especially those in Asia. South Korea, for example, relies more heavily on Qatar. It is home to Samsung Electronics and SK hynix which together supply roughly two-thirds of the world's memory chips, a subset of semiconductors. The country has sufficient helium stocks until at least June and, according to Reuters, the two companies themselves hold about four to six months of helium inventory.[5]

Top Global Helium Producers by Production 2024-2025 (Million Cubic Meters)

Source: USGS[6]

Country	Production - 2025	Production - 2024	Change YonY	% of Global Production (2025)
United States	81	80	1	42.6%
Qatar	63	64	(1)	33.2%
Russia	18	17	1	9.5%
Algeria	11	11		5.8%
China	3	3		1.6%
Poland	3	3		1.6%
Other	11	5	6	5.8%
TOTAL GLOBAL	**190**	**183**	**7**	

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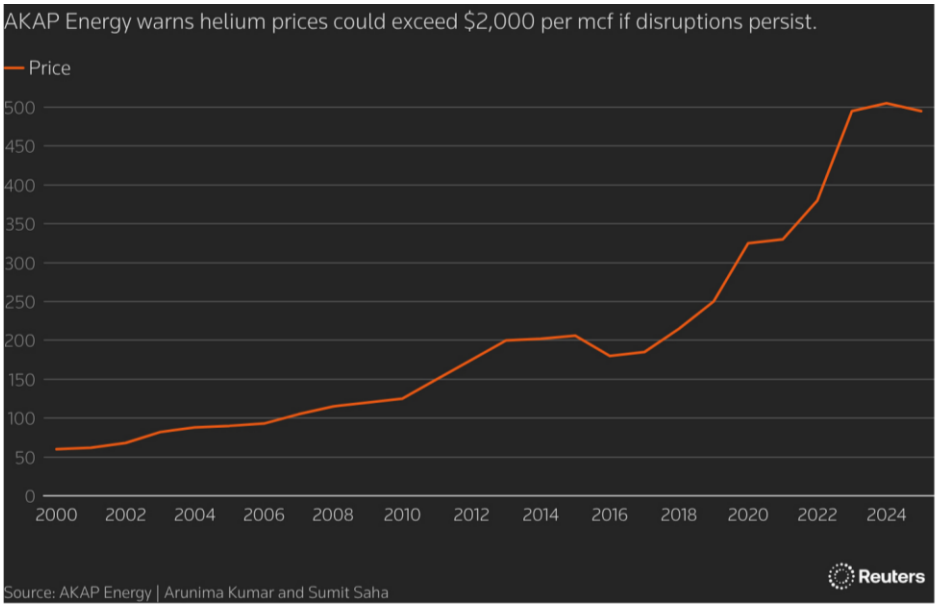
However, helium shortages and resulting price increases are not new. Last year, the BBC reported that helium shortages have been occurring since 2006 with a marked shortage beginning in January 2022: "helium supplies have remained precarious, with producers struggling to keep up with demand."[7]

Per a recent Fitch Ratings piece, spot market prices "could spike by 50%–200% in severe shortage scenarios" however, the effect in the long-term market, where most buying and selling occurs, should be more muted albeit prices, "could still rise 20%–40% on renegotiation." Helium only "comprises around 0.5%–1% of production costs" for large [semiconductor] manufacturers which limits the broader price impacts. All that said, if "constrained flows persist long enough to exhaust buffers – potentially beyond about six weeks – manufacturers could face tighter allocation, higher procurement costs and increased working-capital needs and earnings volatility. This could, in more severe cases, force production rescheduling or prioritisation (sic) towards higher-value output."[8]

Reuters reported on March 12 that current spot prices had risen by around 50%. And, where companies are unable to fully fulfil previous contracts, an industry expert contends that "medical MRI systems and rocket ships would probably get 100% of their needs, while semiconductor manufacturers might receive 95%."[9]

Global Average Helium Import Prices (USD Million Cubic Feet) - 2000-2024

Source: Reuters[10] (1,000,000 cubic feet = 28,316.85 cubic meters)



AKAP Energy warns helium prices could exceed $2,000 per mcf if disruptions persist.

Adaptation: Alternative Production, Re-Use, and Innovation

Substitution is limited given helium's particular properties. Helium supply is also finite and, because it is very light, it is prone to leakage. A representative of Intel testified to the U.S. Senate Committee on Energy and Natural Resources back in 2013: "Just like helium leaking out a helium balloon, cylinders of helium

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lose roughly 1% of the gas each day. Due to this fact alone, we are dependent on regular deliveries to our facility to maintain a stable supply line. Any disruption, even of a few days, could slow production in a semiconductor facility. A significant delay could result in the need to shut a facility down."[11]

Available market opportunities and adaptations are supply-side alternative production sources and demand-side reuse opportunities. On the supply-side, helium is found in more gas deposits than it is economic to extract.[12] LNG processing improves the economics because gas liquefaction leaves helium more concentrated in the residual stream, allowing large-scale LNG projects to recover helium from lower concentrations than would make sense in conventional gas processing.[13] Sustained higher helium prices could lower the economic threshold further, encouraging more extraction from conventional sources and supporting new technologies.

We may therefore see the U.S. and other producers ramp up output which will go some of the way to absorb the supply shock from the Middle East. In 2025, USGS reported that, in the U.S alone, "six new helium operations (three in New Mexico and one each in Colorado, Kansas, and Montana) began producing helium."[14] Additional production came online in other countries alongside ongoing exploration and development of new deposits.[15] That said, as with other extractive projects, capex can be high and timelines long. In addition, specialist equipment needed to capture and transport helium accumulates more costs.

From a demand perspective, helium can be captured and re-used in some processes. For example, from the late 1990s, MRI scanners have been manufactured with reclamation capability. Newer innovations could reduce the overall need for the element, further insulating this use case.[16] However, an increase in the global demand for MRIs given socioeconomic development in emerging and frontier economies could drive a net increase in overall helium requirements as new machines roll out.

Conclusion

In summary, the initial and most obvious impacts of the physical shortages and upward price movements from the disruptions to the Strait of Hormuz are far from the whole story. Alongside helium, a range of other byproducts and materials are affected (see table below), many of which play critical roles across agriculture, healthcare, manufacturing, mining, and consumer goods.

(continued on next page)

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Industries Affected by Supply Disruption Risks from the Strait of Hormuz

Source: Morgan Stanley, WITS

Product	Middle East's market share	Importance	Industries Affected
Sulphur	45%	Input for sulfuric acid and fertilizer production.	• Agriculture • Chemicals • Metal processing • Lead-acid batteries
LPG (Butane/ Propane)	Butane: 44% Propane: 25%	Fuel and petrochemical cracking feedstock.	• Residential and commercial fuel • Industrial power • Petrochemicals
Crude Oil	34%	Base energy feedstock for fuels and chemicals.	• Energy
Helium	33%	Critical for semiconductors and MRI systems.	• Semiconductors • Healthcare • Aerospace
Petrochemicals: Methanol Butadiene	Methanol: 30% Butadiene: 4%	Methanol: Building block chemical for plastics and solvents. Butadiene: Building block mainly used to produce synthetic rubber and engineering plastics.	• Plastics and polymer manufacturing • Textiles & footwear • Consumer goods • Automotive • Construction • Healthcare & pharmaceuticals • Tire and rubber industry
Aluminum	24%	Lightweight metal for transport and packaging.	• Construction • Automotive • Machinery
Urea / Diammonium phosphate/ Ammonia	22%	Key crop nutrients for food production.	• Agriculture • Mining
LNG	19%	Fuel for electricity generation and industrial heat and feedstock for ammonia.	• Utilities & power generation • Fertilizers • Manufacturing & industrial processing • Chemicals • Heavy-duty road transport • Marine transportation
Light refined oil products (naphtha)	17%	Key petrochemical feedstock used to produce olefins.	• Chemicals and petrochemicals • Synthetic fibres • Automotive • Refining & fuel blending

Source: WITS, Morgan Stanley Research;
Note: Butadiene combined HS codes 400211, 400220 400241, 290124 market share, Urea/DAP/ammonia combined HS codes 310210, 310530, 281410, 281420 market share

The first order supply and price effects may be followed by inflation, which can lead to margin compression and broader supply chain fragility and rising costs across industries. Therefore, in a global economic system increasingly defined by geopolitical risk and deglobalization, and resulting bottlenecks and fragility, some of the most valuable long-term investments will be those that make the system more resilient.

We are a thematic investor focusing on global systems-level shifts. Via our core theses - Energy Addition, Climate Adaptation, and Monetary System Evolution - we have been increasing exposure to commodities. We believe that our approach is better suited to a climate of uncertainty and resource constraints than passive indexing and traditional asset allocation models owing to improved diversification benefits.

If you'd like to learn more about how we approach risk and opportunity through a thematic lens, please feel free to book a call.

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