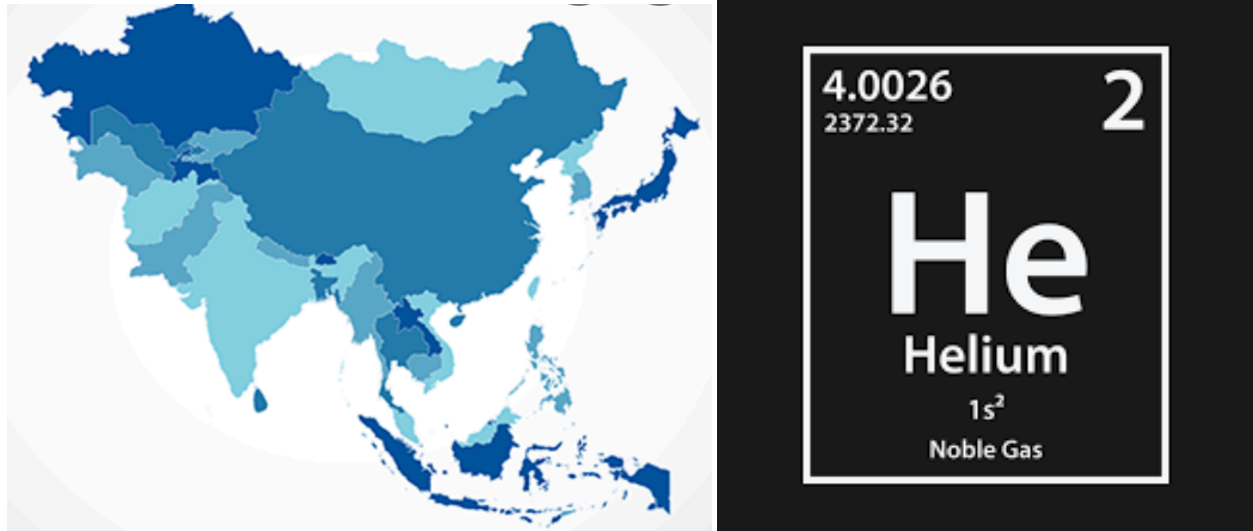


Contributed by Luke Manickam

Note: Luke is an independent Helium consultant and founder of LM Intelligas companies, with over 25 years of experience working for multinationals in the oil and gas industry. Luke also has 20 years of direct Helium industry experience in world-scale projects, tender development, contract negotiation, price index reviews, take-or-pay offtake planning, business development, trading, sales & public events/awareness.

Email: LUKE@LMINTELLIGAS.COM ; Contact: +60 127733609 ; Website: WWW.LMINTELLIGAS.COM ; Date: 16 August 2021

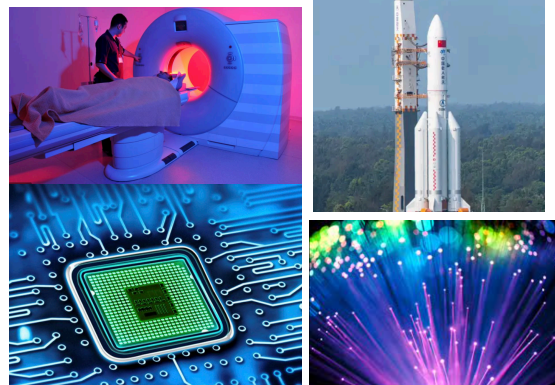


Asia on Route to Become World No.1 Helium Importer

Asia is one of the foremost helium importers worldwide, consuming around 30-35% of the 6,000+ ISOs supplied worldwide each year. China's current Helium consumption is about 900-1,000 ISOs annually, a fact not widely known. That makes it very likely to retain its No.1 ranking as Asia's main helium importer until 2030.

Helium is mainly produced as a by-product of natural gas and liquefied natural gas (LNG) production. It is a colourless, odourless, non-toxic, inert, and monatomic gas. It is important to note the demand for this versatile material. Due to its lowest boiling point among all chemical elements, helium has become key to the output of numerous industries, beyond party balloons:

- Medical technologies
- Semiconductor fabrications
- Military equipment
- Manufacturing
- Transportation
- Aerospace
- Research & Development



Despite increasing demand, it is almost certain by now that helium reserves from the Bureau of Land Management (BLM) will diminish. Hence alternative sources will step in to provide stable and sustainable helium supply through 2030. This includes the new Russia Amur, South Africa 2, Qatar 4 and alternative small non-hydrocarbon sources, along with existing non-BLM options.

The 3 new Helium projects will produce an additional 3500 ISOs per year



The Cost Of Unexpected Helium Shortages

Even before the COVID-19 pandemic in 2020, some disruptions in the helium supply chain had already caused product shortages, leading to price volatility for spot and short-term buyers. Note that most overseas helium plants have an average output reliability of around 80% of their nameplate capacities.

As such, Chinese importers need to meet future demand by becoming more independent and diversifying their sourcing and supply chain, ensuring helium availability to Chinese end users at all times.

This means that China importers have to plan helium sourcing 10-20 years ahead to mitigate any supply risks from unplanned production outages or maritime/logistics delays. Such unpredictable shortages can be costly to small and medium-size importers the most in terms of product allocation.

What does this look like? According to the allocation priority, some importers can suffer up to a 100% reduction depending on the severity of the outage. For example, *A* buys 6 loads a year, and *A*'s contract is renewable every year. *B* also buys 6 loads a year, but

B's contract is renewable every 5 years. *A* can suffer up to 6 load reductions during a supply disruption, but *B* might only suffer up to 2 load reductions.

Recently, due to a few unplanned outages at certain helium production plants overseas, some 600-800 ISO supplies were removed from the 2021 supply chain. Combined with maritime or logistical delays in delivering the ISOs (some delays took up to 3 months), the helium supply chain became badly affected.

In short, longer contracts promise better supply reliability for buyers, and long-term contracts have less product curtailments than short-term contracts. But at the end of the day, guaranteeing supply for longer term contracts means planning has to be done much further ahead.

The Best Way Forward? Diversify Sourcing

Some importers are waiting to procure helium at better pricing terms, which may work well to anticipate new megaprojects. The best way to ensure a continuous supply of helium is for importers to diversify their sourcing in three key ways:

1. Secure long-term supply contracts for at least 20-40% of their base business requirements with multiple suppliers.
2. Explore new sources overseas from different countries and regions.
3. Invest in new ISOs to be more independent in supply chain operations.

Additionally, economies of scale enable lower helium pricing for bigger volumes with Take-or-Pay conditions, where buyers pay for the loads not taken during the contract year.

In the long run, small-to-medium importers are disadvantaged because they expect lower prices to be sustained through 2030.

It is unrealistic for a buyer of 12 ISOs yearly to expect the same price as a buyer of 120 ISOs yearly. The latter has to assume higher Take-or-Pay risks and the pre-investment, at around 30 million US dollars, in procuring 30 ISOs for transporting the helium from source to end-users. Such equal price expectations of some importers can create more supply issues down the line.

Big Lessons for a Bright Future

China importers can look back at valuable lessons from the recent liquefied natural gas (LNG) price spikes. Herd mentality caused buyers to expect lower prices from new megaprojects, but that was ultimately unsustainable.

Many Asian LNG importers (including China) were caught off guard in the past 12 months, where the LNG prices peaked up to over 300% higher despite the increasing LNG supply and the suppressive COVID-19 pandemic. It remains to be seen if these recent LNG price spikes will soon have similar upward trends on the helium netback value.

With China's consumption capacity exceeding 1,300 ISOs in 2025, China is well-positioned as Asia's No.1 helium importer. It is both a challenge and an opportunity for Chinese importers to take steps towards independence by diversifying sources, suppliers, and contracts. As the adage goes: "Do not put all your eggs in one basket".

In my next article, I shall focus on the importance of Helium ISO ownership.