

# Helium 4.0

## Expectations for a difficult summer

By Molly Burgess

### US export and import restrictions

As a result of the Russia-Ukraine war, President Biden prohibited imports of various products, including crude oil and petroleum products, coal, nonindustrial diamonds, seafood, and alcoholic beverages.

In April 2022, Congress passed legislation prohibiting the import of Russian oil and other energy products. Prior to Russia's expanded war on Ukraine, US-Russia trade flows were relatively low. Russia accounted for less than 1% of US exports and about 1% of US imports, in 2021.<sup>1</sup>

2023 is shaping up to be the ninth year that has been impacted by helium shortages since 2006 – and there looks to be more headwinds on the horizon as upcoming plant outages will present further challenges.

Most notably, US oil and gas firm ExxonMobil is set to close its LaBarge facility on July 10 for an estimated 29 days. Located in Wyoming, the LaBarge site produces more than 20% of the world's helium and has an 80-year supply remaining.<sup>1</sup>

Phil Kornbluth, President of Kornbluth Helium Consulting, says the major maintenance shutdown will increase the supply deficit during the July to September period. "Helium Shortage 4.0 has eased to

some degree. However, we are in a bit of a 'calm before the storm' as the upcoming ExxonMobil shutdown will remove significant supply from the market," he tells *gasworld*.

While maintenance outages are not unusual, they still unsettle the marketplace. As Kornbluth explains, the ExxonMobil closure will temporarily increase the supply deficit to around 30%, which is quite severe.

"It usually takes several months before the market recovers from that sort of event," Kornbluth says. "Most of Q3 will be pretty rough for helium supply."

### The BLM's helium asset sale

Another significant event that has impacted the market is the outage of

the BLM's Crude Helium Enrichment Unit from January to June 2022, which removed at least 10% of supply from the market.

From Q2 2022, the Crude Helium Enrichment Unit has been operated by industrial gas firm Messer – and Kornbluth thinks the handover was successful. "The BLM has operated reasonably well since Messer took over responsibility," he says.

"The BLM also recently completed a successful planned maintenance shutdown in late April to early May, without significantly impacting helium supply."

When it comes to the sale of the BLM's helium assets, the market is still waiting for an announcement as to whether the asset sale will be

rescheduled and when the auction will take place.

### Amur and Russian sanctions

In addition to the sale of the BLM's helium assets, another uncertainty lies in Gazprom's Amur Gas Processing Plant (GPP). In 2022 there were talks of a new dawn in helium, with the starting up of the site, but this was later pushed back after an explosion and fire caused the plant to shutdown for extensive repairs.

"Gazprom has been telling customers to prepare for Amur production to restart in June or July, but there is a fair amount of skepticism about the timing of the plant restart due to the company's history of missing overly optimistic

schedules," says Kornbluth.

Once it does restart, several complications will arise related to sanctions that have been placed due to the ongoing Russia-Ukraine war. "The flow of helium from Amur to the market is likely to be constrained by the US government's denial of licenses required to utilize US-manufactured containers to export helium from Russia," Kornbluth says.

He continues, "I believe the lack of access to enough helium containers will extend the duration of Helium Shortage 4.0 into 2024, as the lead times to acquire new containers that are required to eliminate the bottleneck have recently been 18-24 months."

But these restrictions for US

companies present opportunities overseas.

"While US trade restrictions reduce the ability of the global helium majors to export Russian helium, there may be opportunities for gas companies based in countries that are not subject to US trade restrictions to secure supply from Gazprom and strengthen their position in the helium business," Kornbluth confirms.

Gazprom has been actively contacting potential buyers in China and India, alongside other countries, in an effort to mitigate the impact of US trade restrictions.

### New capacity is coming

It not just these opportunities that the market needs to watch. ▶

### Saskatchewan's big helium opportunity

Saskatchewan continues to be huge target for helium start-ups. The Canadian province was the first to launch a Helium Action Plan, in which it laid out plans to be responsible for 10% of the world's helium production by 2030.

To achieve this, Saskatchewan hopes to establish 150-plus dedicated helium production wells, annual exports worth more than \$500m and up to 15 purification and liquefaction facilities.

Already, the province has several companies seeking to capitalize on its opportunity. To name a few, Royal Helium, North American Helium, Helium Evolution, Global Helium Corp and Canadian Helium are all growing to support the Helium Action Plan goals.

► Kornbluth says Qatar will bring a new 1.5 billion cubic feet per year (bcf/y) source onstream around 2027. Dubbed Helium 4, the project would extract helium from feed gas provided by the expansion of Qatargas' LNG production to 126 million tons per annum.

Paired with Gazprom's Amur project, which will have nameplate capacity of 2.25 bcf/y, these projects could ultimately produce more than three bcf/y - a substantial increase to global helium supply.

While these are potentially the most impactful projects, there are others in the works.

Freeport LNG will add 200 million cubic feet (mmcf) of new supply in 2024 and Reenergy's Virginia project,

if it is able to secure financing, could add over 300 mmcf.

"There will also be new supply from Canada and the southwestern US and there could be new supply from Tanzania or Australia, depending on the success of ongoing exploration programs," says Kornbluth.

Another project that has been under the radar is Blue Spruce Operating's project that could add up to 800 mmcf/y of new supply in Wyoming. Blue Spruce has a very large resource of gas that is very similar to the gas that ExxonMobil has successfully extracted helium from since 1986."

Blue Spruce Operating's prospects have been enhanced by the potential to receive carbon dioxide (CO<sub>2</sub>) sequestration credits, in addition to revenue from the sale of natural gas and helium.

And then, of course, there are a handful of start-ups that have either just started to produce helium or plan to do so later this year.

Kornbluth says, "There is still a lot of activity among helium exploration start-ups trying to develop new production in the southwestern US, and in Saskatchewan and Alberta in Canada."

#### Industry reaction to the shortage

With 2023 marking the ninth year impacted by helium shortages since 2006, dealing with shortages is not a new challenge. In Kornbluth's words, "the playbook is pretty well-established."


"The industry has had a lot of practice in coping with helium shortages. After all, this is Helium

**"Participants in the helium business will need to be flexible and agile to avoid getting caught on the wrong side of upcoming events"**

Shortage 4.0, not 1.0," Kornbluth says.

"Major suppliers who have a supply deficit typically declare force majeure, implement supply allocations, and increase prices. Downstream from the majors, everyone else is doing their best to cope with the impact of supply allocations and pass price increases through their customers."

Participants in the helium business will need to be flexible and agile to avoid getting caught on the wrong side of upcoming events. And one thing is for certain: the Amur project is still subject to major uncertainty.

Kornbluth concludes, "I think the remainder of 2023 and 2024 will be a period of huge uncertainty for the global helium business. Amur is on the verge of commencing production, but we don't know precisely when it will happen or how quickly it will ramp up. And, once it is operational, the flow of Amur's helium is likely to be constrained by trade restrictions." 

#### References

1. <https://corporate.exxonmobil.com/what-we-do/delivering-industrial-solutions/advancing-climate-solutions/labarge-helium-extraction-energy-production-wyoming>