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Oversight Hearing
Helium: Supply Shortages Impacting our Economy,
National Defense and Manufacturing

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Mr. Chairman and members of the Subcommittee, thank you for the opportunity to testify on the Federal helium program. As indicated by a National Academy of Sciences (NAS) report published in early 2010, the market for helium has proven more volatile than expected over the last 15 years and current law's requirement that the Bureau of Land Management (BLM) offer for sale nearly all of the Federal Helium Reserve by 2015 could pose a threat to the availability of this resource for future U.S. scientific, technical, biomedical, and national security users of helium.

Background

Helium is a critical, non-renewable natural resource that plays an important role in medical imaging, space exploration, military reconnaissance, fiber optics manufacturing, welding and commercial diving. According to the NAS, helium's best known property, being lighter than air, means "that every unit of helium that is produced and used today will eventually escape the Earth's atmosphere and become one less unit available for use tomorrow."

The most common and economical way of capturing helium is by stripping it from natural gas during gas production. Geologic conditions in Texas, Oklahoma, and Kansas make the natural gas in these areas some of the most helium-rich in the United States, ranging from 0.5 to 1.5 percent of the gas extracted during production. The BLM plays a key role in the careful management and stewardship of the only significant long-term storage facility for crude helium in the world, known as the Federal Helium Reserve.

The Federal Helium Program

Because of helium's potential to lift military reconnaissance devices high above battlefields, the Federal government's interest in the resource dates back to World War I. Recognizing this key military use for helium, the Mineral Leasing Act of 1920 reserved to the Federal government all helium produced on Federal lands—a reservation that remains in effect today. After World

War I, recognition of the potential for helium recovery in the Texas Panhandle, Western Oklahoma, and Kansas area (collectively, the "Hugoton" field) led to the development of the Federal helium program focused in that area. In 1929, the Bureau of Mines built the Amarillo Helium Plant and Cliffside Gasfield Facility near Amarillo, Texas, to produce helium-bearing natural gas from a naturally occurring geologic field known as the Bush Dome Reservoir.

After World War II, Federal use of helium shifted towards space exploration, and in 1960 Congress passed the Helium Amendment Act. This Act changed the program's mandate from exclusive government production of helium to conservation of the resource by encouraging private natural gas producers to sell extracted crude helium to the Federal government for storage in the Bush Dome Reservoir. The Act granted the Bureau of Mines the authority to borrow funds from the U.S. Treasury to purchase the helium, with the expectation that the proceeds from future sales of helium would allow the Bureau of Mines to repay the debt. This borrowing authority, established by Congress in lieu of a direct appropriation, required the Bureau of Mines to repay the loan by 1985. Subsequent legislation extended the deadline to 1995.

Federal demands for helium rarely, if ever, met the expectations underlying the terms of the Treasury's loan to the Bureau of Mines. When the 1995 deadline to pay off the debt arrived, the $252 million the Bureau had spent on privately-produced helium had increased to $1.3 billion (principal and interest), and the Bureau of Mines appeared to have little prospect of ever repaying the debt. In his 1995 State of the Union address, President Bill Clinton stated that it was his Administration's goal to privatize the Federal helium program.

Congress subsequently passed the Helium Privatization Act of 1996 (HPA), which required the BLM (which assumed jurisdiction over the program after the termination of the Bureau of Mines) to make available for sale the vast majority of the stockpile of crude helium. The mandate directed the BLM to begin selling helium as late as 2005, in order to avoid market disruption. The BLM was to make a consistent amount of helium available every year at a price based on the amount of remaining helium debt and the amount of helium in storage. When Congress passed the HPA, there was approximately 30.5 billion standard cubic feet (scf) of helium in storage in the Bush Dome Reservoir. The HPA mandated the BLM to make available for sale all of the helium in excess of a 600 million scf permanent reserve.

Additionally, the HPA required the BLM to cease all helium production, refining, and marketing activities to effectively privatize the refined helium market in the United States. Finally, the Act provided for the NAS to review the impacts of the 1996 Act. The NAS published its first study in 2000, and released a follow-up report in 2010.

The BLM's Helium Operations

The BLM currently operates the Federal helium program with a primary goal of paying off the "helium debt." To this end, the BLM has paid over $1.1 billion to the U.S. Treasury since 1995, a substantial step towards eliminating the helium debt, which the HPA froze at approximately $1.3 billion. During FY 2011, $210 million was paid toward the helium debt from reserve sales. The BLM anticipates full repayment of the helium debt in FY 2013. According to the HPA, once the helium debt is retired, the Helium Fund (used to fund the BLM's helium program operational expenses) would be dissolved and all future receipts would be deposited directly into the general fund of the U.S. Treasury.

The BLM's current helium program, with a workforce of 51 full-time equivalents (FTE), operates not only the original storage and pipeline system, but also a crude helium enrichment unit, owned by private industry refiners, that facilitates transmission of helium to private helium operations on the BLM's helium pipeline. The BLM is responsible for administering helium extracted from Federal resources, including management of fees and royalty contracts. These operations are not limited to the Hugoton gas field, but also occur in fields in Colorado, Wyoming, Utah, and any other state where producers extract helium from the Federal mineral estate. Additionally, the BLM is responsible for administering the sell-off of crude helium to private refiners. These sales make the most significant contributions toward paying off the helium debt. The agency also conducts domestic and, to a lesser extent, international helium resource evaluation and reserve tracking to determine the extent of available helium resources.

Another major part of BLM's helium program is the "In-Kind" program, which supplies helium to Federal agencies (e.g., the Department of Energy and NASA) for operations and/or research. Before the Helium Privatization Act, Congress required Federal agencies to purchase their helium supplies from the Bureau of Mines. Under the current In-Kind program, Federal agencies purchase all of their refined helium from private suppliers who, in turn, are required to purchase an equivalent amount of crude helium from the Federal Helium Reserve. In 2011, Federal agencies purchased $11 million of helium through the In-Kind program, up slightly from $10.8 million in 2010.

The National Academy of Sciences Reports

In 2000, the NAS published its first analysis of the impacts of the HPA. Its general finding was that the Act would not have an impact on helium users. Additionally, the NAS report concluded that because the price-setting mechanism was based on the amount of the helium debt, and not the market for helium, the government's significantly higher price would mean the helium refining industry would buy crude helium from the BLM only as a last resort for fulfilling private contracts. However, private helium refiners would still be required to purchase crude helium from the BLM under the In-Kind program.

Over the course of the last decade, however, it has become apparent that assumptions underlying the 2000 NAS Report were not accurate. First, the NAS's assumption that "[t]he price of helium [would] probably remain stable through at least 2010" has proven faulty. The market for helium has seen significant fluctuations on both the demand side—which dropped significantly in 2008 after peaking the prior year—and on the supply side, which experienced a significant decline in private supplies between 2006 and 2008. In the face of this volatility, prices for helium rose steadily over the course of the decade. By 2008, the market price for helium began to hover near the BLM's price, leading to greater withdrawals from the Federal Reserve than the 2000 NAS Report anticipated.

Another market impact that the 2000 NAS Report did not address was international supply and demand for helium. According to the U.S. Department of Commerce, domestic consumption of helium decreased 2.7 percent per year from 2000-2007, while exports to the Pacific Rim grew 6.8 percent annually, exceeding the 5.1 percent growth rate in Europe. The international market also experienced supply issues because of refining capacity problems at plants in Qatar and Algeria, which would normally help supply both Europe and Asia.

In early 2010, the NAS released a follow-up report on the BLM's management of the Helium Reserve. The report, entitled "Selling the Nation's Helium Reserve," focused on "whether the interests of the United States have been well served by the [HPA] and, in particular, whether selling off the helium reserve has had any adverse effect on U.S. scientific, technical, biomedical, and national security users of helium."

The 2010 NAS report, which identified some shortcomings of the 2000 report, takes a markedly different tone than the 2000 report. This change in approach reflects the volatility of the helium market over the last decade. The NAS report analyzes the relationship between supply and demand for helium on a domestic and international basis, as well as the BLM's management of the Federal Helium Reserve under the HPA. The report concludes that the HPA mandated sell-off is negatively impacting the needs of both current and future users of helium in the United States. This conclusion is the driving force behind a series of recommendations in the report directed at the BLM and the United States Congress.

Conclusion

The BLM welcomes further discussion about the Federal helium program and the BLM's role in meeting future helium needs for the country, especially for Federal agencies that depend on helium for scientific research, aerospace projects, and defense purposes. Since its formal discovery almost 120 years ago, helium has proven to be an increasingly important natural resource. The expansion of helium-related technology and declining domestic reserves means the importance of helium as a strategic resource is likely to increase. The BLM continues to serve the country by effectively managing the Federal Helium Reserve, and working with natural gas producers to efficiently extract helium from natural gas. I would be happy to answer any questions the Subcommittee may have.