Testimony before

United States Senate Committee on Energy and Natural Resources

"The Helium Stewardship Act of 2012"

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Introduction

Chairman Bingaman, Ranking Member Murkowski, and Members of the Committee, it is a privilege to be here with you today.

My name is Tom Rauch, and I am GE Healthcare's Global Sourcing Manager for our Services and Aftermarket supply chain, which includes the supply of liquid helium used in advanced medical imaging technology.

GE Healthcare employs 22,000 people across the United States, with employees in all 50 states. Our broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring, drug discovery, biopharmaceuticals and performance solutions services help health care providers deliver better care to more people around the world at a lower cost.

I'm here to share with you the critical importance of helium to the medical imaging manufacturing industry, the health care providers with whom we do business, and by extension, the patients and families in communities throughout the country that have used or will use Magnetic Resonance Imaging (MRI) technology.

Over the course of this hearing over 8,000 patients will undergo an MRI exam.[i] A grandfather could have his stroke diagnosed; a mother could have her breast cancer diagnosed in its early stages; a multiple sclerosis (MS) patient could learn if the disease is advancing, and a college athlete could get a second opinion on her torn ACL.

I am also here today to express GE's support for the Helium Stewardship Act of 2012 and urge its swift passage. With your support, we can avoid a situation where one third of the current global supply of helium is cut off, resulting in a potentially severe health care access issue

Magnetic Resonance Imaging

Magnetic Resonance Imaging, better known as MRI, is one of the most powerful diagnostic imaging tools in use today. MRI uses a magnetic field and radio frequency to take pictures of a patient's internal anatomy.

MRI technology is only 30 years old, and its clinical applications continue to expand. It allows physicians to see how organs are functioning in real time. The advantage of MRI over other forms of imaging is that it offers optimal contrast resolution between two or more areas of anatomy. It is especially effective for imaging soft tissues like the brain, spine, liver and kidneys. MRI is used in hospitals to help emergency physicians diagnose and characterize stroke and identify brain tumors. MRI is often used for the diagnosis and monitoring of multiple sclerosis (MS). And, as Sen. Barrasso knows, MRI is the preferred modality for detailed views of joints. MRI is becoming increasingly helpful in imaging areas like the breast, prostate and heart. All that said, MRI has many valuable medical applications and is integral to how many physicians practice modern medicine.

There are roughly 7,800 MRIs in America today. They can be found in academic medical centers, community hospitals, surgery centers and physician offices in every state. About 75,000 scans are performed on patients every day.

MRI is also a jobs engine. Over 1,900 jobs at GE Healthcare are associated with MRI, and MRI accounts for many thousands more jobs in the medical imaging manufacturing industry broadly. Two hundred twenty one supplier companies provide parts and components to our MRI business. Factoring in health care workers and researchers who work with and around MRI, it is safe to say that hundreds of thousands of American jobs are associated with MRI.

Helium and MRI

GE Healthcare manufactures MRI magnets at our facility in Florence, South Carolina. We ship 1,000 MRI magnets a year from Florence all over the world.

The key component in an MRI system is a powerful magnet cooled to 4.2 kelvin, or 452 below zero Fahrenheit. Tremendous amounts of energy flow through the superconducting wire throughout the magnet. Liquid helium is the only element that is feasible for sufficiently cooling a magnet to the degree where the superconducting properties of the wire are realized. These superconducting properties enable the high field strength, stable, and uniform magnetic fields that make modern MRI systems possible.

Keeping a magnet at a constant operating temperature is critical. Depending on the type of MRI being produced, a machine needs anywhere from 4,000-10,000 liters of helium stored in a sealed vacuum system surrounding the magnet.

GE Healthcare uses roughly 5.5 million liters of helium a year at our South Carolina production facility. In addition, we dedicate six million liters a year servicing our MRI systems at hospitals and other sites across the nation. MRIs in hospitals need to be regularly replenished with helium in order to maintain a normal operating temperature. Depending on the age, model and location of the machine, MRIs need to be “topped off” with helium at least once per year – not unlike topping off the coolant in your car. To do this, GE contracts with helium retailers to deliver helium and related service to customers.

Impact of Helium Supply Constrain

As previous witnesses have detailed, the global helium supply has been constrained since mid-2011. This constraint echoes similar situations from the recent past. The opportunity is here now for policymakers to avoid a supply crisis and also deal with the underlying issues that have led us to this point. Increasing demand across industries is fast outpacing the current helium supply. This has reverberated throughout the health care industry where companies like GE work daily to protect providers and patients from the effects of a shortage.

The helium supply challenge is being managed in the installed base by filling MRIs with lesser amounts of helium per service visit. This is not an ideal solution, as it means more frequent servicing which increases equipment downtime and is ultimately less efficient in delivering care to patients.

If the supply constrain worsened it could be very harmful to patient care. If there were no helium available to properly service an MRI, a "quench", or sudden helium boil off could occur. While there is no immediate patient safety risk, a magnet could sustain permanent damage and may need to be replaced—an expensive and time consuming process. Replacing an MRI often involves a crane, street closures, and knocking down ceilings and walls of a care facility. During this time patients would not have access to MRI, and needed care is not delivered. Patients in need of MRI may be forced to drive long distances. MS, breast cancer, and other diagnoses could be delayed, or missed altogether, and the health care system would be deprived of one of its most valuable tools.

Actions taken by GE

Increased demand and tightening supply have led GE to invest $1 million at our facility in South Carolina in an effort to increase helium efficiency. These efforts include investments in conservation technology and recycling methods to capture escaped gas for re-use. We have also jointly invested with our onsite helium industry partner in order to achieve a more efficient transfer of helium throughout the factory.

As well, researchers at GE's Global Research Centers are currently exploring the feasibility of new magnet designs that minimize the amount of helium needed as we look to a near future where the demand for helium could fast outpace supply.

Conclusion

Helium is a critical element in MRI. It is important for health care manufacturing and the health care economy, but it is most important for the patients who need access to MRI to diagnose stroke, tumors and other diseases.

As such, ensuring a stable supply of helium is a priority for the medical imaging industry. The Helium Stewardship Act of 2012 represents a step toward a solution as it allows the U.S. Government to continue drawing from helium reserves, while incentivizing more private development of helium supply.

Chairman Bingaman and members of the Committee, thank you again for providing GE Healthcare and the medical imaging industry the opportunity to speak on this important topic.

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[i] This and other MRI use statistics are derived from the Organization for Economic Cooperation and Development (OECD) Health Data 2011