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Supply and Demand of Helium-3 (He-3)

The Department of Energy Isotope Program Fills Critical Government Needs for Helium-3. An Earlier Shortage Has Been Mitigated.

The Department of Energy (DOE) has supplied isotopes and isotope-related services to the Nation, but also globally, for more than 50 years. DOE projects its helium-3 (He-3) recovery and inventory management activities will meet important Federal demands for several decades to come.

The sole source of DOE's He-3 comes from National Nuclear Security Administration (NNSA) Defense Program mission operations. This He-3 is a byproduct of radioactive tritium decay and is separated during tritium processing at the Savannah River Site in South Carolina. The DOE Isotope Program, within the Office of Science, is responsible for the sale and distribution of the He-3. Each year, thousands of liters of He-3 gas are made available to crucial applications including government research, national security activities, and medical diagnostic procedures.

Demand as high as 70,000 liters per year was outpacing government supply in 2008. The increased demand was due to a substantial expansion in He-3 use for neutron detectors in homeland and national security applications. At the same time, the He-3 supply was impacted by an unexpected reduction of Russian exports to the marketplace.

The Isotope Program chairs the White House He-3 Inter-Agency Group (IAG) consisting of Federal agencies whose missions rely on He-3 utilization.

The IAG addresses annual supply and demand projections, supports alternative technologies, establishes priorities for federal He-3 utilization and allocations of existing inventory.

Highly successful mitigation measures have been established by the IAG, including the recycling and deployment of alternative technologies. As a result, projected Federal demand for He-3 is now less than 6,000 liters per year. These mitigation measures will stay in place to assure Federal He-3 demands continue to be met for decades to come.



An official website of the United States government



National Isotope Development Center

(<https://www.energy.gov/science/office>)

(<https://science.osti.gov/Isotope-Research-Development-and-Production>)

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