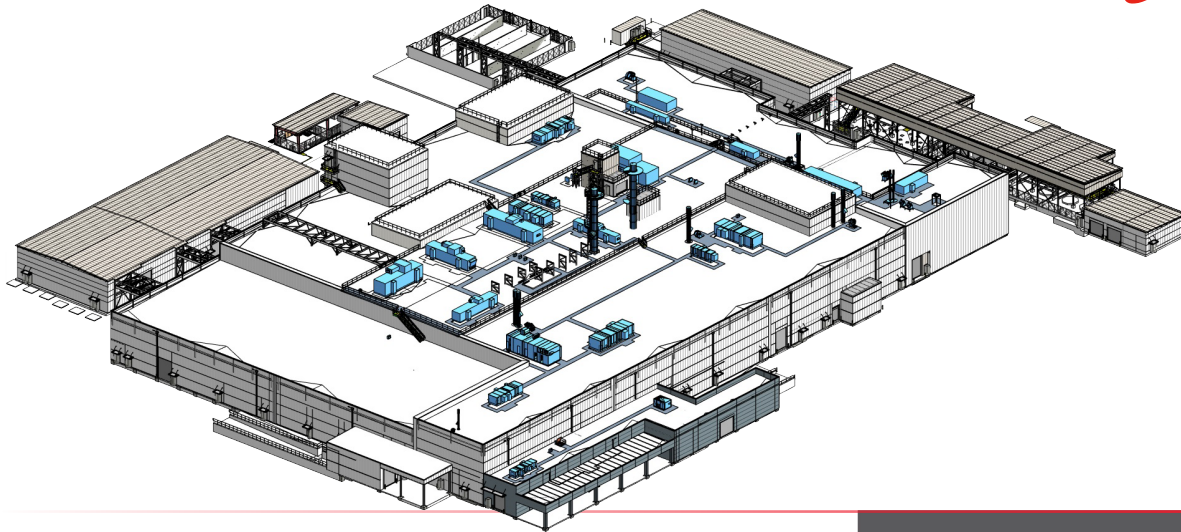


# LITHIUM PROCESSING FACILITY



The new Lithium Processing Facility (LPF) at the Y-12 National Security Complex will replace current lithium processing operations, which are located in a World War II-era building. Lithium, a non-nuclear alkali material, is an essential element for refurbishing and modernizing the nation's nuclear weapon stockpile and Y-12 is the sole supplier of lithium materials to support U.S. defense missions as the Lithium Center of Excellence.

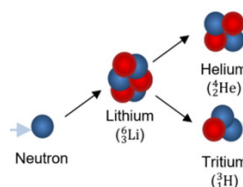
The location of the former Biology complex, which was recently demolished, is the National Nuclear Security Administration's selected site for the approximately 245,000-square-foot facility, which has an approved cost range of \$955 million to \$1.65 billion.

Scheduled for construction completion in 2031 and operation in 2034, the new LPF will ensure continuity of lithium capabilities, reduce annual operating costs, and increase process efficiencies using safer, more agile equipment.

The facility will also feature an updated technology to support a new lithium process developed by scientists and engineers at Y-12. Homogenization technology involves a large furnace to melt a diverse set of lithium feed materials. When the materials are melted in the furnace, the result is a uniform lithium hydride product that is homogeneous throughout the batch. For some recycled lithium materials, homogenization bypasses hazardous chemical and electrolysis processes, making the work environment safer for Y-12 employees and reducing the number of process steps from five to one.

## What is Lithium?

- Lithium (Li) is mined from brine and hard rock
- It has two isotopes—lithium-7 (natural lithium) and lithium-6
- Lithium-7 is used in compounds for many commercial applications from cosmetics to batteries
- Enriched lithium-6 is a material used in nuclear weapons
- Lithium reacts with water and is flammable



The Y-12 National Security Complex has three primary national security missions that protect the U.S. and its allies around the world: maintaining the U.S. nuclear deterrent, reducing global nuclear threats, and fueling the U.S. nuclear Navy. Currently, key operations that support these missions are conducted in buildings that originated in the 1940s and are costly to operate and maintain.

Y-12 is one of six production facilities in the NNSA's Nuclear Security Enterprise. Its unique emphasis is the processing and storage of uranium and development of technologies associated with those activities. Decades of precision machining experience make Y-12 a production facility with capabilities unequaled nationwide.

## MORE INFORMATION

[www.y12.doe.gov](http://www.y12.doe.gov)

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