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# US ITER PROJECT UPDATE



ITER Site, 2023. Photo: ITER Organization

## Status

Civil construction of the international ITER project is complete, machine assembly is in progress, and four of the six U.S.-delivered central solenoid modules are on site with the remaining two modules on schedule for delivery in 2024. Fabrication and delivery of other essential hardware systems continues.

## Value

ITER will produce and control a self-sustaining fusion power source plus deliver a first-of-a-kind fusion R&D resource to support practical fusion energy development. ITER will also deliver experience and know-how relevant for reliable, economical fusion systems:

**Fusion gain** up to a Q of 10 (10 x power out)

**Fusion power** up to 500 MW

**Duration** of 400 seconds at high power or 3,000 seconds at lower power

**Deuterium-tritium (DT) fuel cycle** with testing of closed-cycle fuel production

**Industrial-scale** fusion systems integration and operations

**Licensing** to demonstrate safety features for a licensed fusion power plant

As an R&D facility, ITER will provide exceptional resources for fusion energy:

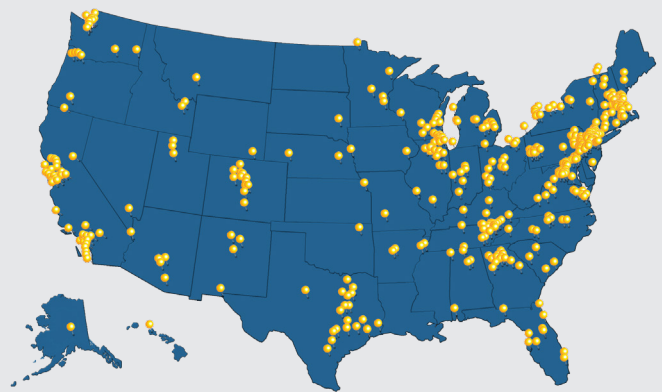
**Flexible operations** to address needs of different plasma scenarios and fusion configurations

**Long durations** to aid operational studies

**Extensive diagnostics** to measure performance

**Expertise** to support industrial R&D needs

## Most funding remains in the U.S.



**>\$1.4 billion** (as of December 2023)  
to U.S. industry, universities, and national laboratories

Partnership in ITER has developed the nation's fusion workforce and specialized supply chains.

### Access to 100% of ITER intellectual property

As an ITER member, the United States receives full access to all ITER-developed technology and scientific data for less than 10% of the total construction cost.

### Fusion industry values ITER

The U.S. Department of Energy is already disseminating ITER information to the U.S. private sector.



## The Potential of Fusion

Nuclear fusion, the power of the Sun and stars, has the potential to be an abundant, safe, carbon-free energy source. If developed into a practical energy source, fusion could deliver firm, baseload carbon-free energy for thousands of years and contribute to national security.

## ITER Management

The seven ITER members, representing 35 nations, are the United States, European Union (host), Japan, Korea, India, China, and Russia. Each member provides in-kind hardware and financial contributions to support project success. The ITER Organization manages and operates the ITER site on behalf of the members, and also serves as the nuclear-owner operator. As an ITER member, the United States contributes ~9% to ITER construction and ~13% to ITER operations, for 100% of ITER science and intellectual discovery.

## Project Background

The ITER project evolved from post-cold war discussions between the United States and the Soviet Union. During the Geneva Summit in 1985, Presidents Reagan and Gorbachev discussed a collaboration to develop fusion for peaceful purposes. After extensive planning and the addition of new partners, the ITER Agreement was signed in 2006 as a U.S. Congressional-Executive Hybrid Agreement with treaty-like status.



US ITER is delivering the “heart of ITER,” the superconducting central solenoid magnet. The first three magnet modules are stacked for assembly. Photo: US ITER



A view of the ITER assembly hall as an auxiliary cold box is transferred for positioning into the tokamak building. Photo: ITER Organization

U.S. project execution is managed by Oak Ridge National Laboratory in Tennessee, with partner labs Princeton Plasma Physics Laboratory in New Jersey and Savannah River National Laboratory in South Carolina.



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