



ITER site, May 2025. Photo: ITER Organization/EJF-Riche

Status

Civil construction of the international ITER project is largely complete, machine assembly is in progress, and four of the six U.S.-provided superconducting central solenoid magnet modules are stacked for assembly at the site. Fabrication and delivery of other essential hardware systems continues.

Value for National Fusion Goals

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:

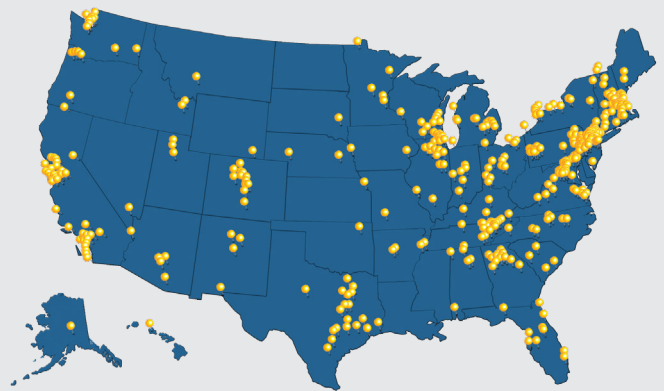
Flexible operations to address needs of different plasma scenarios and fusion configurations

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.



>\$1.7 billion

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 and the ITER Organization are 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 energy source. If developed into a practical energy source, fusion could deliver firm, baseload energy for thousands of years and contribute to national security and technology leadership.

ITER Management

The seven ITER members 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 four magnet modules are stacked for assembly. Photo: US ITER



Vacuum vessel assembly is underway in the ITER assembly hall. Photo: ITER Organization

September 2025

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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