



## Projects

ORNL is able to support aspects of the DOE mission by identifying and then pursuing major activities that build on ORNL's core strengths and capabilities. The following projects are underway.

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### **4000 Area Switchgear Vault, Institutional General Plant Project...**

Home to some of the highest technology research and computing infrastructure in the world, ORNL requires a level of electrical power quality and reliability that is significantly higher than typical industrial and research settings. In order to meet this unique power need, ORNL has undertaken an initiative to upgrade its electrical system to reduce voltage sags and interruptions in service through a series of projects that will improve power quality and reliability. One of these projects is the 4000 Area Switchgear Vault, that when completed, will increase the electrical distribution system reliability for the research and high performance computing users.

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### **Titan supercomputer...**

Oak Ridge National Laboratory is home to Titan, a supercomputer. Titan's true importance, however, is accelerating scientific discoveries and engineering innovations, largely through the Innovative and Novel Computational Impact on Theory and Experiment program. For 2013, INCITE awarded 1.84 billion core hours on Titan to dozens of researchers in industry, academia, and government using simulations to solve grand challenges.

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### **Carbon Fiber Technology Center...**

Oak Ridge, Tennessee is home to the Oak Ridge National Laboratory's new Carbon Fiber Technology Facility (CFTF). This 42,000 ft<sup>2</sup> innovative technology facility offers a highly flexible, highly instrumented

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carbon fiber line for demonstrating advanced technology scalability and producing market-development volumes of prototypical carbon fibers.

The CFTF serves as a national testbed for the Oak Ridge Carbon Fiber Composites Consortium, a public-private partnership enabling a national network for innovations in manufacturing. The consortium's mission to forge industry – government collaborations to accelerate the development and deployment of lower-cost carbon fiber materials and processes and create a new generation of strong, lightweight composite materials that will improve America's competitiveness.

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## **MAXLAB facility...**

Residential and commercial buildings of tomorrow could use less energy because of research that will be performed at the new \$16 million Maximum Building Energy Efficiency Research Laboratory at Oak Ridge National Laboratory. The 18,000-square-foot facility features a high bay area for building and studying large-scale wall assemblies and a low bay area that houses a heating, ventilation and air conditioning lab. Together, the bays will be used to advance the energy efficiency and durability of building envelopes, equipment and appliances. Both bays are flexible in operation and able to support many types of experiments that will be performed by ORNL researchers and industry partners.

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## **International ITER Fusion Project**

ITER is an unprecedented global collaboration to demonstrate the scientific and technological feasibility of fusion energy.

The ITER research facility will allow scientists to study reactor-scale burning plasmas--a key step in fusion energy development-- and explore technical challenges relevant to the development of a power-producing fusion reactor. Now under construction in southern France, ITER will be home to the world's largest tokamak and ultimately will demonstrate 500 MW of fusion power for 300 seconds.

ITER partners are Europe (host) plus China, India, Japan, Korea, Russia and the United States. All partners provide in-kind and financial contributions to the project. As an ITER member, the United States receives full access to all ITER-developed technology and scientific data, but bears less than 10% of the total construction cost. Over 80% of US ITER funding for hardware contributions goes to US industry, universities and national laboratories.



