

News Release

Media Contact: [Mike Bradley](#)
Communications and External Relations
865.576.9553

ORNL, SuperPower Inc. Sign High Temperature Superconducting Wire Agreement

OAK RIDGE, Tenn., Jan. 9, 2008 — The U.S. Department of Energy's (DOE) Oak Ridge National Laboratory (ORNL) today announced that SuperPower Inc., a Schenectady, N.Y., superconducting wire manufacturer, has signed a license agreement to use an ORNL-developed technology that can lower the cost of producing superconducting wires for more efficient transmission of electricity.

The licensing agreement signed today at ORNL is part of a national effort led by DOE to research, develop and ultimately transfer energy technologies from DOE national laboratories to the global marketplace. Patricia A. Hoffman, DOE principal deputy assistant secretary for Electricity Delivery and Energy Reliability, said incorporating these high temperature superconducting wires and power equipment into the nation's electric grid will help meet rapidly growing demand for energy in an energy-efficient, cost-effective manner.

"This licensing agreement continues the long history of successes moving DOE technology from its labs to the marketplace," Hoffman said. "High temperature superconductivity is a revolutionary and cross-cutting technology that can further the Administration's long-term effort to transform our nation's electricity infrastructure and provide a safe, reliable and affordable stream of electricity to all Americans."

Superconductors are special materials with no electrical resistance at extremely low temperatures. High temperature superconductors (HTS), discovered in 1986, lose resistance at warmer (though still very cold) temperatures than conventional superconductors.

Cooled by cheap and abundant liquid nitrogen, high temperature superconductors can be used to make lighter, smaller, more efficient, higher capacity power devices; relieve congested power line networks; and increase power transmission capacity.

Second generation, or 2G, wires made by depositing high temperature superconducting materials onto inexpensive metal templates coated with ceramic buffer layers will make high temperature superconducting wires less expensive to produce.

ORNL's pioneering research on 2G wires includes discovery of lanthanum-manganese-oxide as a buffer material that can be formed rapidly using commercial film-deposition processes.

Audio Clip



On hand for the Jan. 9 signing of the licensing agreement to use ORNL-developed superconducting wire technology were (from left) ORNL Partnerships Director Tom Ballard; SuperPower, Inc., Vice President and Chief Technology Officer Venkat Selvamanickam; ORNL Director Thom Mason; and DOE Principal Deputy Assistant Secretary for Electricity Delivery and Energy Reliability Patricia A. Hoffman.

"This agreement with SuperPower is a great example of ORNL working with industry and delivering the science and technology to help address the nation's energy challenges," ORNL Director Thom Mason said.

Mason also cited the ORNL-SuperPower team's 2007 R&D100 Award and 2007 Federal Laboratory Consortium Southeast Region Excellence in Technology Transfer Award as indicators of their joint success.

Venkat Selvamanickam, vice president and chief technical officer of SuperPower, said his company has worked under a cooperative research and development agreement with ORNL to incorporate this buffer technology into its commercial 2G HTS wire as well as to enhance various performance metrics of its wire.

"SuperPower has successfully integrated ORNL's buffer technology into our 2G wire manufacturing process," Selvamanickam said. "The license agreement provides SuperPower the opportunity to commercially benefit from this and ORNL's future advancements in 2G HTS wire technology."

SuperPower's pilot manufacturing facility has yielded the world's longest 2G wire with world-record performance.

Selvamanickam said 10,000 meters of the wire have been fabricated into an HTS power cable which has been installed into the power grid in Albany, N.Y., the world's first "on-the-grid" device demonstration of this technology.

Today's agreement builds on DOE's recent announcement to provide up to \$51.8 million for five-cost shared projects that aim to advance the development and application of high-temperature superconductors that will help modernize the U.S. electric grid system (see June 27, 2007 press release: <http://www.doe.gov/news/5180.htm>). SuperPower Inc. was among one of the companies selected by DOE to receive funding for these cost-shared projects.

For more information on the Department's efforts to modernize the electric grid, enhance the security and reliability of our energy infrastructure, and facilitate recovery from disruptions to energy supply, visit: www.oe.energy.gov.