



ORNL and SuperPower Sign Superconducting Wire Agreement



Signing the agreement are Venkat Selvamanickam (left), SuperPower vice president and chief technology officer; and Thom Mason, ORNL director. Standing are Tom Ballard, ORNL Partnerships director, and Patricia Hoffman, DOE principal deputy assistant secretary for Electricity Delivery and Energy Reliability.

SuperPower, Inc., a Schenectady, New York, superconducting wire manufacturer, has signed a license agreement to use an Oak Ridge National Laboratory (ORNL)-developed technology that can lower the cost of producing superconducting wires for more efficient transmission of electricity.

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

Superconductors are special materials with no electrical resistance at extremely low temperatures. High-temperature

superconductors (HTSs) lose resistance at warmer (though still very cold) temperatures than conventional superconductors. Cooled by cheap and abundant liquid nitrogen, HTSs 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 (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.

“This agreement is a great example of ORNL working with industry and delivering the science and technology to help address the nation's energy challenges,” said ORNL Director Thom Mason. He also cited the ORNL-SuperPower team's 2007 R&D 100 Award and 2007 Federal Laboratory Consortium Southeast Region Excellence in Technology Transfer Award as indicators of their joint success.

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

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 that has been installed into the power grid in Albany, New York, the first “on-the-grid” device demonstration of the technology.