



GE Power Systems
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GE Hosts Visit by DOE to Kick Off High-Efficiency Generator Development Program

Technology Expected to Produce Major Benefits for U. S. Utilities

SCHENECTADY, NY – Date – Officials from the U.S. Department of Energy (DOE) recently met with representatives of GE Power Systems and the GE Global Research Center to kick off a program to develop a new, high-efficiency generator that will produce major benefits for U.S. utilities.

Late last year, GE received a \$12.3 million cooperative agreement from the DOE to support a 3.5-year program to move high-temperature superconducting (HTS) generator technology toward full commercialization. The project team includes GE Global Research, GE Power Systems, the National Energy Group (a subsidiary of Pacific Gas and Electric), American Electric Power, DOE Oak Ridge National Laboratory, DOE Los Alamos National Laboratory and the New York State Energy Research and Development Authority.

Building on GE's extensive research into HTS materials and generators, the development program will lead to a higher efficiency generator capable of providing millions of dollars in energy savings, reduced emissions and enhanced competitiveness of U.S. utilities.

During the recent meeting held in Schenectady, the DOE team was led by William Parks, Program Manager for Distributed Energy and Electric Reliability, and James Daley, Team Leader for High Temperature Superconductor R&D. Dr. Daley cited the importance of the superconducting program to the President's energy plan. The HTS project is expected to produce major improvements in the efficiency and reactive power capability of new generators, as well as the capability to retrofit the new technology into existing generators. Dr. Daley also expressed confidence in the Six Sigma quality initiatives and management philosophies being applied to the HTS development effort, which is the latest project in GE's long history of working with the DOE on critical energy programs.

Jon Ebacher, Vice President of GE Power System Technologies, provided an overview of current GE technology initiatives and presented GE's vision "to take HTS technology from a place where it holds promise, to full commercial viability."

While retaining the stator design that is today's industry standard, the new generator will introduce a new rotor design and HTS winding unprecedented in its simplicity. Recent progress in HTS wire manufacturing has helped pave the way for the development of an HTS generator with the potential for competitive cost, high reliability, rapid market introduction and a high probability of acceptance by the power industry.

Concept designs indicate that new superconducting generators can achieve significant efficiency gains. This reduction in generator losses will increase overall power plant energy efficiency, creating the potential for annual energy savings while also leading to significant annual reductions of CO₂ emissions.

An initial step in the development program is the production and testing of a 1.5 MVA proof-of-concept model for the rotor, cryorefrigeration and HTS subsystems. A demonstration rotor has been assembled and is undergoing extensive testing at the Global Research Center. Following the completion of these rotor tests, the results will be scaled to a 100 MVA prototype generator that will be fully tested under load.

About GE Power Systems

GE Power Systems (www.gepower.com) is one of the world's leading suppliers of power generation technology, energy services and management systems with 2001 revenues exceeding \$20 billion. The business has the largest installed base of power generation equipment in the global energy industry. Based in Atlanta, Ga., GE Power Systems provides equipment, service and management solutions across the power generation, oil and gas, distributed power and energy rental industries.

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