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Oak Ridge National Laboratory, Industry to Collaborate in Advanced Battery Research

OAK RIDGE, Tenn., April 20, 2010 — Through new collaborations totaling \$6.2 million, the Department of Energy's (DOE) Oak Ridge National Laboratory (ORNL) and American industry will tackle some of the most critical challenges facing lithium ion battery production.

After receiving \$3 million in American Recovery and Reinvestment Act (ARRA) funding in August through DOE's Office of Energy Efficiency and Renewable Energy (EERE) Industrial Technologies Program (ITP), ORNL issued a competitive solicitation to industry for proposals addressing key problems centered around lithium ion battery manufacturing science, advanced materials processing, quality control and processing scale-up. An independent council comprising ORNL and DOE representatives selected proposals from companies across the country.

"While high performance lithium ion batteries are projected to be an energy storage leapfrog technology, safety, service life and costs are still concerns," says ORNL Director Thom Mason. "Forging synergistic collaborations between government and industry will help uncover the solutions that can advance battery technology and lead to stronger national energy security."

As part of ORNL's efforts to advance battery materials and processing technology under the ARRA funding, individual Cooperative Research and Development Agreements (CRADAs) have been signed with: A123 Systems, for domestic supply of anode materials; Dow Kokam, for processing and characterization of novel cathodes; Porous Power Technologies, for improved separator materials; and Planar Energy, for scalable



ORNL researchers assemble lithium ion battery for performance testing within a controlled environment.

processing of solid-state batteries. In each case, industry cost-share exceeds 50 percent of the total project cost.

"By leveraging our expertise in materials science and manufacturing, ORNL will assist these partners with their individual energy storage challenges and address opportunities to surpass non-domestic secondary battery manufacturers that dominate today's market," says ORNL's Energy Materials Program Director Craig Blue. Secondary lithium ion cell manufacturing encompasses a broad range of disciplines including formulation chemistry, film casting, polymer processing, materials and composite design, interfacial science and component engineering.

In addition to ITP and industry funding, EERE's Vehicle Technologies Program (VTP) is contributing funding to directly support the CRADA efforts, each of which comprises part of the battery supply chain. Two of the companies, A123 and Dow Kokam, were awarded DOE battery manufacturing grants, as well as Michigan refundable tax credits to construct battery manufacturing facilities in Michigan. Accordingly, the Michigan Economic Development Corporation (MEDC) is also providing funding to ORNL's overall battery research effort to help ensure success of the industry.

"The financial support from ITP, VTP and MEDC symbolizes DOE and Michigan's shared goal to advance energy technologies critical to the nation and the world, through collaboration and leveraging of resources," says ORNL's Program Director for Energy Partnerships, Ray Boeman. Boeman is currently assigned in Michigan to develop such collaborative programs between government, academia and industry.

According to ORNL's David Wood, co-principal investigator and technical lead on the project, collaborative research is expected to take place during the next 18 months. Wood adds, "This is a unique and timely opportunity for ORNL to help government and industry set the course for a new generation of energy storage technologies."

ORNL is managed by UT-Battelle for the Department of Energy.