



AMSC and U.S. Department of Energy Agree to Collaborate on 10 Megawatt-Class Superconductor Wind Turbines

Project Focuses on Significantly Increasing Wind Turbine Power Capacity to Reduce Cost of Wind-Generated Electricity AMSC Windtec Design Expertise and AMSC's Superconductor Motor Technology Core to New Designs

WASHINGTON--(BUSINESS WIRE)--Feb. 10, 2009-- American Superconductor Corporation (NASDAQ: AMSC), a leading energy technologies company, today announced that it has entered into a Cooperative Research and Development Agreement (CRADA) with the U.S. Department of Energy's National Renewable Energy Laboratory (NREL) and its National Wind Technology Center (NWTC) to validate the economics of a full 10 megawatt (MW) class superconductor wind turbine. AMSC is separately developing full 10 MW-class wind turbine component and system designs. A CRADA allows the Federal government and industry partners to optimize their resources, share technical expertise in a protected environment and speed the commercialization of technologies.

Under the 12-month program, [AMSC Windtec](#)™, a wholly owned subsidiary of AMSC, will analyze the cost of a full 10 MW-class superconductor wind turbine, which will include a direct drive superconductor generator and all other components, including the blades, hub, power electronics, nacelle, tower and controls. The NWTC will then benchmark and evaluate the wind turbine's economic impact, both in terms of its initial cost and its overall cost of energy.

"The Department of Energy and its [National Renewable Energy Lab](#) recognize that wind power will represent a significant fraction of our power production in the years to come," said NREL Director Dan Arvizu. "High temperature superconductors hold promise for helping lower the overall cost of wind energy. We are pleased to be teaming with AMSC to move this technology forward."

Direct drive wind generator systems utilizing high temperature superconductor (HTS) wire instead of copper wire for the generator's rotor are expected to be much smaller, lighter, more efficient and more reliable than conventional generators and gearboxes. AMSC estimates that its superconductor technology will enable a 10 MW-class generator system that would weigh approximately 120 metric tons, compared with approximately 300 metric tons for conventional direct drive generators with this power rating. In addition, direct drive generators eliminate the need for massive gearboxes, the component with the highest maintenance costs in conventional wind turbines. This will open up the opportunity for the development of wind farms in more areas on land and offshore.

The superconductor generators that are to be utilized for 10 MW-class superconductor wind turbines are based on proven technology AMSC has developed for superconductor ship propulsion motors and generators under contracts with the U.S. Navy. AMSC [recently announced](#) that a 36.5 MW superconductor ship propulsion motor it designed and manufactured for the Navy was successfully operated at full power by the Navy and is ready for deployment.

Concurrent with the CRADA, AMSC and [TECO-Westinghouse Motor Company](#) (TWMC) have been working on a project since October 2007 to develop HTS and related technologies for 10 megawatt-class direct drive wind generators under an award from the National Institute of Science and Technology's Advanced Technology Program (ATP). The CRADA and ATP programs are intended to serve as a prelude to follow-on programs aimed at building and testing a full-scale prototype superconductor wind turbine, prior to commercialization.

Senior Vice President and AMSC Superconductors General Manager Dan McGahn said, "It is important for our economy to embrace new clean technologies that will increase our energy independence and strengthen our electricity infrastructure. Superconductors are today proving their tremendous power density and efficiency advantages to electric utilities and large power users. This program brings those same benefits to power generation and the rapidly growing wind power market."

Wind turbine power ratings have been increasing steadily while the price per megawatt has declined, enabling wind power to achieve economic parity with conventional generation sources in prime wind locations. Due to the limitations of conventional technologies, however, the largest wind turbine ratings top out at approximately 6 MW due in part to practical limitations on the physical size and weight of the generators that must be transported over roads and supported on towers hundreds of feet in the air.

"HTS is one of the 'disruptive technologies' needed to break through wind power's capacity barrier and significantly reduce its cost of energy," McGahn said. "We have formed strong ties with wind turbine manufacturers around the world, including TECO in Taiwan, Sinovel Wind in China and Hyundai Heavy Industries in Korea. Based on these relationships, AMSC's leadership in superconductor technology, its experience with HTS rotating machines and AMSC Windtec's proven commercial wind turbine design capabilities, we are uniquely equipped to commercialize this breakthrough technology."

According to industry research firm Emerging Energy Research, approximately \$27 billion was spent on wind turbines in 2007. That figure is expected to double to over \$55 billion annually by 2015.

[About American Superconductor \(NASDAQ: AMSC\)](#)

AMSC offers an array of proprietary technologies and solutions spanning the electric power infrastructure – from generation to delivery to end use. The company is a leader in [alternative energy](#), providing proven, megawatt-scale wind turbine designs and electrical control systems. The company also offers a host of [Smart Grid](#) technologies for power grid operators that enhance the reliability, efficiency and capacity of the grid, and seamlessly integrate renewable energy sources into the power infrastructure. These include superconductor power cable systems, grid-level surge protectors and power electronics-based voltage stabilization systems. AMSC's technologies are protected by a broad and deep intellectual property portfolio consisting of hundreds of patents and licenses worldwide. More information is available at www.amsc.com.

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Any statements in this release about future expectations, plans and prospects for the company, including our expectations regarding the future financial performance of the company and other statements containing the words "believes," "anticipates," "plans," "expects," "will" and similar expressions, constitute forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. There are a number of important factors that could cause actual results to differ materially from those indicated by such forward-looking statements. Such factors include: uncertainties regarding the company's ability to obtain anticipated funding from corporate and government contracts, to successfully develop, manufacture and market commercial products, and to secure anticipated orders; the risk that the increasingly uncertain global economic conditions could result in customers delaying or reducing purchases of our products; the risk that a robust market may not develop for the company's products; the risk that strategic alliances and other contracts may be terminated; the risk that certain technologies utilized by the company will infringe intellectual property rights of others; and the competition encountered by the company. Reference is made to these and other factors discussed in the "Risk Factors" section of the company's most recent quarterly or annual report filed with the Securities and Exchange Commission. In addition, the forward-looking statements included in this press release represent the company's views as of the date of this release. While the company anticipates that subsequent events and developments may cause the company's views to change, the company specifically disclaims any obligation to update these forward-looking statements. These forward-looking statements should not be relied upon as representing the company's views as of any date subsequent to the date this press release is issued.

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