

## What's New in the World of Superconductivity (October)

### Power

#### **American Superconductor Corporation (October 3, 2006)**

American Superconductor Corporation has received an order for 22,000 meters of first-generation HTS wire from the Korea Electrotechnology Research Institute (KERI) for use in a 10-year project focused on the development of SMES systems. While most commercial SMES systems utilize low-temperature superconductors, SMES systems based on HTS wire are expected to have operating temperatures that are 5 to 20 times higher than low-temperature systems – making them more efficient, rugged, and affordable for power grid applications. Angelo Santamaria, vice president and general manager of the AMSC Wires business unit, commented, "KERI's SMES system required a unique four-ply superconductor with particularly high electrical performance - a product that we developed jointly with KERI utilizing our first-generation HTS wire. Our ability to rapidly meet customer specifications with first-generation wire as we continue to scale up manufacturing of second-generation wire was once again key to winning this order." The KERI project is being funded by South Korea's Ministry of Science and Technology.

AMSC has received orders for nearly 150,000 meters of first-generation HTS wire during the second quarter of fiscal 2007, ending September 30, 2006. The company entered the quarter with more than 400,000 meters of first-generation HTS wire in stock. AMSC expects to receive orders for most, if not all, of its remaining first-generation inventory by December 2007, when annual gross capacity for its 344 superconductors will be ramped to 720,000 meters. AMSC discontinued its production of first-generation HTS wire on June 30, 2006.

Source:

"American Superconductor Wins New HTS Wire Order from Korean Technology Developer"  
American Superconductor Corporation press release (October 3, 2006)

[http://phx.corporate-ir.net/phoenix.zhtml?c=86422&p=irol-newsArticle\\_Print&ID=911368&highlight](http://phx.corporate-ir.net/phoenix.zhtml?c=86422&p=irol-newsArticle_Print&ID=911368&highlight)

#### **American Superconductor Corporation (October 10, 2006)**

American Superconductor Corporation (AMSC) has received a follow-on order for 450 PowerModule™ PM1000 systems from Windtec Systemtechnik GmbH (Windtec), an Austrian developer and licensor of wind turbine system designs and a developer and supplier of wind turbine electrical systems. Windtec will package the PowerModule systems with other electronic components for one of China's largest domestic wind turbine manufacturers. The new order represents a three-fold increase over the previous PowerModule order placed by Windtec, which was announced in February 2006. Windtec's President, Gerald Hehenberger, commented, "AMSC and Windtec have worked closely together to customize PM1000 systems to provide voltage regulation and electrical controls for several Windtec wind energy system designs. AMSC's PowerModule systems are best in class, and they provide us with tremendous flexibility and capability in the systems we design for our customers. Windtec looks forward to expanding its relationship with AMSC and to capitalizing together on the rapidly growing wind

power market." AMSC expects to ship the PowerModule systems during the fiscal year ending March 31, 2008. This is the fourth and largest order placed by Windtec in the last 12 months. Greg Yurek, Chief Executive Officer and founder of AMSC, reported, "The global wind energy market has become a significant growth area for AMSC, and we expect this will continue for many years. Windtec is a key channel to the Chinese market for our PowerModule systems. We expect to continue to work closely with them to meet the objective of China and additional fast-growing countries around the world to generate more zero-emission electricity from wind." With this order, AMSC's D-VAR® and PowerModule solutions will be serving more than 2,500 MW of wind-generated electricity, exceeding the company's 2,000-MW target for the fiscal year ending March 31, 2007.

Source:

"American Superconductor Receives Follow-on Order from Windtec for PowerModule™ Systems to be Utilized in 450 Chinese Wind Turbines"

American Superconductor Corporation press release (October 10, 2006)

[http://phx.corporate-ir.net/phoenix.zhtml?c=86422&p=irol-newsArticle\\_Print&ID=913740&highlight](http://phx.corporate-ir.net/phoenix.zhtml?c=86422&p=irol-newsArticle_Print&ID=913740&highlight)

## **HTS-110 (October 19, 2006)**

HTS-110 has won contracts totaling \$1.2 million to design and manufacture two HTS magnets, one for the Hahn-Meitner Institute for the Berlin Electron Synchrotron facility and the other for the Australian Nuclear Science and Technology Organization (ANSTO) for their new OPAL neutron factory. The Berlin magnet will be a world-first for an HTS magnet, as copper or LTS magnets are currently used in most synchrotron beam-lines. The HTS magnet was chosen for its high performance (5 T) and its cost competitiveness and will be cooled by a pulse tube refrigerator to an operating temperature of around 20 K. Sohail Choudhry, CEO of HTS-110, commented, "The chance to develop this magnet opens up the huge area of beam-line experiments, as well as synchrotron storage, making it an exciting opportunity for the HTS industry."

The ANSTO magnet will be the largest that HTS-110 has built to date, weighing 250 kg and containing more than 10 km of wire. The magnet will be installed in the new OPAL neutron factory being commissioned in New South Wales, Australia. Since the magnet will not require liquid helium for its operation, it will be economical and easy to use.

Source:

"Two overseas contracts scored for high-tech magnets"

HTS-110 press release (October 19, 2006)

<http://www.hts-110.com/news/coverage/new-orders.html>

## **American Superconductor Corporation (October 25, 2006)**

American Superconductor Corporation (AMSC) has signed a cost-plus-fee contract valued at \$5.3 million with the United States Navy's Naval Sea Systems Command (NAVSEA) for the design and optimization of HTS ship propulsion motors and power electronic drives. The first \$1.9 million increment of funding will focus on motor, drive and electrical system options optimized for possible integration into DDG-1000 and CG(X) surface combatant ships. This initial stage of the contract should be completed in the next six months. Greg Yurek, Chief

Executive Officer and founder of AMSC, reported, "This is the first in what we are confident will be a series of contracts from the United States Navy, will enable us to continue optimizing HTS motors and power electronic drives for use in future surface combatants as well as other classes of naval vessels. It will also strengthen the foundation for adoption of these revolutionary advanced motors in a broad set of commercial ship types. American Superconductor's technology offers significant and compelling benefits over conventional solutions, and we are committed to bringing these benefits to the Navy."

AMSC is currently assembling and testing the components of a 36.5-MW HTS propulsion motor for the Office of Naval Research. The completed motor will weigh approximately 75 tons and will be one-half the size and one-third the weight of traditional copper-based propulsion systems. Factory testing should be completed before the end of calendar 2006.

Source:

"American Superconductor Wins New U.S. Navy Contract for HTS Motor Design and Optimization"

American Superconductor Corporation press release (October 25, 2006)

[http://phx.corporate-ir.net/phoenix.zhtml?c=86422&p=irol-newsArticle\\_Print&ID=920995&highlight](http://phx.corporate-ir.net/phoenix.zhtml?c=86422&p=irol-newsArticle_Print&ID=920995&highlight)

## Zenergy Power plc (October 26, 2006)

Zenergy Power plc announced that E.ON Wasserkraft GmbH has decided to install the world's first HTS hydrogenerator in a commercial hydroelectric power station in Bavaria, Germany. The 1.25-MW hydrogenerator will incorporate Zenergy's patented HTS materials, enabling the production of a hydrogenerator capable of delivering efficiency levels of greater than 98% - a significant improvement over current efficiency levels. This increase in the generator's efficiency will improve the economic return of renewable energy production. The projected cost of the overall development and installation is €3.44 million, of which the European Commission will provide €1.85 million. The hydrogenerator will be built by Converteam (formerly ALSTOM Power Conversion) using superconductive coils made by Trithor GmbH. A maintenance-free cryogenerator is being built by Stirling. The superconductor generator, once tested and installed, is expected to power approximately 2,000 households. Ulrich Fuchs, head of Electrical Engineering, E.ON Wasserkraft GmbH, commented, "To be the world's first utility company to implement HTS materials into its power generation equipment is a hugely exciting prospect for E.ON Wasserkraft GmbH. As Europe's largest producer of hydroelectric power, we are ideally positioned to benefit from the economic improvements that Zenergy's technology brings to the production of renewable energy. We very much look forward to having this generator in ongoing grid operation and would like to thank the European Commission for its ongoing support for this ground breaking work."

Source:

"Hydro-Generator Collaborative Project with E.ON Wasserkraft GmbH"

Trithor press release (October 26, 2006)

[http://www.trithor.com/pdf/press-en/2006-10-26%20Hydro%20Power%20Generator%20Trithor\\_en.pdf](http://www.trithor.com/pdf/press-en/2006-10-26%20Hydro%20Power%20Generator%20Trithor_en.pdf)

## **American Superconductor Corporation (October 31, 2006)**

American Superconductor Corporation (AMSC) has signed a strategic business alliance with the Shanghai Electric Cable Research Institute (SECRI), the leading research, development and standardization institution for China's wire and cable industry. The new alliance will develop and promote the use of HTS power cables in China. Under the terms of the alliance, AMSC will serve as the preferred supplier of HTS wire to SECRI and the recommended preferred HTS wire supplier to its cable-manufacturing licensees for all future superconductor cables. SECRI plans to develop and certify HTS power cable systems for use by power cable manufacturers throughout China. As a first step toward this objective, SECRI will manufacture and test a 30-meter-long, 110,000-volt prototype transmission voltage HTS power cable utilizing AMSC's HTS wire. The cable will then be installed in the power grid, probably in Shanghai. SECRI will also help introduce AMSC's D-VAR(R) power grid solutions to key decision makers throughout China.

According to an energy analyst for Frost & Sullivan, China accounted for close to 41% of the world's energy growth in 2004.

Source:

"American Superconductor and Shanghai Electric Cable Research Institute Announce Strategic Business Alliance"

American Superconductor Corporation press release (October 31, 2006)

[http://phx.corporate-ir.net/phoenix.zhtml?c=86422&p=irol-newsArticle\\_Print&ID=923811&highlight](http://phx.corporate-ir.net/phoenix.zhtml?c=86422&p=irol-newsArticle_Print&ID=923811&highlight)

## **Communication**

### **ISCO International, Inc. (October 3 and 26, 2006)**

ISCO International Inc. has reported its financial results for their third quarter. ISCO posted higher revenue in September 2006 than it did throughout 2005, which had seen the best four revenue quarters in the company's history. Performance in the third quarter included a positive net income from operations and a positive contribution to the company's overall cash flow of US \$0.5 million. Revenue in the third quarter more than tripled to \$6.4 million, compared with \$2.0 million for the same period in the previous fiscal year. The company entered its fourth quarter with approximately \$1 million in order backlog, compared with negligible backlog at the same time point in the previous fiscal year. Net loss for the quarter improved by about 70% to \$0.2 million, compared with \$0.6 million for the same period in the previous fiscal year.

Sources:"

ISCO INTERNATIONAL ANNOUNCES \$6 MILLION IN THIRD QUARTER REVENUE"

ISCO International, Inc. press release (October 3, 2006)

<http://www.b2i.us/profiles/investor/ResLibrary.asp?BzID=826&ResLibraryID=17249&GoTopage=1&Category=135>

"ISCO INTERNATIONAL REPORTS RECORD REVENUE, NET OPERATING INCOME AND POSITIVE CASH FLOW IN ITS FINANCIAL RESULTS FOR THE THIRD QUARTER 2006"

ISCO International, Inc. press release (October 26, 2006)

<http://www.b2i.us/profiles/investor/ResLibrary.asp?BzID=826&ResLibraryID=17588&GoTopage=1&Category=135>

## ISCO International, Inc. (October 19, 2006)

ISCO International Inc. has been selected, for the second year in a row, as one of the Deloitte Technology Fast 500 – a ranking of the 500 fastest growing technology companies in North America. ISCO's Chief Executive Officer, John Thode, commented, "The bar this year was much higher than last year, and I'm proud to say that we fully met that challenge and took our place amongst our highest performing peers." Tony Kern, deputy managing principal of Deloitte's Technology, Media and Telecommunications, also stated, "To be successful in today's increasingly competitive landscape, companies have to be better, smarter, and more innovative than in the past, and the Technology Fast 500 companies are doing exactly that. We acknowledge ISCO International for its fast-paced growth in an increasingly competitive world."

Source:

"ISCO INTERNATIONAL RECEIVES ANOTHER DELOITTE TECHNOLOGY FAST 500 AWARD"

ISCO International, Inc. press release (October 19, 2006)

<http://www.b2i.us/profiles/investor/ResLibrary.asp?BzID=826&ResLibraryID=17488&GoTopage=1&Category=135>

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