

What's New in the World of Superconductivity (March)

Power

American Superconductor Corporation (March 3, 2003)

American Superconductor Corporation expects to report total revenue of approximately US \$ 20.5 million for the fiscal year ending March 31, 2003, based on its current backlog and delivery schedule. The company's present backlog amounts to approximately US \$ 33 million, \$ 24 million of which is from a newly acquired Navy contract; this revenue should be realized in the upcoming fiscal year.

Source:

"American Superconductor Forecasts Initial Backlog"

American Superconductor Corporation Press Release (March 3, 2003)

<http://www.amsuper.com/html/newsEvents/news.html>

American Superconductor Corporation (March 3, 2003)

American Superconductor Corporation (AMSC) has announced the receipt of a contract from the U.S. Office of Naval Research (ONR) for the design, development and manufacture of a 36.5/120 rpm MW HTS motor for ship propulsion; the multi-year contract is valued at US \$ 70 million. AMSC will collaborate with Northrop Grumman Corporation in the optimization of the design and the integration and testing of the motor in electric warships. Northrop Grumman Marine Systems will be responsible for the development of the system requirements and specifications, the design and manufacture of the motor drive and certain other components, and integration and testing. The family of electric warships in which the HTS motor will be used is being developed by Northrop Grumman Ship Systems. Additional team participants include Ideal Electric Motors, Syntek Technologies, Mississippi State University, the Center for Advanced Power Systems at Florida State University and the Virginia-based marine consulting firm, MSCL LLC. This is the largest contract that AMSC has received in the history of the company. Commented Rear Admiral Jay M. Cohen, Chief of Naval Research, "The U.S. Navy is going electric. Superconductor technology will help reduce the size and weight of motors, generators, power transmission and supporting electrical components to help speed the transition to electric this decade." The HTS motor is expected to be half the size and about one-third the weight of a copper-based motor.

Source:

"American Superconductor Wins Multi-Year \$ 70 Million U.S. Navy Contract to Design and Build HTS Electric Propulsion Motor"

American Superconductor Corporation Press Release (March 3, 2003)

<http://www.amsuper.com/html/newsEvents/news.html>

American Superconductor Corporation and GE Industrial Systems (March 18, 2003)

American Superconductor Corporation (AMSC) and GE Industrial Systems have announced the sale of another D-VAR™ unit. The unit will be used to actively manage voltage levels in a 20-mile, 34.5 kV line operated by a major Midwest utility with more than a half-million industrial, commercial, and residential customers. The D-VAR unit will ensure a stable voltage and reliable power flow by constantly monitoring the grid and quickly responding to variations. This is the first time that the D-VAR

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technology is being used to solve voltage issues in a distribution grid; previously, the technology has been used to increase reliability and power flow in transmission grids. Eighteen of AMSC's integrated power electronic systems have now been installed in North American power grids; this figure is larger than that of any other power electronics vendor.

Source:

"AMSC Widens Gap in D-VAR Sales"

American Superconductor Corporation Press Release (March 18, 2003)

<http://www.amsuper.com/html/newsEvents/news.html>

Intermagnetics General Corporation (March 18, 2003)

Intermagnetics General Corporation (IMGC) announced that its third-quarter earnings increased to US \$ 4.2 million, compared to \$ 3.9 million (excluding one-time items) for the same period of the previous fiscal year. The company's net income for the third quarter of 2002 was \$ 3.1 million, including gains on the sale of an investment and its helium-based refrigeration business. These gains were offset by one-time expenses related to the restructuring of IMGC's Instrumentation segment. Net sales for the quarter ending February 23, 2003 amounted to \$ 37.8 million (excluding revenue from divested businesses), compared to \$37.2 million for the same period of the previous fiscal year. Commented Glenn H. Epstein, chairman and chief executive officer, "We have continued to improve each quarter of fiscal 2003 and are on track for another year of record operating earnings, despite a tough global economic climate." Epstein attributes this success to the company's efforts in cost control and operating efficiency.

IMGC's MRI business benefited from the commercial introduction of a new 3.0 Tesla magnet for medical imaging, while the Instrumentation segment has made considerable progress in expanding its customer base, particularly in China and other Asian countries. Third-quarter sales for the MRI segment increased to \$ 32.1 million, compared to \$ 31 million for the same period of the previous fiscal year.

IMGC invested \$ 1.5 million in its SuperPower subsidiary during the third quarter, about the same amount as in the previous fiscal year.

Source:

"Intermagnetics Reports Q3 Net Income Climbs to Record \$4.2 Million"

Intermagnetics General Corporation Press Release (March 18, 2003)

http://www.igc.com/news_events/news_events.asp

University of Illinois at Urbana-Champaign (March 19, 2003)

Last year, the University of Illinois at Urbana-Champaign sponsored a "National Energy SuperGrid Workshop" to investigate the idea of a high-capacity superconducting energy pipeline, or SuperGrid, that would deliver electricity and hydrogen fuel across the nation to help meet future energy needs. Such a grid, originally proposed by Chauncey Starr, founder and president emeritus of the Electric Power Research Institute, would also enable a significant reduction in the consumption of fossil fuels. A recently published report on the workshop (held Nov. 6-8, 2002, in Palo Alto, California) can now be found on the Web at www.energy.ece.uiuc.edu/SuperGridReportFinal.pdf. The SuperGrid would consist of a buried pipeline containing low-temperature superconducting cables and liquid hydrogen coolant. Urban centers could then be linked to remote nuclear, coal-fired and renewable power resources. In this manner, the SuperGrid would enable large amounts of electricity to be transferred while supplying hydrogen as an alternative fuel. The workshop organizer, Thomas Overbye, commented that, "The SuperGrid concept goes beyond the current vision of a future hydrogen

economy, to one where electricity and hydrogen become synergistic elements in an integrated energy infrastructure. The ability to convert large amounts of electrical energy into easily stored hydrogen fuel would make for a much more flexible electric demand . . . Conversion to hydrogen-based energy storage would also enhance the role of intermittent power sources such as solar energy and wind energy.” Although no new scientific breakthroughs are needed to construct the SuperGrid, major technological innovations are necessary to minimize environmental effects and maximize economic and societal benefits. The report recommends that a study on the use of hydrogen as a combined cryogen and form of transportable energy be undertaken as an initial step in this project.

Source:

“Synergistic SuperGrid could meet nation’s energy needs in 21st century”
University of Illinois at Urbana-Champaign Press Release (March 19, 2003)
http://www.eurekaalert.org/pub_releases/2003-03/uoia-ssc031903.php

American Superconductor Corporation (March 25, 2003)

American Superconductor Corporation (AMSC) has announced the successful completion of a no-load factory test of its ultra-compact 5 MW/ 230 rpm HTS electric ship propulsion motor. This class of superconductor motor is equivalent to that of copper-based electric propulsion motors presently used in ferries and small cargo ships. However, the HTS motor is half the weight and one-third the size of a conventional copper-based motor of the same power and torque rating. The motor is also more fuel efficient, and maintenance costs are lower than with conventional motors. The AMSC motor was designed under contract with the U.S. Navy’s Office of Naval Research and is expected to become a standard for certain military ships. The no-load test was performed at ALSTOM’s Power Conversion Business in Rugby, U.K. The next stage of testing, which will involve the use of a full load, should be completed in June. ALSTOM is acting as a subcontractor on the AMSC project. AMSC expects to begin receiving orders for non-military ship applications in the next 12 – 15 months and to begin delivery in 2005. Several countries other than the U.S. are also considering the use of HTS propulsion motors in their navies. The market for ship propulsion motors is expected to grow rapidly to over US \$ 2 billion per year by 2010.

Source:

“AMSC Successfully Completes No-load Factory Tests”
American Superconductor Corporation Press Release (March 25, 2003)
<http://www.amsuper.com/html/newsEvents/news.html>

American Superconductor Corporation (March 31, 2003)

American Superconductor Corporation reported the receipt of orders for a record 450 km of HTS wire during its fourth fiscal quarter ending March 31, 2003. By comparison, AMSC received wire orders for 20 km of wire during the first nine months of the fiscal year. The orders received in the fourth quarter were from eleven different customers in four different countries and are for use in a variety of applications, including motors, generators, power cables, industrial processing equipment and specialty electromagnets. To date, AMSC has delivered 88 km of the wire and expects to deliver an additional 168 km during the present fiscal year. The remainder will be backlogged until the next fiscal year. An additional 120 km of wire is expected to be ordered during the first fiscal quarter ending June 20, 2003; over half of these orders should be delivered by the end of March 2004. One of AMSC’s customers, Dupont, has ordered 50 km of wire for use in a full-scale magnetic separation system that Dupont is developing under a U. S. Department of Energy Superconductivity Partnership contract.

Source:

“American Superconductor Books Record HTS Wire Orders in Fourth Fiscal Quarter”

American Superconductor Corporation Press Release (March 31, 2003)

<http://www.amsuper.com/html/newsEvents/news.html>

Communication

ISCO International (March 11, 2003)

ISCO International Inc. (ISO) reported consolidated net revenues of US \$ 1.5 and 3.7 million for the three- and twelve-month periods ending December 31, 2002. The latter figure is up from \$ 2.0 million in total revenue for the previous year. The company posted their first positive gross margin on a quarterly and full-year basis. Commented Dr. Amr Abdelmonem, CEO of ISO, “Revenues climbed from the second quarter through the fourth quarter [of 2002] and we expect to post quarterly revenue during the first quarter of 2003 similar to that of the fourth quarter of 2002.”

Source:

“ISCO International Reports Results for 2002”

ISCO International Press Release (March 11, 2003)

<http://www.iscointl.com/>

Superconductor Technologies Inc. (March 17, 2003)

Superconductor Technologies Inc. (STI) has reported the results of a recent field trial with a major wireless carrier. The carrier reported a 43% reduction in dropped calls and a 26% decrease in blocked calls after STI's SuperLink™ Rx cryogenic receiver front-end application was installed in its network. The trial was performed in an urban network during busy hours; in total, more than 5,000 dropped calls and 2,500 blocked calls were avoided per week. M. Peter Thomas, president and CEO of STI, commented that, "Even using conservative estimates on the cost savings from fewer dropped and blocked calls, these products will pay for themselves in under six months.

Source:

“Field Trial with Major Wireless Carrier Demonstrates Performance, Cost Benefits of Superconductor Technologies' SuperLink™ Solutions”

Superconductor Technologies Inc. Press Release (March 17, 2003)

<http://ir.thomsonfn.com/InvestorRelations/PubNews.aspx?product=MzgwU1ZJPVAKWQEQUALSTOEQUALSTO&partner=Mzg0TIRrMU1RPT1QJFkEQUALSTO>

Superconductor Technologies Inc. and Heinz Corp. (March 17, 2003)

Superconductor Technologies Inc. (STI) announced that it has certified Heinz Corporation, a wireless engineering services firm, to install STI's SuperLink™ Solutions. This agreement expands upon a previously existing agreement between the two companies that involved interface testing, modeling, and analysis. M. Peter Thomas, president and CEO of STI, commented that, "This alliance with Heinz is all about speed and convenience for our customers, the wireless carriers. It provides a one-stop, turnkey solution that makes a lot of sense these days for carriers, particularly with large deployments.”

Source:

“Superconductor Technologies Inc. Expands Strategic Alliance with Heinz Corp. to Offer One-stop performance Solution to Carriers”

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Superconductor Technologies Inc. Press Release (March 17, 2003)

<http://ir.thomsonfn.com/InvestorRelations/PubNews.aspx?product=MzgwU1ZJPVakWQEQUALSTOEQUALSTO&partner=Mzg0TIRrMU1RPT1QJfKEQUALSTO>

Superconductor Technologies Inc. (March 18, 2003)

In a speech on the opening day of the CTIA Wireless show (March 17 – 19), Dr. Robert B. Hammond, Ph.D., chief technical officer of Superconductor Technologies Inc., said that wireless carriers must embrace alternative technologies in order to overcome the dual challenges of continued growth and increased network performance. In particular, Hammond outlined how HTS products for voice and data applications can provide cost-effective solutions for the enhancement of network performance. In fact, HTS solutions are the only products that provide both increased sensitivity and selectivity to networks, helping to eliminate out-of-band interference.

Hammond stated that end-user satisfaction will be behind the need for wireless network improvements in 2003 and beyond, since “wireless minutes of use” figures continue to grow by as much as 50% annually, despite a slow growth in new user subscriptions. Hammond explained that as a result of this continuous increase in usage, “Wireless carriers face severe financial constraints, and siting for new cell sites is increasingly difficult. So simply adding base stations is often not the most optimal solution. Carriers must do more with less. Now is the time for intelligent risk-taking with alternative technologies and solutions.”

Source:

“Wireless Carriers Must Learn to ‘Do More with Less’ to Continue Growth in 2003, STI Executive Tells CTIA Audience”

Superconductor Technologies Inc. Press Release (March 18, 2003)

<http://ir.thomsonfn.com/InvestorRelations/PubNews.aspx?product=MzgwU1ZJPVakWQEQUALSTOEQUALSTO&partner=Mzg0TIRrMU1RPT1QJfKEQUALSTO>

Superconductor Technologies Inc. (March 31, 2003)

Superconductor Technologies announced fourth quarter (ending December 31, 2002) net revenues of US \$ 7 million, a 119% increase from revenue for the same period in the previous year. Net commercial product revenues for the quarter amounted to \$ 4.3 million, a 139% increase compared to revenue for the same period in the previous year. Revenue from government contracts also increased, from \$ 1.4 million for the fourth quarter of 2001 to \$ 2.7 million for the fourth quarter of 2002. Total net loss for the fourth quarter amounted to \$ 2.9 million, down from \$ 5.0 million for the fourth quarter of the previous year. The results of Conductus, Inc. are included in the consolidated financial statement for the 13 days following the acquisition of the company until the end of the quarter. Total net revenues and net commercial revenues for the year increased by 81% and 132%, respectively, compared to the previous year.

Source:

“Superconductor Technologies Inc. Reports Fourth Quarter and Year-end 2002 Results”

Superconductor Technologies Inc. Press Release (March 31, 2003)

<http://ir.thomsonfn.com/InvestorRelations/PubNews.aspx?product=MzgwU1ZJPVakWQEQUALSTOEQUALSTO&partner=Mzg0TIRrMU1RPT1QJfKEQUALSTO>

(Akihiko Tsutai, Director, International Affairs Department, ISTE)C

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