

# American Superconductor Corporation

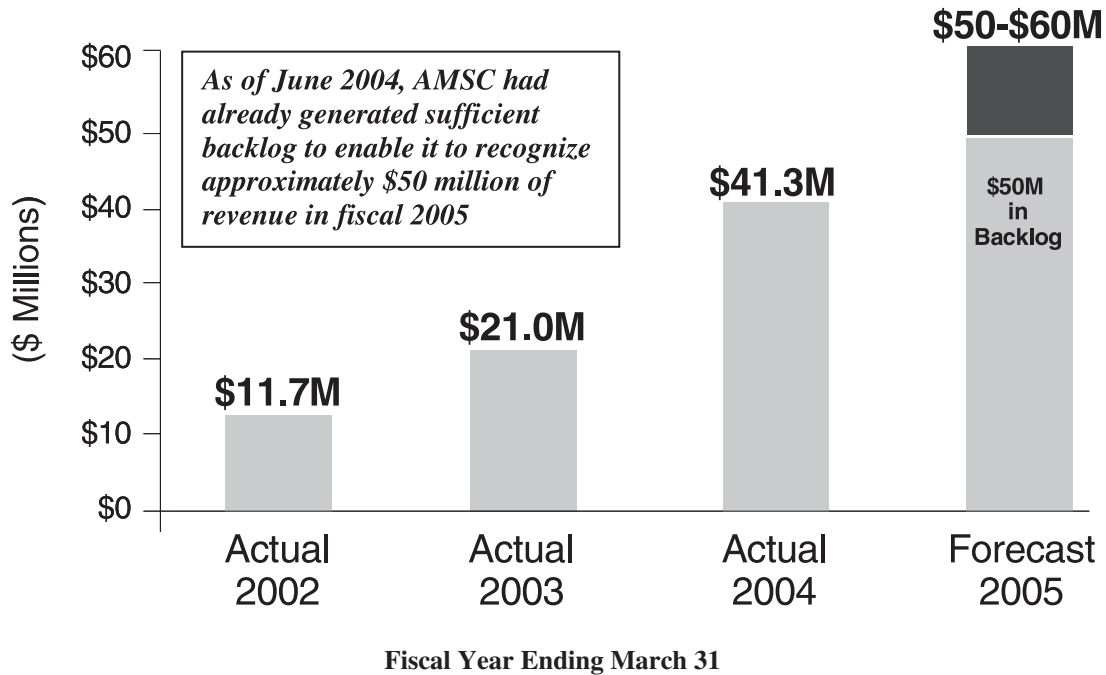
## 2004 ANNUAL REPORT





To Our Shareholders:

Fiscal 2004 was another year of significant revenue growth for American Superconductor Corporation (AMSC). Revenues increased 97% to \$41.3 million compared with revenues of \$21.0 million for fiscal 2003, which itself was an 80% increase in revenues compared with fiscal year 2002. And we are poised for significant additional revenue growth in fiscal 2005. In early fiscal 2005, we forecasted revenue in the range of \$50-\$60 million for the fiscal year. As we approach the end of the first quarter of fiscal 2005, our current backlog, combined with revenue already recognized for the quarter, supports visibility to approximately \$50 million in revenue for the year, which assures that we will enjoy another year of substantial revenue growth.



### Electricity Solutions

In fiscal 2004, we increased our momentum and solidified our leadership position in the *electricity solutions* market – a market that demands more compact, more efficient, smarter solutions to meet the growing requirements for more secure and reliable power networks and for digital-grade electricity to run factories, offices and homes. We are bringing our electricity solutions to not only the electric power market, with our advanced grid solutions, but also to the transportation, industrial and defense markets. In doing so, we are currently addressing combined global markets of \$8-\$10 billion.

### More Secure Power Networks

The security of power networks is becoming a growing concern, as highlighted by the major power blackout that occurred in the northeast U.S. and in Canada on August 14, 2003 and separately in several European countries shortly thereafter. Power grid operators have a need for new electricity solutions based on the latest and best technologies that will enable their networks to become more secure and self-protecting. Self-protecting networks adjust rapidly and automatically to disruptions in power network equipment caused by weather damage, willful destruction or other reasons. We believe that very low impedance (VLI) high temperature superconductor (HTS) cables, because of their high capacity and bi-directional controllability, can play a significant role in conjunction with other technologies – including our D-VAR<sup>®</sup> and SuperVAR<sup>™</sup> dynamic voltage control products – in meeting the pent-up demand for more secure and reliable power networks.

Early in fiscal 2004 we became the prime contractor for a project directed to developing and installing the world's first superconductor transmission-voltage power cable – a VLI design – in a commercial power network. I am pleased to inform you that this project is on schedule and on budget and we expect to install the HTS power cable on Long Island, NY for Long Island Power Authority (LIPA) by December 2005. The cable, which will operate at 138 kilovolts (kV), has been designed to transmit 600 megawatts (MW) of power – enough to supply 300,000 homes. It will be produced by Nexans, a world-leading cable manufacturer, and powered by AMSC™ wire. With this project, we expect to clear one of the last remaining hurdles to commercialization of HTS power cables.

**... the LIPA cable project is on schedule and on budget and we expect to install the cable on Long Island ... by December 2005**

There are currently eight HTS cable demonstration projects underway around the world – three in the U.S., two in China and one each in Japan, Korea and Mexico. During fiscal year 2004 we received orders for HTS wire for the LIPA project in the U.S., for one of the two cable projects in China, and for the Korean and Mexican cable demonstrations. One of the other cable demonstration projects in the U.S. – the American Electric Power project in Columbus, Ohio – has not yet chosen a wire supplier. We expect that decision to occur in fiscal 2005, and we are working diligently to secure that order. The wire for the other cable projects in China, the U.S. and Japan are being supplied by the vertically integrated power cable companies who are manufacturing the cables for each of those projects.

In addition to these HTS cable demonstration projects, our Advanced Grid Solutions business development team is currently working with several grid operators regarding potential commercial installations of HTS cables starting in the 2007 timeframe. We believe we are well positioned to be the wire vendor of choice for these future commercial power cable installations.

#### **Reactive Power – Crucial to More Secure Power Networks**

The alternating current (AC) electric power that courses through the nation's grid every day is the lifeblood of our economy. It is made up of two components: real power, measured in Watts, and reactive power, measured in VARs. A lack of adequate reactive power, or VAR support, was first in the list of causes of the August 14, 2003 blackout cited in the final report of the Joint U.S.-Canada Power System Outage Task Force issued on April 2, 2004.

Dynamic reactive power solutions based on HTS wire and power electronics technologies are core offerings of AMSC. These solutions include our Dynamic-VAR, or D-VAR product line, a power electronics-based product we have been selling since 2000, and SuperVAR HTS dynamic synchronous condensers, a new product we are currently developing.

**“...the blackout on August 14, 2003 was preventable. It had several direct causes and contributing factors including: 1. Failure to maintain adequate reactive power support...”**

**— U.S.-Canada Power System Outage Task Force — Final Report on the August 14, 2003 Blackout in the United States and Canada: Causes and Recommendations, April 2, 2004**

Our first D-VAR solution was sold by our Power Electronic Systems business unit to an electric utility in July 2000. Since then, sales of this business unit to electric utilities, wind farms and industrial customers have averaged \$7 million per year. We now have an installed base of more than 20 D-VAR systems in use at North American utilities such as Entergy, Tennessee Valley Authority (TVA), American Transmission Company, Northeast Utilities, LIPA and PacifiCorp.

Power Electronic Systems sales in fiscal 2004 achieved the average of \$7 million per year, significantly below our expectations. This was due in part to continued uncertainties with respect to the economy, which impacted

buying decisions of our entire customer base. Sales were also impacted negatively by the lack of enforceability of electric reliability standards and the ‘tragedy of the commons’ – a situation in which no one utility is eager to pay for reliability solutions that benefit not only its customers, but also all other members of the electricity marketplace that can use the local power grid.

It is clear to us, however, that there is a pent-up demand to solve dynamic reactive power problems in order to create more secure power networks and to significantly increase the quality of the power supplied to manufacturing operations. I am happy to report that as of June 2004, we have started to address that pent-up demand with recent order activity growing our Power Electronic Systems backlog to \$12 million, which we expect to recognize as revenue in fiscal 2005. This positions us to significantly exceed the average of \$7 million in annual sales for this business unit.

**... as of June 2004, ... Power Electronic Systems backlog has grown to \$12 million, positioning us to significantly exceed the \$7 million in average annual sales for this business unit.**

### **GE Agreement Renewed and Expanded**

To further strengthen our position in the marketplace for dynamic grid stabilization products, in June 2003 we renewed and expanded our agreement with GE Energy, a business of the General Electric Company, to co-market and sell our D-VAR product line as a co-branded product to both North American and South American electric utilities. In other geographies, AMSC will continue to market its D-VAR solutions directly and through its regional distributors. In a further expansion of the previous relationship, GE will also participate in selected sales of AMSC’s PQ-IVR™ industrial power quality solution – a D-VAR based product – in global regions not covered by AMSC’s other distribution agreements.

### **SuperVAR™ Machines – A Utility-Inspired Solution**

In fiscal 2004, we invested in the expansion of our offering of dynamic reactive power solutions with the introduction of the SuperVAR dynamic synchronous condenser, a rotating machine that provides dynamic reactive power for transmission grids. This product is derived from the same platform that we use to manufacture HTS ship propulsion motors and its genesis was a request by TVA grid operators – who had already purchased and installed a D-VAR system – for an alternative reactive power solution for other parts of their grid that could not be handled by D-VAR systems.

In cooperation with TVA, we designed, built and started testing the prototype SuperVAR machine, the world’s first dynamic synchronous condenser based on HTS technology. During the initial trial runs, as expected, we uncovered opportunities for design improvements that should increase the overall effectiveness of this product. This machine is now in the second phase of its prototype stage, which we plan to complete on schedule in fiscal 2005. We also expect that based on the successful operation of the prototype machine, TVA will release to production the orders they have placed with us for five commercial SuperVAR machines by the spring of 2005.

### **Wired for Growth**

Our AMSC Wires business unit manufactured and shipped a record 155,000 meters of HTS wire in fiscal 2004 – the first full year of operation of our new wire plant. This business unit is regularly producing 1,000- to 1,200-meter individual lengths of first generation (1G) HTS wire that conduct more than 140 times the electrical current of copper wire of the same dimensions – manufacturing performance metrics that significantly exceed the performance of any of our competitors worldwide. In April 2004, we entered the new fiscal year with a record backlog of orders for over 550,000 meters of HTS wire that we expect to manufacture and ship to customers in fiscal 2005.

Our goal is to close additional orders during fiscal 2005 enabling us to manufacture and ship approximately 650,000 meters of wire this fiscal year – an increase by more than four times that of fiscal 2004 shipments and clearly a world record for the emerging HTS wire industry. We are confident, based on the accelerating rate of

production we achieved in the last quarter of fiscal 2004 and continued production efficiencies in early fiscal 2005, that we will be fully successful in achieving this next major step in the growth of AMSC Wires.

In fiscal 2004, we and Sumitomo Electric Industries, Ltd. signed the first patent cross-licensing agreement in the new HTS industry. In addition, we signed a letter of intent with Sumitomo Electric to jointly pursue HTS power cable opportunities in North America. The patent cross-licensing agreement covers 1G HTS wire, coil and current lead patents, and is a sign of the continuing maturation of the new HTS industry.

The formation in March 2004 of a new company in New Zealand, HTS-110 (of which AMSC is a minority owner), was further evidence of this process of market maturation. With a focus on manufacturing HTS electromagnets and components powered by AMSC wire, HTS-110 is one of the first companies formed to specifically capitalize on the emerging market for HTS wire.

**In fiscal 2004, AMSC and Sumitomo Electric Industries signed a patent cross-licensing agreement for 1G HTS wire and a letter of intent to jointly pursue HTS power cable opportunities in North America.**

Another manifestation of this continuing development of the HTS industry, and a further validation of AMSC's 1G HTS wire market strategy, was an announcement by Sumitomo Electric in May 2004 that it has now committed to volume production of 1G HTS wire. Sumitomo Electric remains our key competitor worldwide for HTS wire and we continue to believe we are in a very strong position to compete effectively with it in the HTS marketplace based on our lead in commercial production of 1G HTS wire, the higher, long-length electrical performance of our wire, and the installed base of AMSC's HTS wire in customer applications around the world. We welcome this new stage of growth of the HTS industry.

### **HTS Wire "Flying High" in Japan**

One of our most notable accomplishments in fiscal 2004 was the shipment of a significant quantity of 1G HTS wire to Central Japan Railway Company ("JR Central"), which successfully utilized our wire to power a prototype electromagnetic coil designed for use as the lifting component in JR Central's magnetically levitated ("maglev") train system. JR Central's current maglev train system, which today must rely on low temperature superconductor (LTS) electromagnets, recently set a world speed record of 360 miles per hour for the highest speed attained by a manned superconducting maglev train while "flying" about 4 inches above its guide way.

We have an order for a larger quantity of HTS wire that we plan to manufacture and ship to JR Central in fiscal 2005. The advantages of switching from LTS to HTS electromagnets include reduction of both capital and operating costs for the maglev train system. The JR Central superconductor maglev is being considered for Japan's Chuo Shinkansen, an alternate rail route connecting Tokyo to Osaka. Should this rail route utilize HTS electromagnets, the total potential HTS wire requirement for this full, commercial maglev train system is expected to exceed 100 million meters, thereby creating the potential to become one of the largest markets for HTS wire.

**'The total potential HTS wire requirement for this full, commercial maglev train system is expected to exceed 100 million meters ...'**

### **Second Generation HTS Wire on a Roll**

We further established our world leadership position in the development of second generation (2G) HTS wire in fiscal 2004 with breakthrough achievements in electrical performance. The second generation wire we produced by our proprietary, scalable, reel-to-reel manufacturing processes has already exceeded 80% of the threshold electrical performance required for commercial application of 2G wire – as promulgated by the U.S. Department of Energy – thereby significantly widening the gap relative to all other industrial 2G wire competitors worldwide. We also continued to invest in significantly strengthening our patent portfolio in 2G technology in order to increase the barriers to entry into what we believe will be a rapidly growing and highly profitable market for our future 2G products.

Development progress on 2G wire in fiscal 2004 included independent test results from Oak Ridge National Laboratory that, in July 2003, confirmed that a power cable conductor fabricated using our 2G wire achieved a commercial level of electric current by exceeding an AC level of 2,000 Amperes.

**AMSC exceeded 80% of the threshold electrical performance level required for commercial application of 2G wire ... thereby significantly widening the gap relative to all other industrial 2G wire competitors worldwide.**

During fiscal 2005, we intend to invest nearly \$2 million in capital equipment for the conversion of our research and development equipment for 2G wire into a pre-pilot production line operation. Once this pre-pilot operation is running successfully, which we expect to occur by the end of fiscal 2005, it will be a significant step beyond the research and development line we have been using to produce 2G wire.

We expect our 2G pre-pilot operation to have the capability to produce thousands of meters of 2G HTS wire by the end of fiscal 2005. The wire produced will be used to meet demand for 2G wire from our existing HTS wire customer base and to explore new applications, such as magnetic resonance imaging (MRI), that are not possible based on the physics of 1G HTS wire, but are possible based on the attributes of 2G HTS wire.

We plan to utilize the results and learning achieved from the pre-pilot line to finalize the specifications for the production equipment that will create the full pilot manufacturing line, which we plan to have in operation in calendar 2007. The full pilot manufacturing operation is expected to have a capacity of hundreds of thousands of meters of 2G wire per year. We believe this operation will be the primary commercial volume manufacturing operation for 2G wire worldwide at that time. We plan to start making significant investments – which will be on the order of \$15-\$20 million – in the full 2G pilot manufacturing line in calendar 2005.

#### **Ship Propulsion Motors: Full Speed Ahead**

Our SuperMachines business unit is responsible for the development and manufacture of large, superconductor rotating machines, which include motors and generators for ship propulsion, and dynamic synchronous condensers for grid reliability. I am very pleased to tell you that the SuperMachines business was profitable and generated cash in fiscal 2004. We plan to operate this business unit in a self-sustaining mode as it completes its final stages of product development and commercialization.

In fiscal 2004, the SuperMachines business delivered its first 5-MW HTS ship propulsion motor to the Navy. It also successfully completed the first year of development of a 36.5-MW ship propulsion motor under a \$70 million Navy contract. These contracts are not only yielding the first HTS ship propulsion motors needed by the U.S. Navy, they are providing the development funding for the same technology and manufacturing capability needed for commercial electric ship propulsion.

The 5-MW motor, which successfully completed factory testing at Alstom Power Conversion in July 2003, completed additional, preliminary testing at the Center for Advanced Power Systems (CAPS) in Florida in early calendar 2004 under the Navy's supervision. It is expected to undergo simulation testing under varying load conditions at CAPS this year. Based on the performance of this motor so far, we expect that it will pass these additional tests and further strengthen the position of HTS marine propulsion motors as the solution of choice for both military and commercial electric propulsion.

Progress under our contract with the U.S. Navy to design, build and test a prototype 36.5-MW HTS motor has been going very well; this project is on schedule and on budget and, with initial design reviews now completed, the Navy is very pleased with the progress of this program. We believe that the likelihood of adoption by the U.S. Navy of this type of motor over competitive technologies such as copper-based and permanent magnet motors has continued to increase with each success we have achieved on this program.

**The U.S. Navy is very pleased with our progress in the development of a 36.5-MW HTS ship propulsion motor – and we expect to deliver this motor on schedule to the Navy in calendar 2006.**

One of SuperMachines' stretch goals for fiscal 2004 was to get an order for a 5-MW-class ship propulsion motor by March 31, 2004. This goal was not achieved on time; however, prospects remain good that we will obtain the first such order in fiscal year 2005 because the effort we expended to meet this goal by March 2004 has created significant sales opportunities. Our prospect list for ship propulsion motor sales remains ship owners and operators, ship builders and ship propulsion system integrators. These companies are located in the U.S., Europe and the Asia/Pacific region.

### **Organized for Success**

Fiscal 2004 brought significant changes in the leadership of the company in order to further deepen our product and production management skills. In May 2003, Kevin Bisson joined the company as Senior Vice President and Chief Financial Officer. Kevin, with 20 years experience and a strong background in manufacturing and financial operations, brings a balanced operations focus to the financial management of AMSC.

In February 2004, David Paratore was named President and Chief Operating Officer. Having previously managed each of AMSC's three business units, and with 10 years experience in operations and general management, David is leading the continuing focus on product deployment and operational excellence.

Fiscal 2004 was a great year for AMSC on many fronts. We effectively doubled revenue year-over-year, continued to develop our technologies and products, and substantially strengthened our balance sheet through a successful equity offering. Very importantly, we built a foundation on which we can continue to grow our business at a rapid rate. I believe we are well positioned in all respects to continue to strengthen our leadership role as an *electricity solutions* company based on advanced power technologies.

Thank you for your continued support,

A handwritten signature in black ink, appearing to read "G. Yurek". The signature is fluid and cursive, with a long horizontal stroke extending to the left.

Gregory J. Yurek  
Chairman and CEO



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**SECURITIES AND EXCHANGE COMMISSION**  
WASHINGTON, D.C. 20549

**FORM 10-K**  
**FOR ANNUAL AND TRANSITION REPORTS**  
**PURSUANT TO SECTIONS 13 OR 15(d) OF THE**  
**SECURITIES EXCHANGE ACT OF 1934**

**ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended March 31, 2004

OR

**TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the Transition Period from \_\_\_\_\_ to \_\_\_\_\_

Commission file number 0-19672

**American Superconductor Corporation**

(Exact Name of Registrant as Specified in Its Charter)

**Delaware**  
(State or Other Jurisdiction  
of Incorporation or Organization)

**04-2959321**  
(IRS Employer  
Identification Number)

**Two Technology Drive**  
**Westborough, Massachusetts**  
(Address of Principal Executive Offices)

**01581**  
(Zip Code)

**Registrant's telephone number, including area code: (508) 836-4200**

**Securities registered pursuant to Section 12(b) of the Act: None**

**Securities registered pursuant to Section 12(g) of the Act: Common Stock, \$.01 par value**

Indicate by check mark whether the Registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes  No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of Registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the Registrant is an accelerated filer (as defined in Exchange Act Rule 12b-2). Yes  No

On September 30, 2003, the aggregate market value of voting and non-voting Common Stock held by nonaffiliates of the Registrant was \$190,232,983 based on the closing price of the Common Stock on the NASDAQ National Market on September 30, 2003.

The number of shares of Common Stock outstanding as of June 9, 2004 was 27,724,349.

**DOCUMENTS INCORPORATED BY REFERENCE**

**Document**

**Form 10-K Part**

Definitive Proxy Statement with respect to the Annual Meeting of Stockholders for the fiscal year ended March 31, 2004, to be filed with the Securities and Exchange Commission no later than June 28, 2004.

Part III

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This Annual Report on Form 10-K contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934, as amended. For this purpose, any statements contained herein that relate to future events or conditions, including without limitation, the statements under “Item 1. Business” and “Item 7. Management’s Discussion and Analysis of Financial Condition and Results of Operations” and located elsewhere herein regarding industry prospects and the Company’s prospective results of operations or financial position, may be deemed to be forward-looking statements. Without limiting the foregoing, the words “believes,” “anticipates,” “plans,” “expects,” and similar expressions are intended to identify forward-looking statements. Such forward-looking statements represent management’s current expectations and are inherently uncertain. The important factors discussed below under the caption “Management’s Discussion and Analysis of Financial Conditions and Results of Operations — Future Operating Results,” among others, could cause actual results to differ materially from those indicated by forward-looking statements made herein and presented elsewhere by management from time to time. Any such forward-looking statements represent management’s estimates as of the date of this Annual Report on Form 10-K. While the Company may elect to update such forward-looking statements at some point in the future, it disclaims any obligation to do so, even if subsequent events cause its views to change. These forward-looking statements should not be relied upon as representing the Company’s views as of any date subsequent to the date of this Annual Report on Form 10-K.



## **Item 1. Business**

### **Overview**

We are a leading electricity solutions company. We develop solutions and manufacture products to dramatically improve the cost, efficiency and reliability of systems that generate, deliver and use electric power. Our products include high temperature superconductor (HTS) wire for electric power, transportation, medical and industrial processing applications; motors and generators based on our HTS wire for ship propulsion and industrial uses, as well as synchronous condensers for transmission and distribution grid reliability; and advanced power electronic and HTS systems that ensure the quality and reliability of electricity for residential, commercial and industrial end users.

Our HTS wire carries direct current (DC) without any loss of electrical power, resulting in high electrical efficiency. Our HTS wire also conducts more than 140 times the electrical current of copper wire of the same dimensions, which dramatically reduces the size and weight of electrical equipment made with our HTS wire and significantly increases the power throughput of power cables. Our current and planned products are sold or planned to be sold to electric utilities and transmission and distribution grid operators, electrical equipment manufacturers, industrial power users and shipbuilders that utilize electric motors for ship propulsion systems. Our technology and products are backed by an intellectual property portfolio that as of March 31, 2004 includes more than 380 patents and patent applications owned by us worldwide and more than 420 patents and patent applications licensed from others worldwide.

Our products, and those sold by others who incorporate our products, can:

- increase the reliability and power transfer capacity of electricity transmission and distribution power grids;
- improve the quality of electric power delivered to manufacturing plants;
- reduce the manufacturing and operating costs of primary electrical equipment, including motors and generators;
- reduce the size and weight of power cables, motors, generators, and other electric power equipment; and
- conserve energy resources used to produce electricity, such as oil, gas and coal, by more efficiently conducting and converting electricity into useful forms.

We believe there will be significant market demand for our products because of the following factors:

- demand for electric power continues to grow on a global basis;
- the power grids in the U.S. and in many developed nations face severe constraints in adequately and safely delivering the amounts of power demanded by electric power users;
- power reliability and power quality are increasingly important as economies transition to computerized and digitized systems;
- U.S. domestic policy is now addressing the need to upgrade the transmission and distribution power grid as part of an effective long-term national energy policy; and
- environmental threats from global industrialization and population growth continue to influence nations to encourage environmentally friendly power technologies.

We conduct our operations through three business units:

- AMSC Wires, a developer and manufacturer of HTS wire;

- SuperMachines, a designer and manufacturer of rotating machines based on our HTS wire, including electric motors, generators and synchronous condensers; and
- Power Electronic Systems, a designer and manufacturer of power electronic converters and integrated power electronic systems that increase power grid reliability and throughput and ensure high quality power for industrial manufacturing operations.

## **Superconductor Technology**

A superconductor is a perfect conductor of electricity. It carries DC with 100 percent efficiency because no energy is dissipated by resistive heating. DC in a superconducting loop can flow undiminished forever. Superconductors can also conduct alternating current (AC) but with some slight loss of energy.

Superconductor materials lose all resistance to the flow of DC and nearly all resistance to the flow of AC when they are cooled below a critical temperature. The critical temperature is different for each superconductor material. Superconductor materials, including both HTS materials and low temperature superconductor (LTS) materials, need to be cooled to very low temperatures to act as superconductors. Wires made with HTS material typically operate at temperatures that are five to 20 times higher than the operating temperatures of LTS materials. The process of cooling LTS materials to their critical temperature is expensive and often difficult, which limits the commercial applications of LTS technology. Conversely, the lower cost of cooling HTS materials broadens the range of potential commercial superconductor applications.

A combination of three conditions must be met for a material to exhibit superconductor behavior:

- The material must be cooled below its critical temperature ( $T_c$ );
- The current passing through a cross-section of the material must be below a level known as the critical current density ( $J_c$ ); and
- The magnetic field to which the material is exposed must be below a value known as the critical magnetic field ( $H_c$ ).

Superconductor materials were initially discovered in 1911. Before 1986, no known superconductor had a critical temperature above 23 Kelvin. Zero Kelvin is the absolute zero of temperature and is the equivalent of minus 459 degrees Fahrenheit; 23 Kelvin is the equivalent of minus 418 degrees Fahrenheit.

In 1986, a breakthrough in superconductivity occurred when two scientists, Dr. K. Alex Muller and Dr. J. Georg Bednorz, at an IBM laboratory in Zurich, Switzerland, identified a ceramic oxide compound, an HTS material, which was shown to be superconductive at 36 degrees Kelvin (minus 395 degrees Fahrenheit). This discovery earned them the Nobel Prize for Physics in 1987, which is one of five Nobel Prizes awarded to date for work on superconductivity. A series of related ceramic oxide compounds that have higher critical temperatures have been subsequently discovered. This family of ceramic superconductors has come to be known as HTS materials. Some of these materials are being actively used throughout the world and by us for practical wire applications. A variety of organic materials have also been discovered, in a class called “fullerenes,” with critical temperatures ranging between those for high temperature ceramic oxide superconductors and low temperature metallic superconductors. Because of the expense and complexity of synthesizing the fullerenes and also their limited performance in a magnetic field, these have generally not been actively considered for wire applications.

In early 2001, it was discovered that a well-known and widely available material, magnesium diboride ( $MgB_2$ ), has a superconductor transition temperature at 40 Kelvin (minus 387 degrees Fahrenheit). The properties of  $MgB_2$  are consistent with those of LTS materials. Because of its potential low cost and ease of synthesis, work has been initiated around the world to investigate the use of  $MgB_2$  in wire applications. We initiated a program to investigate the commercial viability of  $MgB_2$  and concluded that it would be very difficult for  $MgB_2$  wire to compete against wires based on HTS materials. We have stopped development activities on  $MgB_2$  but continue to monitor new developments and are poised to reestablish our program if the need arises.

## **Power Electronics Technology**

Advances in power electronics technology are enabling new, more reliable and efficient use of electric devices and are providing a critical component fundamental to new integrated power solutions that improve the reliability and quality of power delivered to users. Today, our growing digital-based economy demands better power reliability and quality for higher performance through faster power conversion devices and active grid management. Power conversion and active grid management are enabled by power electronic devices, which convert generated or transmitted electric power to the appropriate form for a particular electrical application. Common examples of power electronic conversion include: AC-DC converters used at the interface between AC power sources and a number of applications that use only DC power; DC-DC converters used to change the DC voltage of a source; and DC-AC converters, usually called inverters, used to convert DC power to AC power. DC is typically produced by batteries and fuel cells, while AC is typically produced by electric generators and used in homes and businesses.

Power electronic converters incorporate power semiconductor devices that switch, control and move large amounts of power faster and with far less disruption than the electromechanical switches that have historically been used. These power converters can be used in a variety of applications from motor drives, power supplies, voltage regulators, and wind turbines to fuel cells, microturbines and photovoltaics.

Ongoing advances in power electronics technology have spawned new, more reliable and efficient power semiconductor switching devices. We employ devices such as insulated gate bipolar transistors (IGBT) operating in the 300 to 6,000 volt range and at switching frequencies up to 24,000 hertz. We incorporate these into our proprietary, state-of-the-art power electronic converters, which together enable lower cost and more effective, integrated solutions for power reliability and quality. Rather than using discrete packaging, we integrate the IGBTs onto printed circuit boards made of isolative and conductive materials, which increases reliability and reduces manufacturing cost. These circuit boards form a critical building block in our more powerful and smaller power electronic converters. Other key attributes of our power converters are their inherent programmability, flexibility and scalability. Embedded controllers allow end users to customize power converters to meet precise application requirements and optimize the performance characteristics of the device.

## **Market Overview**

### *Power Demand and Transmission Capacity*

The Electric Power Research Institute (EPRI) has estimated that electricity as a percentage of total energy use in the U.S. was 25 percent in 1970, has recently reached 40 percent, and will increase to 50 percent by 2020. This large projected increase is being driven in part by growth in the use of computers, the Internet, telecommunications, and other consumer-based electronic products. Projected growth rates for electric power consumption by these newer technologies are far higher than for traditional uses of power, which have historically grown in proportion to the gross domestic product of the U.S. We believe this growth in power consumption, and the corresponding demand for more reliable and higher quality power to support digital applications, will create demand for many of our products.

We believe another key factor affecting the market for our products and technologies is the expected need to upgrade the U.S. transmission infrastructure. In May 2002, the U.S. Department of Energy (DOE) issued a National Transmission Grid Study (NTGS), which highlights the important role the power grid plays in our economy, specifically outlines the major bottlenecks in the nation's transmission system and makes recommendations for eliminating them. The report makes clear that if investment in the power grid does not begin now, the power grid will become considerably more congested, resulting in lower reliability and higher prices for electricity. We believe that the recommendations outlined in the NTGS report will be favorable to our efforts to commercialize our products and technologies. The report specifically calls for adopting new technologies including superconductors and power electronics to help alleviate transmission grid congestion and create more secure power networks.

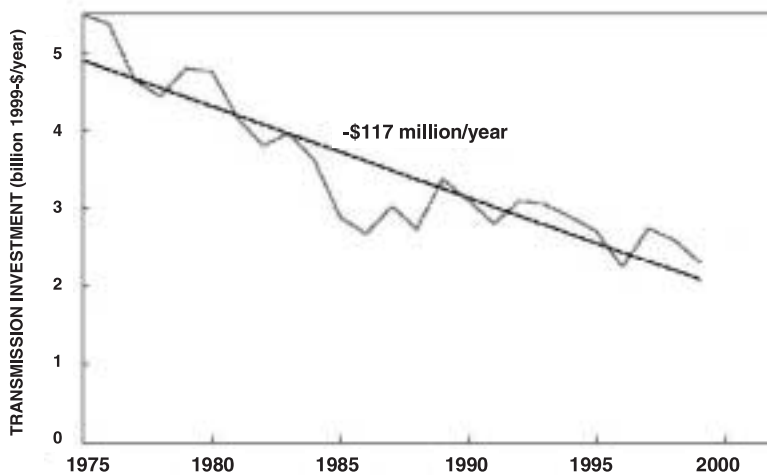
In March 2003, the DOE, in collaboration with the Tennessee Valley Authority (TVA) and the Oak Ridge National Laboratory (ORNL) established the National Transmission Technology Research Center (NTTRC) in Oak Ridge, TN to provide a testing ground for new technologies and products that are designed to meet the needs identified in the NTGS, including those based on HTS materials and power electronics. The DOE, also in March 2003, established a new Office of Electric Transmission and Distribution (OETD), which is tasked with carrying out the recommendations of the NTGS. In April 2003, this office sponsored a National Electric System Vision Meeting in which approximately 60 industry, government and university leaders, including our representatives, gathered to further define the vision for the electric system in the U.S.

In July 2003, based on the input of the vision meeting, the OETD issued a report entitled Grid 2030—A National Vision for Electricity’s Second 100 Years that reflects the DOE’s expectation that HTS and power electronics technologies will play a significant role in upgrading the North American power grid. Also in July 2003, the OETD convened approximately 200 experts to create a technology roadmap to achieve the vision delineated in the Grid 2030 report. The roadmap, entitled “National Electric Delivery Technologies Roadmap”, was published by the DOE in January 2004. This report specifically calls for the rapid development and deployment of HTS and power electronic technologies in order to create more secure power networks in the U.S.

All of these recent actions by the U.S. government indicate the serious nature of the problems affecting the U.S. power grid, the need for significant new investment in the power grid, and the need for HTS technology and advanced power electronics as part of the solution. We believe that we are well positioned to participate in the anticipated increase in investment in the U.S. power grid.

The chart below illustrates the decline in investment in the U.S. power grid over the last several decades. This trend is the result of uncertainties with respect to the ownership and the return on investment in power grid assets caused by uncertainties in potential changes in power grid regulations and policies. We believe this decrease in investment in the power grid in the U.S., coupled with the increasing demand for more electric power, has contributed to pent-up demand for power grid solutions.

### U.S. Transmission and Distribution Investments



Source: *Transmission Planning for Restructuring the U.S. Electricity Industry*, Edison Electric Institute, June 2001.

We expect that pent-up demand for power grid solutions will be favorable to sales of our current and planned products. In addition, we expect demand for our products and technologies to increase with changes now taking place in certain regulations and policies related to power grid operation and expansion of the power grid.



On August 14, 2003, the largest power outage, or blackout, in U.S. history occurred. It affected approximately 50 million people across the northeastern U.S. and Canada according to the OETD and is estimated to have cost \$4.5-\$12 billion in lost economic activity. Industry experts had predicted that such blackouts would occur as a result of the increasing demand for electricity and the decreasing rate of investment in the power grid over the last 30 years. We believe that this blackout has created an intense public focus on solving power grid problems. We also believe that we are well positioned to address this business growth opportunity.

Since the blackout, U.S. and industry authorities have focused on a range of measures to improve grid reliability. Congress has been unable to come to an agreement on legislative changes to enforce mandatory reliability standards that are backed by fines for non-complying market participants. The Federal Energy Regulatory Commission (FERC) began, within its existing authority, to enact regulatory requirements aimed at improving reliability. The North American Electric Reliability Council (NERC) also issued new guidelines for the industry that require enhanced measures to assure reliability and voltage stability. Although new reliability requirements are fluid and a matter of on-going debate, we believe that these measures will lead to expanded opportunities for our products.

### ***Power Reliability and Power Quality***

The reliability of the power transmission network and the quality of power delivered to customers are becoming increasingly important in today's economy.

Power grid congestion caused by growing electrical demands on capacity-constrained power lines and cables, in addition to voltage instability and low voltage in the power grid, are causing significant reliability problems for the nation's growing digital-based economy.

Downtime due to power-related problems is becoming an increasing concern to many industries as the equipment used to manufacture products utilizes more and more power-sensitive digital components. Protection against power quality problems, such as voltage sags lasting two seconds or less, can provide significant economic value to large industrial users of power. Such momentary sags cause more than 90 percent of all plant shutdowns, which can last from hours to days and be very costly. In the Grid 2030 report, OETD cites industry sources indicating that power outages and power quality disturbances in the U.S. result in economic losses from \$25-\$180 billion annually. The report also states that these losses could significantly increase if future outages or disturbances increase in frequency or duration.

*Power Reliability.* "Power reliability" refers to the ability to deliver power where and when it is needed. Operators of transmission and distribution grids quantify reliability as the fraction of time the power grid is up and running, after subtracting time needed for planned maintenance. Power grid operators are increasingly confronting reliability issues arising from the capacity limitations of transmission and distribution lines (overhead) and cables (underground). Because lines and cables are made with either copper or aluminum wires, they heat up due to the electrical resistance of these metals. Pushing too much power through a line or cable will heat it up to its "thermal limit." At that point, more power flow through the line or cable will cause it to fail. Thus, as demand for power increases in the digital age, it is necessary to upgrade existing transmission and distribution corridors with more or higher capacity lines or cables.

Today, most transmission and distribution lines and cables are run at only 40 to 60 percent of their thermal limits. This is because individual lines and cables reach their "voltage stability limit" well below their thermal limit. Driving more power through a power grid when some of its lines and cables are operating above their voltage stability limit at peak demand times causes either low voltage in the power grid (a "brownout") or risk of a sudden, uncontrollable voltage collapse (a "blackout"). The solution to power reliability problems lies in mitigating dynamic voltage stability problems and in augmenting transmission and distribution grid capacity.

The traditional way to increase power grid capacity and voltage stability is to install more overhead power lines. This allows for redundancy of power flow pathways and allows power grid operators to safely run systems

closer to the thermal limits of the weakest links in the power grid. However, as a result of declining investment in the power grids in the U.S. during the last several decades, as well as rising public resistance to new overhead lines due to environmental, aesthetic and health concerns, which can result in permitting processes of five to 10 years or more, few new power lines are being built.

At the local distribution level, the theoretical solution to increasing electricity delivery capacity is to increase the number of copper or aluminum distribution lines and underground cables. However, this approach is not generally practical in large metropolitan areas for two important reasons: (i) many existing underground conduits carrying power distribution cables are already filled to their physical capacity and cannot accommodate any additional cables; and (ii) adding new conduits requires securing new or expanded rights of way and digging up streets to lay new conduit pipe, tasks that are costly and impose significant disruptions.

We offer commercial solutions to these challenges today and are developing innovative solutions for the future. We sell integrated power electronic systems commercially and currently have 22 integrated power electronic systems at eleven customer locations in the U.S. and Canada that provide voltage stabilization in transmission and distribution power grids. These transmission reliability systems enable power grids to operate closer to their thermal limits, which in many cases means the existing power grid can carry more power. Our HTS wire is expected to enable a new class of high capacity, environmentally benign and easy to install transmission and distribution cables that address power grid capacity issues by increasing the thermal limit of existing or new rights of way. We expect that our HTS wire will be utilized in a number of new HTS power cable demonstrations over the next several years. Our HTS dynamic synchronous condensers—AC rotating machines that generate or absorb reactive power to support and stabilize power grid voltage—are designed to increase power flow through existing transmission lines. Our first prototype machine is under development. It is expected to be evaluated during fiscal 2005 in a transmission grid operated by TVA, one of the largest public utilities in the U.S.

*Power Quality.* Distinct from the issue of power reliability is the problem of power quality. Power quality anomalies (most commonly voltage “sags,” which are momentary drops in the voltage in power grids) are an expected part of normal power grid operations, such as reclosure operations used to clear electrical faults in power grids.

The electrical faults may be caused by a variety of factors, including lightning strikes, animals or tree limbs in contact with power lines and even what the industry refers to as “car / pole interactions.” To a residential customer, a momentary power sag may be manifest as nothing more than a briefly flickering kitchen light. To a continuous process manufacturer, that same power quality problem may cause a costly interruption in microprocessor-controlled manufacturing lines. Because momentary sags are part of the normal operation of the power grid, they must be solved at the customer’s site, which we achieve with our power electronics-based industrial power quality solutions.

We believe we are well positioned to participate in the expected increases in investment in power grid reliability solutions and in industrial power quality solutions over the next decade and beyond. We anticipate that our participation in this growing opportunity will be through sales of our existing power electronics-based solutions and in the future, through sales of our HTS dynamic synchronous condensers and our HTS wires for high-capacity power cables. Future applications could also include fault current limiters and transformers.

### ***Power Electronic Converters***

Driven in part by the trend toward a global digital economy, the complexity of switching power into useful forms is increasing. This, in conjunction with increasingly economical and efficient power converters, is driving the market for power conversion applications. Industry experts estimate that more than 20 percent of all power generated in the U.S. passes through power electronic converters at power levels exceeding 60 kilowatts (kW) and that this amount will increase with the introduction of new applications, including distributed and dispersed generation of power.

Electrical devices are becoming more “intelligent” as microprocessors and embedded controllers add new functionality to power converters. Key trends in power electronic converters designed for use in power infrastructure applications include greater modularity and standardization, programmability, and the demand for smaller units with higher power density, which is the amount of power handled per unit volume of the converter device. We are focusing our power converter product development activities on power levels of 60 to 1,000 kW because we believe this is the market segment in which our power conversion technology offers the greatest value to customers.

Based on our market analyses, we believe that the addressable market for our power converter product line, at power levels greater than 60 kW, is over \$700 million per year. The addressable markets include motor drives, uninterruptible power supplies and other power quality systems, wind turbines, electric vehicles, power grid reliability solutions and distributed and dispersed generation devices, such as fuel cells and diesel generators.

***Rotating Machines: HTS Motors, Generators and Synchronous Condensers***

We have developed large-scale, HTS rotating AC synchronous machines that have, to date, been demonstrated as motors. This same AC synchronous rotating machine platform can be used as a generator or as a dynamic synchronous condenser, which we are developing. We plan to develop and commercialize HTS motors, generators and synchronous condensers.

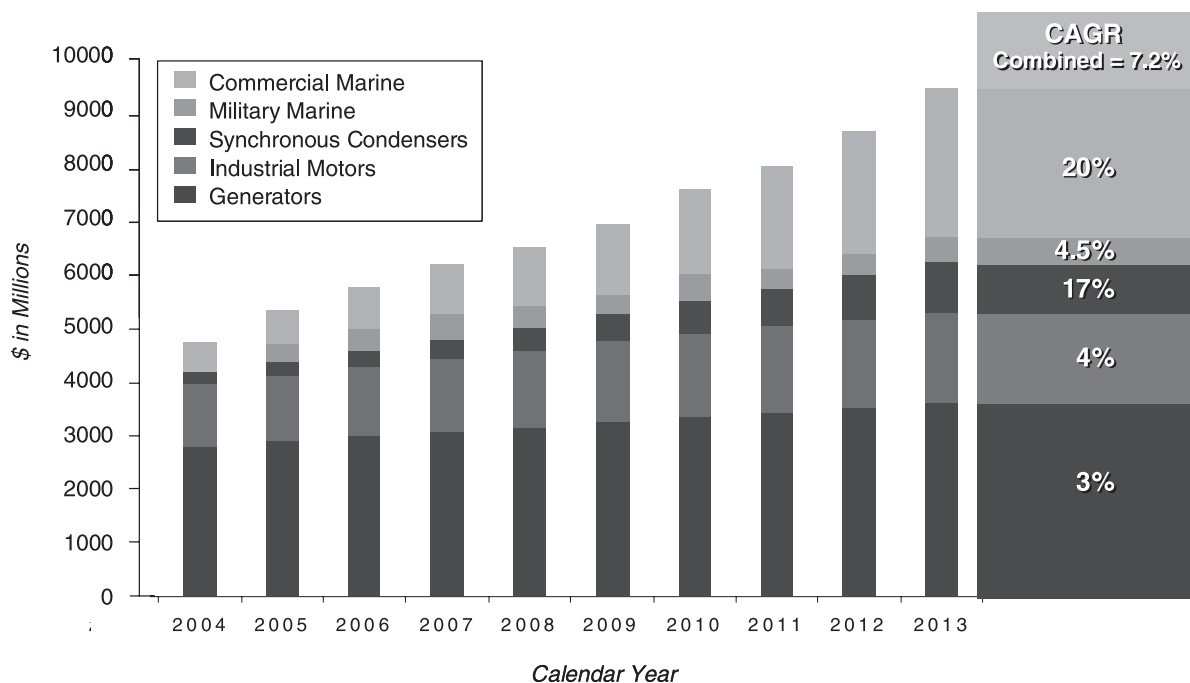
The market for large electric motors and generators is well developed, with strong competitors and intense price pressure. We estimate that the annual worldwide market for industrial motors, which we define as machines with ratings of 1,000 horsepower (hp) or higher, is approximately \$1 billion, and is expanding at a compound annual growth rate (CAGR) of 2 to 4 percent. We estimate that the annual worldwide market for utility-scale electrical generators, which we define as generators with power ratings over 100 mega-volt-amperes (MVA), is approximately \$1.6 billion per year, and the market for industrial generators (typically 20 to 100 MVA) is approximately \$0.4 billion. We estimate that the worldwide market for utility and industrial generators is growing at a CAGR of approximately 2 to 4 percent.

During the last 15 years, the commercial cruise ship industry has made a transition to electric propulsion systems in which electric motors are used to directly drive the ship’s propeller. An electric generator powered by a gas turbine, or other prime mover, provides the electricity to run the motor. The first ship type to convert to a modern electric propulsion system was the cruise ship, with the conversion from steam to electric propulsion of the Queen Elizabeth 2 in 1987. Today, virtually all commercial cruise ships are being built with electric propulsion systems. Similarly, many other types of commercial vessels, including product tankers, Ro-Ro (Roll-on Roll-off) and Ro-Pax (Roll-on Roll-off Passenger), liquefied natural gas carriers, cable layers, research ships and supply craft have been redesigned to incorporate the benefits electric propulsion systems provide over the older mechanical propulsion. The benefits HTS motors and generators provide to the marine propulsion market translate into reduced fuel costs, better ship handling capabilities, increased cargo and passenger cabin space and improved naval ship operational performance.

Naval ships around the world are converting to electric propulsion as well. In January 2000, the U.S. Navy declared it would transition to electric propulsion systems and in 2002 awarded a contract for the design of an advanced, electrically-propelled new generation of destroyer, the DD(X).

We estimate that the market for electric motors and generators for ship propulsion systems in 2004 was approximately \$450 million. Industry experts forecast that this market will grow at a CAGR of up to 20 percent over the next 10 years due to the accelerating transition to electric drives, which is already well underway today. The following chart shows anticipated growth rates in addressable markets for HTS rotating machines.

## World Addressable Markets: HTS Rotating Machines



Sources: MSCL; Arthur D. Little, McCoy, TVA, ANB - 2002

HTS rotating machines, when operated as dynamic synchronous condensers in power grid substations, are capable of generating or absorbing reactive power, which is measured in VARs (volt-amp reactive). In addition to continuous VAR support, an HTS dynamic synchronous condenser, or SuperVAR™ machine, can help stabilize power grids by providing a fast, reliable, low-cost response to transient and disruptive events. This is accomplished through the HTS machine's unique ability to provide multiples of its rated capacity (overload) in response to transient events. SuperVAR™ machines also produce VARs on a continuous basis to 100 percent of their full rating (both leading and lagging) to increase grid transmission capacity.

Based on our own market analyses and those of TVA, we expect the need for VARs in support of both steady-state and transient power grid operation to continue to rise as the demand for power increases. It is currently estimated that approximately 10,000 mega-VAR (MVAR) of additional support are needed today in the U.S. market, which translates into an annual addressable market of approximately \$200-\$250 million, which we believe will grow at a rate of 4 percent per year. The international market is expected to grow at more than double this rate. We believe HTS dynamic synchronous condensers along with our power electronics solutions such as Dynamic VAR (D-VAR®) can supply a major fraction of this demand.

Large electric rotating machine production is labor intensive, requires a large fixed asset investment, and does not lend itself to mass production techniques. As a result, many manufacturers of large motors and generators are seeking opportunities to reduce manufacturing and investment costs to improve profitability. We believe size and weight reductions in large electric motors, generators, and SuperVAR machines resulting from the use of HTS technology will enable significant reductions in manufacturing costs. During the last two years, we have shifted our focus in the development of electric rotating machines to ship propulsion and dynamic synchronous condenser applications. We believe we are well positioned to be a leader in these rapidly growing markets.

## **Our Businesses**

We are organized into three business units: AMSC Wires, SuperMachines and Power Electronic Systems.

Each business unit is run separately by a vice president and general manager, who reports to our president and chief operating officer. Although these business units are run independently, we leverage common customer and technology opportunities across all of the business units. Each of our business units is engaged in the manufacture and sale of commercial or prototype products and in the development of technology and new products. Our Power Electronic Systems business unit has been selling commercial products since 1999. Our AMSC Wires business unit is selling commercial HTS wires that it produces at our full-scale commercial manufacturing plant we opened in December 2002. Our SuperMachines business unit is developing, assembling, and testing prototype motors and synchronous condensers.

A customer set common to all of these business units is power grid operators, and thus, much of our sales and marketing efforts are directed to this customer category. A significant part of our sales and marketing efforts is focused on the U.S.; however, we are currently marketing our products and technologies around the world. Our channels to market include direct sales and distributors such as Kiswire Ltd., Suzuki Shokan Co., Ltd. and GE Energy.

To facilitate our traditional sales and marketing efforts, we have created the Advanced Grid Solutions business development team, comprised of seasoned individuals who have worked in all aspects of power generation, transmission, government regulation and policies, cryogenic systems and cable technology. Also participating in the business development team are four transmission planners with over 70 years of transmission planning experience and a broad depth of knowledge of the design and structure of transmission and distribution grids. These transmission planning experts use sophisticated software programs to perform power flow and stability analyses on power grids to help determine the best solutions to increase reliability and capacity. The Advanced Grid Solutions business development team is currently working with electric utilities, wind farm operators and industrial users of power to create solutions that utilize our current or planned products.

### ***AMSC Wires Business***

The AMSC Wires business unit is responsible for the design, development and manufacture of HTS wires. It sells wire to original equipment manufacturers (OEMs) that incorporate HTS wire into value-added products.

Our commercial wire product is a multi-filamentary composite HTS wire, typically called “first generation” or “1G” wire, which can carry more than 140 times the power of copper wires of the same dimensions. Currently, the AMSC Wires business unit is selling 1G HTS wire primarily to OEM manufacturers that incorporate the wire into prototype power cables, motors, generators and electromagnet applications for sale to the utility, transportation, ship building and industrial processing markets. Our SuperMachines business unit is an AMSC Wires customer. We also sell wire to customers that are in early stages of research and development. These customers use the wire in products such as power transformers, fault current limiters and electromagnet applications in the medical, materials processing and transportation industries, as well as other fields.

*AMSC Wire Production Techniques.* We produce our commercial 1G HTS wire with deformation processing, which is analogous to the techniques used in the existing metal wire industry. In this approach, a silver alloy tube is packed with an oxide precursor powder and sealed. The tube is then deformed into a wire shape by a variety of deformation processing techniques such as wire-drawing and rolling. Finally, the wire is heat-treated to transform the precursor powder inside the wire into a high temperature superconductor. The resulting composite structure consists of many fine superconductor filaments embedded in a silver matrix. The filaments of HTS material, which are typically one-sixth the thickness of a human hair, extend through the entire length of the wire. The composite structure is the subject of a patent owned by the Massachusetts Institute of Technology (MIT), based on an invention by Dr. Gregory Yurek, our Chairman of the Board, Chief Executive Officer, co-founder, and a former professor at MIT, and co-founder Dr. John Vander Sande, a professor at MIT, and a member of our Board of Directors. This patent is licensed to us on an exclusive basis until its expiration date in 2010.

We have received additional patents based on the 1G HTS wire structure and processes related thereto. As of March 31, 2004, we have approximately 131 patents and patents pending worldwide related to 1G HTS wire technology, and licenses to approximately 333 worldwide patents and patents pending owned by others for 1G HTS wire technology. We believe we have a very strong intellectual property position in the area of 1G HTS wire.

Over the past year we have made significant progress in expanding our 1G HTS wire manufacturing capacity to meet growing customer demand for HTS wire. In December 2002, we produced our first saleable wire in a new 355,000-square-foot HTS wire manufacturing facility located in Devens, MA. Operations, engineering and sales for the AMSC Wires business unit are located there as well. Current production capacity is 1,400 kilometers per year. The facility has been designed to expand the production capacity on a “just-in-time” basis as product demand increases.

We believe that the Devens manufacturing facility will provide us with a competitive advantage as the market for HTS wire continues to grow over the next several years. The facility, at full capacity, is capable of producing 20,000 kilometers (approximately 12,000 miles) of 1G HTS wire annually. We estimate that the additional cost to expand from our current capacity to 20,000 kilometers per year will be approximately \$30 million. However, we do not anticipate expanding to full capacity for 1G HTS wire because we now believe we will transition our HTS wire manufacturing operation in our Devens manufacturing facility over the next three to four years to an inherently lower cost wire manufacturing methodology, as discussed later in this section.

We have been successful in developing and producing HTS wire with performance levels sufficient to meet the technical needs for applications such as power cables, utility generators, shipboard motors, dynamic synchronous condensers and several electromagnet applications including superconductor-based, magnetically levitated (“maglev”) trains. While we believe our HTS wire will meet the commercial needs for these applications, there can be no assurance that we will achieve this goal or, if we do achieve it, that the market will adopt these new products.

In the past few years, we have made significant progress in improving the price-performance ratio of our HTS wire. We believe that our wire is the standard for the industry based on both the price and the performance of our HTS wire. The price-performance ratio is obtained by dividing the price-per-meter (\$/m) we charge customers by the amount of kilo Amperes (kA) this wire can carry.

The key factor in driving down the price-performance ratio of our 1G HTS wire in the next few years is our ability to leverage our HTS wire manufacturing plant and lower product costs through the economics of volume manufacturing, design improvements, factory automation and enhanced productivity. We anticipate that manufacturing process improvements in our Devens Manufacturing facility will also create improvements in the electrical performance of our HTS wire. While 1G HTS wire performance of our competitors has been increasing, we believe our wire performance continues to lead the industry.

Continuous improvements in the electrical performance of our 1G HTS wires is an important factor in reducing the price-performance ratio of our HTS wire and in meeting customer specifications for high electrical performance. We also continue to improve procedures in each of our 1G HTS wire manufacturing steps in order to increase our manufacturing yield.

The current selling price of 1G HTS wire varies according to customer specifications. For many customers, the price is typically \$20 per meter. The corresponding price-performance ratio is \$160/kAm using 125 Amperes (0.125 kA) as the typical performance of our commercial wire today.

We believe we can drive down the price-performance ratio of our 1G HTS wire to \$50/kAm through further manufacturing cost reductions and additional improvements in electrical performance. A price-performance ratio of \$50/kAm is more than sufficient to meet the commercial and technical requirements of ship propulsion motors and generators, utility generators, power cables in metropolitan-area applications and other superconductor electromagnet applications, including maglev trains.

Our current strategy for future wire cost reductions lies with the development of our coated conductor composite HTS wire, also called “second generation” or “2G” wire. Our 2G HTS wire has a different architecture from that of our 1G HTS wire. Our 2G HTS wire promises to duplicate or exceed the performance characteristics of our existing wire at a two to five times lower price-performance ratio. Importantly, this 2G HTS wire will be a form, fit, and function replacement for our 1G HTS wire, assuring that current and potential AMSC Wires customers can benefit from continued cost reductions without the need to re-tool their production equipment that is based on 1G HTS wire designs. We believe that we will ultimately provide our 2G HTS wire at a price-performance ratio superior to that of copper wire, which typically has a price-performance ratio of \$15/kAm to \$25/kAm.

Because of the time required to scale-up and establish 2G HTS wire manufacturing, we expect that our primary HTS wire product over the next three to four years will remain 1G multi-filamentary composite HTS wire. The creation of a 2G HTS pilot manufacturing line in our Devens manufacturing facility has begun and we plan to expand this line in a stepwise fashion over the next one to two years as results from the initial operation of this line are obtained and analyzed. We then plan to expand the pilot line into a full manufacturing operation at a rate of expansion dictated by customer demand. We estimate that the 2G HTS wire manufacturing capacity at the Devens manufacturing facility at about 65,000 km per year, based on our current 2G HTS wire manufacturing methodology, and assuming the entire facility is converted to 2G HTS wire manufacturing.

We have invested eight years and more than \$50 million in the development of a 2G HTS wire manufacturing methodology that we believe will allow us to achieve a price-performance ratio equal to or lower than that of copper. We believe we have accomplished a large portion of our 2G HTS wire development goals. Although some of the technical goals we have achieved have also been met by other companies, we believe that our manufacturing process has significant economic advantages.

In March 2004, we announced that our 2G HTS wire achieved industrial world record performance levels of greater than 250 Amperes per centimeter of width of the tape-shaped 2G wire at 77 Kelvin. This result is in addition to our July 2003 performance in which we exceeded performance expectations by over 50% in tests conducted by ORNL on a cable conductor made with our 2G HTS wire. The cable conductor, the central conductive element in power cables, was fabricated by Ultera, a joint venture between Southwire Company and nkt cables, in collaboration with ORNL. The ORNL tests results confirmed the 1.25 meter long device as the world’s first 2G HTS cable conductor to achieve a commercial performance level (i.e., an AC level greater than 2,000 Amperes).

*Key Markets for HTS Wires (Power Cables).* We believe that an important application for our HTS wire is high-capacity AC and DC power cables. Because of the high power capacity of HTS wire, HTS power cables have the potential to carry up to 10 times more power, depending on the design and operating characteristics of the cable, than copper-wire cables of the same dimensions. The performance levels and mechanical properties of our HTS wire are sufficient today to meet the technical requirements for cables that can alleviate congestion in power transmission systems.

There are several designs for HTS power cables that are being developed and tested by a number of cable manufacturers around the world. In all cases, the cryogenic coolant for the HTS wires in these cables is liquid nitrogen. Nitrogen, which comprises approximately 79 percent of the air we breathe, is an environmentally friendly, nonflammable material. When cooled by standard industrial refrigeration techniques, nitrogen gas turns into a relatively inexpensive liquid, which is used in many applications, from steel making to crushing of spices to cryogenic freezing of biological materials on farms.

HTS power cables must be thermally insulated from their surroundings to minimize the refrigeration expense associated with keeping the nitrogen in its liquid state, which, in turn, keeps the temperature of the HTS wire in the cable below its critical temperature. The cryogenic insulation, typically called a cryostat, is made in a variety of forms depending on the cable architecture. Cryostats of the type needed for HTS power cables have been manufactured for decades by companies such as Nexans and Vacuum Barrier Corporation. The kind of

cryogenic refrigeration equipment needed for HTS power cables is typically made by companies such as Air Liquide, Air Products and Chemicals, Praxair and others. Further developments to improve the costs of both cryogenic refrigeration and cryostats are necessary to catalyze broad market adoption of HTS cables.

HTS cables can provide a variety of advantages over conventional copper cables. Most important are the increased power density and very low impedance (VLI) characteristics of several HTS cable designs. These product features provide end user benefits in the following areas:

*Infrastructure Siting and Permitting.* Due largely to environmental and property value concerns, acquiring permits for overhead transmission lines has become an increasingly difficult process that can take over a decade to conclude without a guarantee of success. Conventional underground copper and aluminum transmission cables can be applied in some applications, but technical and environmental considerations limit widespread use. Co-axial HTS underground cables alleviate these concerns. With such HTS cables, fewer cables are needed to transmit the same amount of power, they have very low impedance, soil heating concerns are eliminated, and no stray electromagnetic fields (EMF) are produced.

*Relieving Network Congestion.* Co-axial HTS cables have VLI characteristics. Since electricity flows along the path of least impedance, these HTS cables can be used to change the flow dynamics of a transmission network. When properly placed into the transmission grid, HTS cables can be used to draw power flow away from overtaxed conventional cables or overhead lines and expand the overall system capacity with minimal new infrastructure or disruption.

*Controlling Power Flow.* VLI HTS cables have another significant benefit. Because they have very low impedance, AC power flow through them can be controlled with conventional series reactors or phase shifters. The free-flowing nature of the AC grid has emerged as an obstacle to efforts to restructure and deregulate the electric power industry, and experts now recognize that improved power flow control is necessary to enable these reforms to succeed. Historically, power flow has been controlled by converting AC power to DC power. This requires the use of inverters and rectifiers that are much more expensive than series reactors and phase shifters. Even if DC power is chosen, HTS cables may be the best choice. DC HTS circuits double the ampacity of similar sized AC HTS circuits and can provide up to 10 times the amperage of similar-sized conventional DC cables. In larger DC power applications the economics of HTS cables are superior to conventional DC circuits.

*Reduced Construction Costs.* For many years, urban retrofit projects have been recognized as an ideal application for HTS cables. In many urban areas the demand for power has outgrown the existing infrastructure. Solving this problem with conventional technology incurs the major disruption and large expense associated with digging up streets to install new conduit systems. Because HTS cables transmit significantly more power than conventional cables, in many cases it is possible to replace existing cables in existing conduits with HTS cables, and more than triple the available power without trenching or other disruptive and costly construction activities. Even when trenching is needed to install cables in new transmission corridors, the disruption and expense is much less since fewer HTS cables are needed and multiple HTS cables can be put in one trench without creating heating problems.

*Voltage Reduction.* The high amperage characteristics of HTS cables allow significant reductions in voltage without a reduction in total power transferred. This can result in significant savings in support infrastructure such as substations, terminations, splices, etc. In addition, the ability to transmit large amounts of power at lower voltages can often eliminate the need for locating substations in sensitive or expensive sites. Also, the permitting cycle for lower voltage additions to the transmission system have greater predictability, quicker approvals and a much greater chance of being approved.

*Lower Power Losses.* HTS wire transmits DC power with zero resistive losses. This feature makes DC HTS circuits nearly perfect conductors. On a net loss basis (including energy consumed for refrigeration) DC HTS circuits and most AC HTS circuits consume less energy than conventional circuits.



*More Secure Power Networks.* Security of power networks is becoming a growing concern, and power grid operators have a need for new technology solutions that will enable their networks to become self protecting. Self protecting networks adjust rapidly and automatically to disruptions in power network equipment caused by weather damage, willful destruction or other reasons. We believe that VLI superconductor cables, because of their capacity, controllability and impedance characteristics, can play a significant role in conjunction with other technologies in creating more secure power networks.

In order for electric utilities and power grid operators to adopt HTS cables, they must first see the successful testing and operation of HTS cables in high voltage test facilities and in actual power grid installations. The first phase of HTS cable demonstrations began in 1996 and ended in approximately the first half of 2003. The demonstration projects involved in the first phase were highly successful; only the Detroit Edison HTS cable project, which was run by Pirelli Energia e Sistemi (Pirelli), fell short of its goal when leaks developed in the cable's thermal insulation system (the cable cryostat). The list of projects in the first phase includes:

- Pirelli: 50m, 115kV, 2000 A, Pirelli test facility (1996-1999);
- Pirelli: 120m, 24 kV, 2400 A, Detroit substation (2000-2002);
- Sumitomo: 30m, 66 kV, 1000 A, TEPCO test facility (1996-1999);
- Sumitomo: 100m, 66 kV, 1000 A, TEPCO test facility (2000-2002);
- Southwire: 30m, 12.5 kV, 2600 A, Southwire manufacturing plant (1998-Present);
- nkt cables: 30m, 30 kV, 2000A, Copenhagen substation (1999-2003); and
- Condumex: 5m, 2000 A, Condumex test facility (2001-2002).

The second phase of HTS cable demonstrations includes eight to ten new cable projects that are expected to be underway between now and 2006. We anticipate these demonstrations will occur in the U.S., Europe, China, Korea, Japan and Mexico. In April 2003, we were selected by the DOE as prime contractor to install a 600 MW, 138 kilo-Volt (kV) HTS cable system in the power grid of LIPA (Long Island Power Authority). We selected Nexans as our subcontractor to manufacture the HTS cable, the cable cryostat and the cable terminations, and we selected Air Liquide to provide the cryogenic system design and the refrigeration equipment.

The DOE will provide project financing and technical review for the LIPA cable project. AMSC Wires will supply about 128 km of HTS wire to Nexans for this project. The cable system is being designed to become a permanent part of the LIPA power grid. This project is viewed by LIPA as the first phase of an HTS circuit that will provide power to much of Long Island. We view this project as a major step toward commercial HTS cable sales. We are currently discussing commercial power cable applications with several potential end users in the U.S. and abroad. There can be, however, no assurance that operators of transmission and distribution grids will adopt HTS power cables after these demonstrations are complete. To the extent that HTS cables are adopted for commercial applications, we believe our HTS wire will be competitive and that we will have a significant market for our HTS wires in power cable applications.

*Key Markets for HTS Wire (Utility Generator).* We believe another significant market for our HTS wire will be utility generators that produce 100 MVA or more of power. Benefits of using HTS wires in these generators include improved VAR control, longevity (HTS generator coils run "cold," so there are no thermal stresses), smaller size, weight and footprint, improved energy efficiency, and potentially lower costs. GE Energy, a business of the General Electric Company, is currently developing a 100 MVA HTS electrical generator using our wire. We have been selected by GE Energy as their primary wire supplier for utility generators. Over the last four years, we have supplied HTS wire to GE Energy for test purposes.

The first HTS rotor for a 100 MVA generator is being developed by GE Energy and is expected to undergo testing during 2005. We believe commercial HTS utility generators could be operational by 2006. According to estimates by GE Energy, the performance and projected costs of our 1G HTS wire are sufficient to meet the technical and economic objectives of commercial HTS generators.

The four primary manufacturers of utility generators are GE Energy, Alstom Power, Siemens-Westinghouse and Mitsubishi Electric Corporation. We are currently marketing our HTS wire to all of these generator manufacturers with the goal of becoming the primary wire supplier to each of them; however, we can make no assurances that these generator manufacturers will develop commercial HTS generators and, to the extent they are successful, that they will choose our HTS wire.

*Key Markets for HTS Wire (Rotating Machines).* Our SuperMachines business unit produces rotating HTS machines and is a customer for wire produced by the AMSC Wires business unit. AMSC Wires also sells its HTS wire to other manufacturers of rotating machines. The SuperMachines business is focused on electric motors and generators for marine propulsion and on synchronous condensers for power grid reliability. A review of this business unit's products and markets is provided later.

We believe the market for HTS wire for electric motors and industrial generators will be large and we believe we are in a position to capture a significant share of this market; however, we cannot provide assurance that a market for HTS electric motors, industrial generators and synchronous condensers will develop or, to the extent that it does, that our HTS wire will be purchased by the manufacturers of these machines.

*Other HTS Wire Applications.* Over the last several years we have sold our HTS wire to a number of OEMs and research and development organizations that are developing other applications for HTS wire. In March 2004 we successfully completed the construction of an HTS electromagnet for a commercial-scale industrial magnetic separator for Dupont. This was a follow-on order to the electromagnet we delivered three years ago to Dupont for a prototype magnetic separator. The new prototype electromagnet met all performance specifications and awaits operation in actual magnetic separation processing.

We have also sold HTS wire for transportation, military, medical and other applications. Some of these applications have significant near-term sales potential, while other applications, such as transformers and fault current limiters, are in the early development stage.

During fiscal 2004, we sold our HTS wire to Central Japan Railway for use in a prototype electromagnet to be used in a maglev train system. Central Japan Railways reported that the wire met their needs for electrical performance and robustness and was likely to lead to lower costs for maglev train systems. We plan to ship a significant amount of our HTS wire to Central Japan Railways in fiscal 2005 for application in additional prototype electromagnetic coils for maglev trains.

Some of these other applications have the potential to become important markets for our HTS wire, and we will continue to market our HTS wire to the developers of these and other new products. We cannot make any assurances, however, that these markets will develop, that they will become significant markets or that our HTS wire will be purchased for use in these markets.

*Sales and Marketing for HTS Wire.* We plan to sell wire to a broad OEM market, and we are aiming for a high market share, which we plan to protect by being the market leader in performance, cost, service and intellectual property. We are focusing our business and market development efforts on key OEMs that we believe are the market leaders. By establishing strong relationships with these market leaders we can foster more rapid market development and have a significant impact on industry standards. Most of our key OEMs are serviced by our direct sales force. However, in some areas we have found it advantageous to form sales alliances to establish ourselves in the market. For example, in the fall of 2001, we signed a multi-year distribution agreement with Kiswire Ltd., a leading Korean wire manufacturer, to distribute HTS wire in the Korean market.

As a result of our collaboration with Kiswire, we were chosen to be a supplier of 1G HTS wire for the Korean national superconductor program, which has led to sales and follow-on orders for our HTS wire. We have also made significant inroads into China, which has the world's second largest electric power generation capacity. During the last 12 months, we have shipped approximately 30 kilometers of our HTS wire to China for use in two electric power projects.

Our Advanced Grid Solutions business development team, described earlier, is helping us build demand for HTS wire and further penetrate key markets. We are leveraging this team's experience in transmission planning by working with utilities to identify locations in their system where HTS solutions would add value to their power grids. We are also applying the team's project management experience to facilitate project concept development, close orders and implement projects.

*Competition for HTS Wires.* We face intense competition both from vendors of traditional wires, such as copper, and from competitors who are developing HTS wires. There are several companies around the world that are our competitors in the market for 1G HTS wire. They presently include Sumitomo Electric Industries (Japan), Furukawa Electric (Japan), European Advanced Superconductor, formerly part of Vacuumschmelze GmbH, and as of July 2003, a division of Bruker Biospin (Germany), Innova Superconductor Technology Co. Ltd. (China) and Trithor GmbH (a German start-up company).

We also face competition in 2G coated conductor composite HTS wires from a number of companies in the U.S. and abroad. These include Intermagnetics General Corporation-Superpower and MetOx (U.S.); Sumitomo, Fujikura and Furukawa (Japan); Theva and EHTS, a University of Goettingen spinout acquired by European Advanced Superconductor (Germany). Impressive laboratory results have been achieved by some of our 2G HTS wire competitors. However, we believe that the processes we have adopted will prove to be the best processes to provide not only high performance wire, but also commercial quantities at the lowest cost.

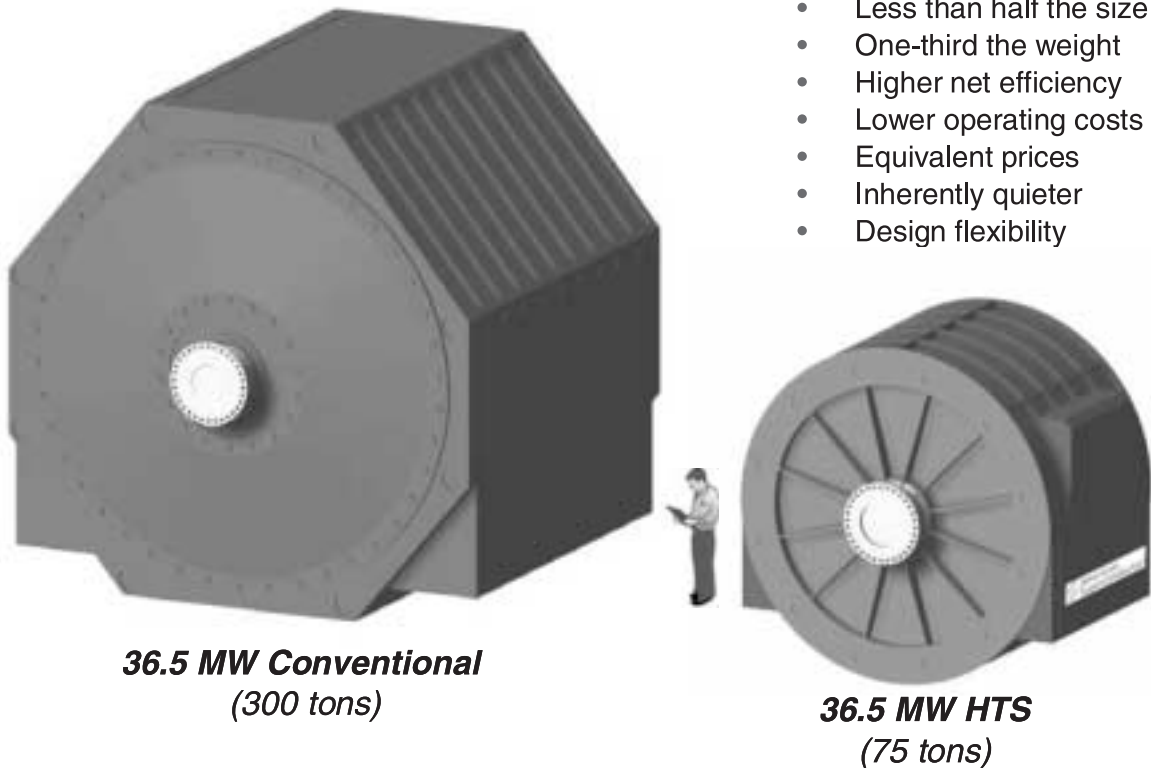
Many of our competitors have substantially greater financial resources, research and development, manufacturing and marketing capabilities than we do. In addition, as HTS wire markets develop, other large industrial companies may enter these fields and compete with us.

### ***SuperMachines Business***

Our SuperMachines business unit is responsible for the design, development, manufacturing, testing and commercialization of HTS electric motors with power ratings up to approximately 50,000 hp (37.5 megawatts), generators with power ratings generally in the range of 20 to 100 mega-volt amperes (MVA), and dynamic synchronous condensers with reactive power ratings up to 50 mega-VAR (MVAR). This business buys HTS wire from the AMSC Wires business and winds the wire into electromagnetic coils of various sizes and shapes, which are incorporated into the rotors of motors, generators and dynamic synchronous condensers, all of which are AC synchronous rotating machines. In such rotating machines, the rotor coils utilize DC, to which our HTS wire exhibits zero electrical resistance, a feature that typically cuts the electrical losses of AC synchronous rotating machines in half compared with copper wire-based machines.

The use of HTS wire in rotating machines provides us with significant competitive advantages by enabling dramatic reductions in size, weight and manufacturing costs relative to conventional machines. Because of the significant manufacturing cost reductions associated with the reduced size of our HTS rotating machines, we expect the market price of our rotating machines to be equivalent to that of copper-based machines at the same power and torque rating. The advantages of HTS rotating machines in ship propulsion applications are summarized in the following figure:

### HTS Ship Propulsion Motors



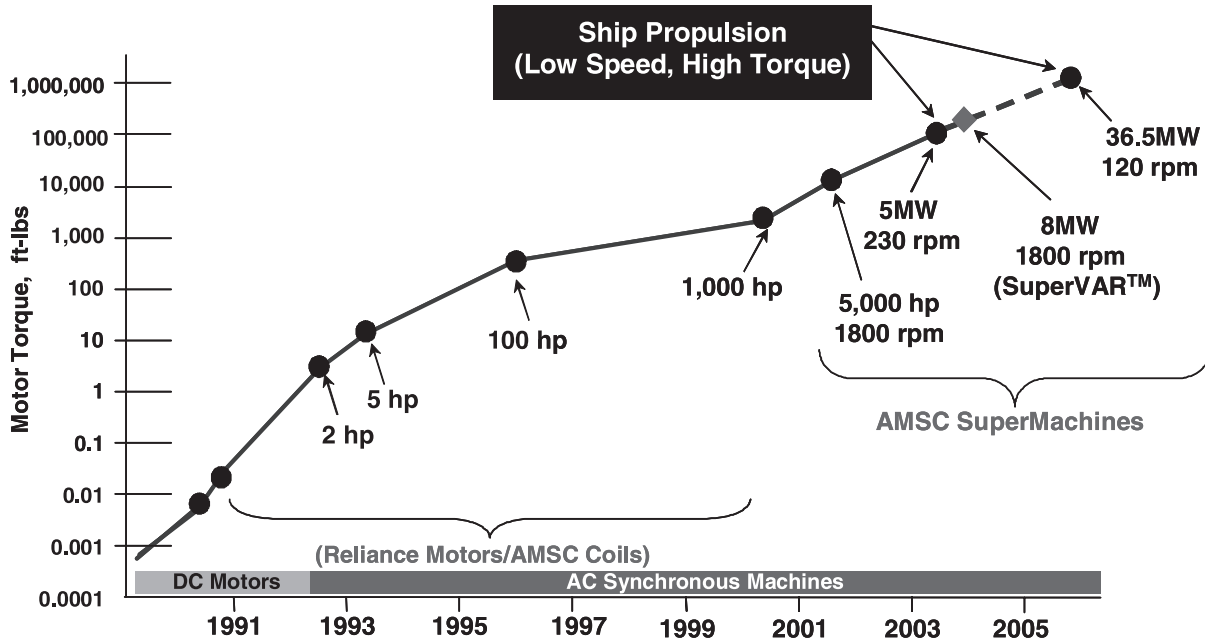
The HTS rotor coils in our superconductor rotating machines are cooled using commercially available mechanical refrigerators located near the machine, which cool the rotor using our patented techniques. We are also developing new refrigeration technology that we believe could further reduce the cost of cryogenic cooling.

The cooling systems used for HTS motors, generators and dynamic synchronous condensers are closed loop, meaning that the cooling medium circulates inside a closed system from the region of the HTS coils on the rotor, where the cooling medium picks up heat, to the cold head of the refrigerator, where the cooling medium releases heat and is chilled again. The cooling media we typically use for our rotating machines are either liquid neon or gaseous helium. In the case of our neon systems, the liquid neon absorbs heat by turning into a gas, which is condensed back to liquid at the cold head outside the rotating machine—much like the cycle in home refrigerators. In the case of gaseous helium, no liquid phase is involved.

Our AC synchronous rotating machines have a higher net efficiency, including the losses associated with the cooling system, than conventional machines of the same power rating. This efficiency gain is particularly noteworthy when an HTS rotating machine is operated at part load, such as in marine propulsion applications when a ship is moving at slow speeds. The stator coils in our AC synchronous machines utilize copper windings, which are cooled either with air, oil or water, in a manner similar to that used for conventional motors and generators.

Our SuperMachines business unit is experienced in HTS rotating machine design, development and testing, and has built a significant portfolio of intellectual property, much of which is protected by more than 43 U.S. and 55 international patents and patents pending. We believe that we are well positioned to transform a 100-year-old rotating machine industry with our innovative HTS technology. Our history of involvement in the development of HTS rotating machines is shown in the following figure:

### AMSC's HTS Rotating Machine Development History



During fiscal 2004, we had the opportunity to incorporate our HTS rotating machine technology into a new application. The TVA proposed the use of our AC synchronous rotating machine technology platform as the basis for an HTS dynamic synchronous condenser that would enhance power grid stability by generating reactive power at critical locations in its power grid. In January 2003, TVA awarded SuperMachines a contract for the design, fabrication and delivery of a prototype and an order for the first five commercial dynamic synchronous condensers. The prototype, which is known as a SuperVAR synchronous condenser, is expected to undergo extensive testing in the TVA power grid in Tennessee. Upon successful completion of prototype testing, SuperMachines expects to build five commercial units to be delivered to TVA beginning in calendar year 2005.

In February 2003, SuperMachines was awarded a competitively bid contract by the U.S. Navy to design and manufacture a 36.5 MW, 120 rpm HTS marine propulsion motor for delivery in 2006. This contract, worth approximately \$70 million including certain performance incentive fees, is the largest contract in our history and represents a major milestone in the development of HTS rotating machines in general, and of military and commercial ship propulsion motors, in particular. This contract represents the fifth in a series of U.S. Navy awards to SuperMachines since 1999 for the conceptual and preliminary design of HTS ship propulsion motors and the development of key components for such motors.

In addition to these two important contract awards, SuperMachines completed the design and assembly of a 5 MW, 230 rpm HTS marine propulsion motor for the U.S. Navy on schedule in February 2003. During March 2003, the motor completed a series of standard factory acceptance tests including testing to full torque, at half speed and full speed at 50 percent torque. In addition, noise and vibration signature testing were completed. The motor met all design requirements during these tests and performed well in comparison to predicted values. The

prototype ship propulsion motor was delivered on schedule to the U.S. Navy in July 2003 and is currently undergoing testing at the Navy-funded Center for Advanced Power Systems at the Florida State University in Tallahassee.

*Manufacturing, Sales and Marketing for HTS Rotating Machines.* Our SuperMachines business currently operates out of a 27,000-square-foot facility in Westborough, MA. Operations conducted here include machine design, coil development, manufacturing and testing, exciter development, assembly and testing, and motor assembly and testing. We outsource the manufacture of copper-based stators, which we use in our HTS motors, to conventional motor manufacturers. We also outsource other components that are used in our HTS motors that are not unique to HTS rotating machines. The manufacture of the HTS coils, refrigeration system and exciter are completed internally along with the rotor assembly. In fiscal 2004, we outsourced both the stator design and fabrication for our SuperVAR machine and the stator coil fabrication for the 36.5 MW ship propulsion motor to Ideal Electric Holding Company (Ideal Electric), Mansfield, Ohio. In addition, we subcontracted the final assembly and testing of the 36.5 MW motor to the Marine Systems Division of Northrop Grumman Electronic Systems, Sunnyvale, California.

Our plan for future manufacturing, sales and marketing of HTS rotating machines is to form a business alliance with one or more motor manufacturers and/or marine propulsion system integrators. We believe this approach will provide us with more effective and quicker paths to manufacture motors and generators, as well as access to established sales and distribution channels and experienced sales teams. We also believe this approach will accelerate market adoption of our new HTS rotating machines. We are currently working with Alstom, Northrop Grumman Marine Systems and Ideal Electric as subcontractors for our rotating machine development and demonstration programs. We expect to expand these existing business alliances or to create new ones as we enter the commercial markets for HTS rotating machines over the next several years.

*Competition for HTS Rotating Machines.* We face competition for our high-power HTS rotating machines from companies that manufacture traditional machines made with copper wires including: GE Energy, Siemens, Asea Brown Boveri Ltd. (ABB), Alstom, Toshiba, Ideal, Brush Industries, Inc. and Hitachi Ltd.

We also face competition from manufacturers of permanent magnet motors, which have been under development over the last decade. Permanent magnet motors are another technology being considered by the U.S. Navy for electric drives. Companies developing high-power permanent magnet motors include General Dynamics and DRS Technologies Inc. There are also at least two companies, Rockwell Automation and Siemens, that are developing HTS electric motors, or who have demonstrated HTS motors over the last several years.

Many of our competitors have substantially greater financial resources, research and development, manufacturing and marketing capabilities than we do. In addition, as HTS rotating machine markets develop, other large industrial companies may enter these fields and compete with us.

### ***Power Electronic Systems Business***

Our Power Electronic Systems business unit designs, develops, assembles, tests and sells power electronic converters that rapidly switch, control, and modulate power. This business unit is responsible for product development, marketing and sales of our proprietary PowerModule™ power electronic converter to OEMs, which integrate this product into electric motor drives, distributed and dispersed generation devices, such as micro-turbines, fuel cells and wind turbines, and power quality solutions, such as battery and flywheel-based uninterruptible power supplies. We expect that our PowerModule power converters will encompass power ratings from 60 to 1,000 kW per PowerModule power converter.

Our PowerModule power converters utilize a proprietary printed circuit board design that enables us to incorporate a microprocessor into the power converter and create programmable power converters.

Programmability is important because individual PowerModule converters or integrated stacks of PowerModule converters can be programmed to meet the needs of different customers to control and condition varying levels of power from tens of kilowatts to megawatts across a wide range of applications.

Flexibility, scalability and high power density are key PowerModule power converter product features. We believe the PowerModule power converter design will allow us to reduce the manufacturing costs of power electronic converters at power levels above 60 kW.

In addition to PowerModule power converter hardware, our Power Electronic Systems business unit is responsible for software development for the PowerModule power converters, as well as for the software needed to integrate the PowerModule power converters into final systems.

Our primary commercial PowerModule product today has a power rating of 250 kW. This product is known as the PM250 and it is the power converter we currently use in our commercial distributed superconductor magnetic energy storage (D-SMES), dynamic VAR (D-VAR<sup>®</sup>) and power quality industrial voltage restorer (PQ-IVR<sup>™</sup>) product lines.

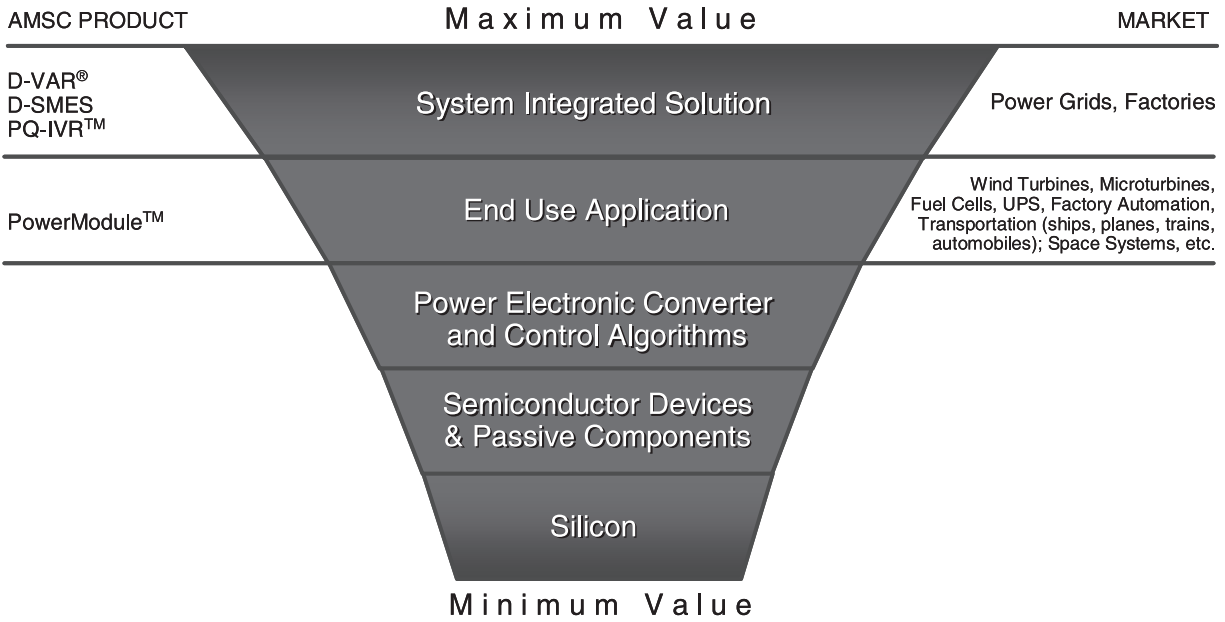
We have completed the development of our next generation of PowerModule power converters, which we call the PowerModule 1000<sup>™</sup>, or PM1000<sup>™</sup> power converter. The PM1000 power converter family features a scalable, modular and flexible design architecture. It is an intelligent and fully integrated power converter that has a compact package design and yields a very high power density of up to 130 Watts/cubic inch. Features of this design include:

- state-of-the-art IGBT technology;
- scalable design;
- flexible architecture; and
- high power density.

In fiscal 2004, we received our first two orders for our PM1000 power converters. One was from Calnetix, for the supply of the power electronics associated with a 2MW generator application for the British Royal Navy. The other order was from United Defense International for the power electronics for a new electric weapons system for the U.S. Army. We believe these orders represent a good starting foundation upon which we can build additional sales of PM1000 power converters.

The Power Electronic Systems business unit also develops, markets and sells products that provide customer benefits further up the power electronics value chain by offering a line of power quality and reliability solutions based on our PowerModule power converters, as shown in the following chart.

### Power Electronic Systems Value Chain



Our power quality and reliability solutions are used in a variety of transmission grid, wind farm and manufacturing applications. The systems are based on our PowerModule power converters and may be integrated with a SMES device, which can store and inject large quantities of real power along with the reactive power from the PowerModule converters. Our commercial integrated power electronic systems include the following:

#### *PQ-IVR™*

Our PQ-IVR systems are installed in transmission substations that bring power into industrial manufacturing sites. These systems protect manufacturing operations from the adverse effects of momentary voltage sags. PQ-IVR systems detect voltage drops on the power lines coming into manufacturing sites and instantly inject power into the lines to restore the voltage to the required range of operating voltages. A PQ-IVR may include a SMES device along with the integrated PowerModule converters if the particular customer site requires the injection of real power in addition to reactive power. Our transmission planning team works with industrial customers to determine the optimum configuration for each industrial site. Our PQ-IVR systems protect entire manufacturing operations that have electrical loads over 5 MW (as opposed to lower power, point-of-use protection devices that must be installed at various sites within the manufacturing operation). We believe our PQ-IVR systems provide a cost-effective solution to the problem of voltage sags, which can cost manufacturers millions of dollars in downtime, damaged equipment and lost work-in-process. A major target customer for PQ-IVR systems are semiconductor manufacturers because they are well aware of the impact of voltage sags on productivity and the resulting high cost of downtime.

#### *D-VAR®*

Our Dynamic VAR (D-VAR) product which comprises an integrated array of our PowerModule power converters, offers a powerful yet cost-effective way of regulating and stabilizing voltage levels by injecting



reactive power (VARs) into the power grid at precise locations where voltage problems can occur. This restores the voltage of the power grid to normal levels. D-VAR systems enable operators to increase large-scale power flow through existing transmission lines, significantly increasing power grid asset utilization. D-VAR systems are also a cost-effective and readily deployable solution. Given these factors and the current federal emphasis on increasing transmission capacity and reducing related regulatory hurdles, we expect demand for D-VAR systems by utilities and transmission companies to grow as investment in grid infrastructure increases and regulatory barriers fall.

#### *D-SMES*

Distributed SMES (D-SMES) systems comprise a D-VAR with a superconductor storage magnet to provide a source of real power. D-SMES systems protect electric utilities by stabilizing voltage in power grids through the simultaneous injection of large amounts of reactive power from an array of PowerModule converters and real power from the superconductor magnet. The primary difference between the D-VAR and D-SMES systems is that a D-VAR system does not contain a SMES device. The decision of whether to incorporate a SMES device into a power grid reliability solution is dependent on site specific issues. This flexibility enables us to provide the most cost-effective solution for each application.

*Transmission Planning Capabilities.* Our Power Electronic Systems business unit has in-depth knowledge of and extensive experience in the design and structure of transmission and distribution grids. Its Transmission Planning Group uses sophisticated software programs to perform analyses of the effects of disturbances in power grids to determine grid reliability under normal and peak loading conditions. This group also analyzes the effects of the incorporation of standard technologies such as capacitors and static VAR compensators (SVCs) and advanced technologies such as HTS cables, D-SMES systems, D-VAR systems and HTS synchronous condensers into power grids. They perform similar analyses to determine the optimum power quality solution for industrial manufacturing sites. Our Transmission Planning Group plays a significant role in the sales and marketing of our power electronic systems products and solutions.

*Manufacturing, Sales and Marketing of Power Electronic Systems.* Our Power Electronic Systems business unit operates out of facilities in New Berlin and Middleton, WI. In New Berlin, we design, develop and test our PowerModule power electronic converters. We outsource the manufacture of PowerModule power converters allowing us to focus on our core competency of design and final test of PowerModule systems. We assemble and test components and PowerModule power converters for incorporation into our integrated power electronic systems such as D-SMES, D-VAR and PQ-IVR systems in our Middleton, WI facility. We plan to outsource the manufacture of superconductor magnets needed for D-SMES systems, which allows us to focus on our core competency of integrating components for our commercial power quality and reliability systems.

In April 2000, we entered into a co-marketing and sales alliance with GE Industrial Systems (GEIS), a business of the General Electric Corporation, to market and sell co-branded D-SMES systems on an exclusive basis to North American electric utilities. The alliance agreement was expanded to include the marketing and selling of co-branded D-VAR systems once we introduced this new product in May 2002.

The co-marketing and sales alliance with GEIS was transferred to GE Energy, also a business of the General Electric Corporation, in 2003. In June 2003, we renewed and expanded our co-marketing sales alliance to include co-marketing and sales of D-VAR and D-SMES systems to South American electric utilities. We also agreed to sell co-branded PQ-IVR systems with GE to certain industrial customers.

Our joint sales and marketing tactics include calls on customers using members of both our and GE Energy's direct and regional sales teams. We believe the addition of the GE Energy sales teams adds significant strength to our sales efforts.

In September 2002 we signed a sales and marketing agreement with Singapore-based Bridex Technologies. This agreement provides a channel for marketing our integrated power electronic systems in the Asia/Pacific region.

Our sales of individual PowerModule power converters are managed by our direct sales force in the U.S. and in Europe. We have sold and intend to sell both individual PowerModule power converters as well as integrated PowerModule power converters for applications such as motor drives, uninterruptible power supplies, wind turbines, and distributed generation applications.

*Competition for Power Electronic Systems.* We face competition from other companies selling power reliability products, such as SVC (Static VAR Compensator) and STATCOM (Static Reactive Compensation) products made by ABB, Alstom, Siemens and Mitsubishi Electric Power Products, Inc., dynamic voltage restorers (DVRs) produced by companies such as S&C Electric Company and ABB, and flywheels and battery-based UPS systems offered by various companies around the world. We do not know of any companies currently developing or selling commercial SMES products; however, there are at least two organizations developing SMES products, a government-sponsored program in Japan and ACCEL Instruments GmbH in Germany.

We face competition from companies that are developing power electronic converters for use in applications for which we expect to sell our PowerModule products. These companies include Ecostar, Inverpower, SatCon, Semikron and Xantrex.

Many of our competitors have substantially greater financial resources, research and development, manufacturing and marketing capabilities than we do. In addition, as the power quality and reliability markets develop, other large industrial companies may enter these fields and compete with us.

## **Patents, Licenses and Trade Secrets**

### ***HTS Patent Background***

An important part of our business strategy is to develop a strong patent position in all of our technology areas. Our patent portfolio comprises both patents we own and patents we license from others. We devote substantial resources to building a strong patent position and we believe that we have significantly strengthened our position in the past several years. As of March 31, 2004, we owned (either alone or jointly) more than 130 U.S. patents and had 45 U.S. patent applications (jointly or solely owned) on file. We also hold licenses from third parties covering over 130 issued U.S. patents and 32 U.S. patent applications. Together with the international counterparts of each of these patents, patent applications and licenses, we own more than 380 patents and patent applications worldwide, and have rights through exclusive and non-exclusive licenses to more than 420 additional patents and patent applications. We believe that our current patent position, together with our expected ability to obtain licenses from other parties to the extent necessary, will provide us with sufficient proprietary rights to develop and sell our products. However, for the reasons described below, there can be no assurance that this will be the case.

Despite the strength of our patent position, a number of U.S. and foreign patents and patent applications of third parties relate to our current products, to products we are developing, or to technology we are now using in the development or production of our products. We may need to acquire licenses to those patents, or to successfully contest the scope or validity of those patents, or to design around patented processes or applications.

If companies holding patents or patent applications that we need to license are competitors, we believe the strength of our patent portfolio will significantly improve our ability to enter into license or cross-license arrangements with these companies. In July 2003, we executed a cross license agreement with Sumitomo Electric Industries under which we licensed to each other North American and European patents related to 1G HTS wires, electromagnetic coils, electromagnets and current lead devices. However, there can be no assurance that we will be able to obtain all necessary licenses from competitors on commercially reasonable terms, or at all.

We may be required to obtain licenses to some patents and patent applications held by companies or other institutions, such as national laboratories or universities, not directly competing with us. Those organizations

may not be interested in cross-licensing or, if willing to grant licenses, may charge unreasonable royalties. We have successfully obtained licenses from a number of such organizations, including Lucent Technologies, Superlink of New Zealand, ORNL, MIT, and Toshiba in Japan, with royalties we consider reasonable. Based on past experience, we expect that we will be able to obtain other necessary licenses on commercially reasonable terms. However, there can be no assurance that we will be able to do so.

Failure to obtain all necessary licenses upon reasonable terms could significantly reduce the scope of our business and have a materially adverse effect on our results of operations. We do not now know the likelihood of successfully contesting the scope or validity of patents held by others. In any event, we could incur substantial costs in challenging the patents of other companies. Moreover, the nature of HTS patents is such that third parties are likely to challenge some of our patents or patent applications, and we could incur substantial costs in defending the scope and validity of our own patents or patent applications whether or not a challenge is ultimately successful.

Since the discovery of high temperature superconductors in 1986, the HTS industry has been characterized by rapid technical advances, which in turn have resulted in a large number of patents, including overlapping patents, relating to superconductivity being applied for and granted worldwide. As a result, the patent situation in the field of HTS technology and products is unusually complex.

#### ***Choice of HTS Materials***

At any given time, we will have a preference for using one or a few specific HTS materials in the production of our products. Any HTS material we use is likely to be covered by one or more patents or patent applications held by other parties.

We have obtained licenses to patents and patent applications covering some HTS materials, including an exclusive license from Superlink and non-exclusive licenses from Lucent Technologies and Toshiba. However, we may have to obtain additional licenses to HTS materials.

#### ***HTS Wire Processing and Wire Architecture***

We are concentrating on two main methods for processing HTS materials into wire. One produces multi-filamentary composite wire and the other produces coated conductor composite wire. Our strategy is to obtain a proprietary position in each of these methodologies through a combination of patents, licenses and proprietary know-how. If alternative processes become more promising in the future, we will also seek to develop a proprietary position in these alternative processes.

We have filed a number of patent applications that are applicable to multi-filamentary and coated conductor composite wire architectures. Some of these applications have been issued as patents in the U.S. and abroad, while others are pending. We have acquired an exclusive license from MIT and a non-exclusive license from ORNL to intellectual property relating to coated conductors, and non-exclusive licenses from Lucent Technologies, Sumitomo Electric and Toshiba relating to the production of multi-filamentary composite wire. We have acquired certain intellectual property rights in the coated conductor area through our collaboration with EPRI.

We have an exclusive license from MIT under an issued U.S. patent that covers the architecture of multi-filamentary (1G) and coated conductor (2G) composite HTS wire, specifically the composite of HTS ceramics and noble metals such as silver. The scope of this patent was the subject of an action in the U.S. District Court of Massachusetts. In September 2002, the court ruled in our favor. We also filed for patents on laminate structures for this wire and on new architectures for coated conductor wire.

A number of other companies have also filed patent applications, and in some instances these have become issued patents, on various aspects of wire processing and wire architecture. To the extent that any of these issued or pending patents might cover the wire processing methodologies or wire architectures we use, we may be required to obtain licenses under those patents; however, there is no assurance that we will be able to do so.

### ***HTS Component and Subsystem Fabrication Patents; HTS Application Patents***

We have received several patents and filed a significant number of additional patent applications regarding:

- the design and fabrication of electromagnetic coils and electromagnets;
- the integration of these products with an appropriate coolant or cryocooler;
- the application of these products to specific end uses; and
- HTS motor, generator and synchronous condenser designs.

Since the HTS rotating machine field is relatively new, we believe we are building a particularly strong patent position in this area. A number of other companies have also filed, and in some instances have received, patents on various applications of HTS component and subsystem fabrication methods. If any existing or future patents cover any of these aspects of our operations, we may be required to obtain licenses under those patents.

### ***Power Electronic Systems***

We have received several patents and filed a significant number of additional patent applications on power quality and reliability systems, including the D-SMES concept. We have acquired a non-exclusive license from Argonne National Laboratory on a cryogenic connector for SMES applications. We believe we have a strong patent position in the SMES area, and have also filed a series of patents on our proprietary power electronic modules. We have licensed some of our patents specifically on SMES to third parties.

### ***Trade Secrets***

Some of the important technology used in our operations and products is not covered by any patent or patent application owned by or licensed to us. However, we take steps to maintain the confidentiality of this technology by requiring all employees and all consultants to sign confidentiality agreements and by limiting access to confidential information. However, no assurance can be given that these measures will prevent the unauthorized disclosure or use of that information. In addition, there is no assurance that others, including our competitors, will not independently develop the same or comparable technology that is one of our trade secrets.

### **Employees**

As of March 31, 2004, we employed a total of 267 persons, 25 of whom have a Ph.D. in materials science, physics or related fields. None of our employees are represented by a labor union. Retaining our key employees is important for achieving our goals and we are committed to developing a working environment that motivates and rewards our employees. At the present time, we believe that we have good relations with our employees.

### **Available Information**

American Superconductor's Internet address is [www.amsuper.com](http://www.amsuper.com). The contents of our website are not part of this Annual Report on Form 10-K, and our Internet address is included in this document as an inactive textual reference only. We promptly post our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and all amendments to those reports available free of charge through our website as soon as reasonably practicable after we file such reports with, or furnish such reports to, the SEC.

**Item 2. *Properties***

We operate out of two facilities in Westborough, MA with a combined total of approximately 129,000 square feet of space. The Two Technology Drive facility in Westborough, which houses our 2G development efforts and corporate personnel, is under a lease that expires on May 31, 2009. The 121 Flanders Road facility, which is used by our SuperMachines business unit, is under a lease that expires on September 30, 2005.

On December 7, 2001, we completed construction and took occupancy of a company-owned 355,000-square-foot HTS wire manufacturing facility located at the Devens Commerce Center in Devens, MA.

Our Power Electronic Systems business unit operates out of facilities located in Middleton and New Berlin, WI with a combined total of approximately 83,000 square feet of space. The Middleton, WI facility comprises approximately 33,000 square feet of space in a building with a lease that expires on December 31, 2006. The New Berlin, WI facility comprises approximately 50,000 square feet of space under a lease that expires on September 30, 2011.

**Item 3. *Legal Proceedings***

We received notice on November 5, 2003 of a lawsuit filed against us on October 28, 2003 in the Court of Chancery of the State of Delaware in and for New Castle County by TM Capital Corp., a past financial advisor to us, under which TM Capital claims to be entitled to cash and equity compensation with respect to our October 2003 public equity offering. Specifically, TM Capital is requesting a cash payment in excess of \$1.6 million and warrants to purchase over 170,000 shares of our common stock at an exercise price of \$9.50 per share as a result of our decision not to continue to pursue a proposed \$50 million secured debt transaction and instead complete a public stock offering. We filed an answer to this lawsuit, denying TM Capital's claims for damages and other relief and asserting several counterclaims against TM Capital, including breach of contract, gross negligence, and breach of fiduciary duty. The lawsuit is currently in the early stages of discovery. We believe we have meritorious defenses to this lawsuit and intend to defend it vigorously.

Except as discussed above, we are not involved in any legal proceedings other than routine litigation or related proceedings incidental to our business that we do not consider material.

**Item 4. *Submission of Matters to a Vote of Security Holders***

No matters were submitted to a vote of our security holders during the fourth quarter of the fiscal year ended March 31, 2004.

## EXECUTIVE OFFICERS

The table and biographical summaries set forth below contain certain information with respect to our executive officers:

<u>Name</u>	<u>Age</u>	<u>Position</u>
Gregory J. Yurek . . . . .	57	Chairman of the Board and Chief Executive Officer
David Paratore . . . . .	36	President and Chief Operating Officer
Alexis P. Malozemoff . . . . .	60	Executive Vice President and Chief Technical Officer
Kevin M. Bisson . . . . .	43	Senior Vice President, Chief Financial Officer and Treasurer
Ross S. Gibson . . . . .	45	Vice President, Chief Administrative Officer and Secretary
Stuart C. Karon . . . . .	57	Vice President, Business Development
Thomas M. Rosa . . . . .	51	Vice President, Finance and Accounting

*Gregory J. Yurek* co-founded American Superconductor in 1987 and has been chief executive officer since March 1989 and chairman of the board of directors since October 1991. Dr. Yurek served as president from March 1989 to February 2004, and as vice president and chief technical officer from August 1988 until March 1989. Dr. Yurek also served as chief operating officer from March 1989 until December 1989. Prior to joining American Superconductor, Dr. Yurek was a professor of Materials Science and Engineering at MIT for 12 years. Dr. Yurek has been a director of American Superconductor since 1987.

*David Paratore* joined American Superconductor in November 2000 as vice president, strategic business development. From December 2000 to November 2001, Mr. Paratore ran the company’s new Integrated Electronics business in Milwaukee, a business that was later integrated into AMSC’s Power Electronic Systems business in March 2002. In November 2001, Mr. Paratore was appointed to the position of vice president and general manager of the SuperMachines Business Unit. In June 2003, Mr. Paratore was appointed senior vice president and general manager of the AMSC Wires Business Unit. In February 2004, Mr. Paratore was appointed president and chief operating officer. In 2000, Mr. Paratore was an account executive for GROWTTH® Consulting, an operations management consulting firm.

*Alexis P. Malozemoff* joined American Superconductor as vice president, research and development in January 1991 and was elected our chief technical officer in January 1993 and senior vice president in May 1998. In May 2003, Dr. Malozemoff was appointed executive vice president in addition to retaining the position of chief technical officer. Prior to joining American Superconductor, Dr. Malozemoff spent 19 years at IBM in a variety of research and management positions, most recently as IBM’s research coordinator for high temperature superconductivity.

*Kevin M. Bisson* joined American Superconductor in May 2003 as senior vice president and chief financial officer and was appointed Treasurer in January 2004. Prior to joining American Superconductor, Mr. Bisson was vice president, controller and treasurer for Axcelis Technologies, Inc., a semiconductor equipment manufacturing company, from 2000 to 2003. From 1989 to 2000, Mr. Bisson held several senior financial positions with Hamilton Sundstrand, Hamilton Standard and Carrier Corporation, all units of United Technologies Corporation, a multi-national conglomerate.

*Ross S. Gibson* joined American Superconductor in July 1997 as vice president, human resources. From December 2000 to March 2001, Mr. Gibson was vice president of human resources at Workscape, a human resource management software company. From March 2001 to June 2001, Mr. Gibson was an independent management consultant. In July 2001, Mr. Gibson returned to American Superconductor as vice president and chief administrative officer. He is responsible for the strategic direction of corporate human resources, corporate governance and corporate services. Previously, Mr. Gibson was vice president, human resources and administration, chief administrative officer for Cambridge NeuroScience, Inc., a development stage biotechnology company. During his 18 years in human resources and services, he also held positions at Lifeline Systems, Lotus Development and General Motors.

*Stuart C. Karon* was promoted to his current position of vice president of business development in January 2004. Prior to this, Mr. Karon was director of government programs from June 1998 until January 2004, and director and then vice president of business development of the SuperMachines business unit from June 1999 until January 2004. Prior to joining American Superconductor, Mr. Karon served as a business unit manager and sales executive at Spectronic Instruments in Rochester, NY. Mr. Karon also completed a 26-year U.S. Navy career in 1994, during which time he served in a series of positions of increasing responsibility, including command of a guided missile destroyer in the Persian Gulf.

*Thomas M. Rosa* joined American Superconductor in October 1992 as corporate controller and was named to the position of chief accounting officer and assistant secretary in July 1998. In May 2003, Mr. Rosa was appointed vice president of finance and accounting. Prior to joining American Superconductor, Mr. Rosa spent ten years in a variety of financial management positions at Wang Laboratories, Lockheed Sanders and most recently was the division controller at Prime Computer.

## PART II

### Item 5. *Market for Registrant's Common Stock, Related Stockholder Matters and Issuer Purchases of Equity Securities*

Our common stock has been quoted on the NASDAQ National Market under the symbol "AMSC" since 1991. The following table sets forth the high and low price per share of our Common Stock as reported on the NASDAQ National Market for the two most recent fiscal years:

	Common Stock Price	
	High	Low
<b>Fiscal year ended March 31, 2003:</b>		
First quarter .....	\$ 8.87	\$ 3.85
Second quarter .....	6.05	2.65
Third quarter .....	4.24	2.10
Fourth quarter .....	5.41	3.02
<b>Fiscal year ended March 31, 2004:</b>		
First quarter .....	7.35	3.18
Second quarter .....	13.85	4.95
Third quarter .....	14.67	9.10
Fourth quarter .....	19.95	11.29

The number of shareholders of record on June 9, 2004 was 640.

### Dividend Policy

We have never paid cash dividends on our common stock. We currently intend to retain earnings, if any, to fund the development and growth of our business and do not anticipate paying cash dividends for the foreseeable future. Payment of future cash dividends, if any, will be at the discretion of our board of directors after taking into account various factors, including our financial condition, operating results, current and anticipated cash needs and plans for expansion.

### Item 6. *Selected Financial Data*

The selected consolidated financial data presented below for the fiscal years ended March 31, 2004, 2003, 2002, 2001, and 2000 have been derived from our consolidated financial statements that have been audited by PricewaterhouseCoopers LLP, our independent accountants. This financial data should be read in conjunction with the Consolidated Financial Statements and the Notes thereto and the other financial information appearing elsewhere in this Annual Report on Form 10-K.

	Year ended March 31,				
	2004	2003	2002	2001	2000
	(In thousands, except per share data)				
Revenues .....	\$ 41,309	\$ 21,020	\$ 11,650	\$ 16,768	\$ 15,113
Net loss .....	(26,733)	(87,633)	(56,985)	(21,676)	(17,598)
Net loss per share .....	(1.10)	(4.21)	(2.79)	(1.08)	(1.11)
Total assets .....	129,899	101,979	197,795	239,927	248,914
Working capital .....	46,202	19,407	36,834	108,808	135,681
Cash, cash equivalents and short and long-term marketable securities .....	52,647	20,049	68,200	160,225	218,655
Stockholders' equity .....	115,452	87,819	172,166	227,564	240,944



**Item 7. *Management's Discussion and Analysis of Financial Condition and Results of Operations***

The information required by this Item is attached as *Appendix A* hereto and is incorporated herein by reference.

**Item 7A. *Quantitative and Qualitative Disclosures About Market Risk***

Our exposure to market risk through financial instruments, such as investments in marketable securities, is not material.

**Item 8. *Financial Statements and Supplementary Data***

All financial statements required to be filed hereunder are filed as *Appendix B* hereto, are listed under Item 15(a), and are incorporated herein by reference.

**Item 9. *Changes in and Disagreements with Accountants on Accounting and Financial Disclosure***

Not Applicable.

**Item 9A. *Controls and Procedures***

The Company's management, with the participation of the Company's chief executive officer and chief financial officer, evaluated the effectiveness of the Company's disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act) as of March 31, 2004. In designing and evaluating the Company's disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applied its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on this evaluation, the Company's chief executive officer and chief financial officer concluded that, as of March 31, 2004 the Company's disclosure controls and procedures were (1) designed to ensure that material information relating to the Company, including its consolidated subsidiaries, is made known to the Company's chief executive officer and chief financial officer by others within those entities, particularly during the period in which this report was being prepared and (2) effective, in that they provide reasonable assurance that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms.

No change in the Company's internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) occurred during the fiscal year ended March 31, 2004 that has materially affected, or is reasonably likely to materially affect, the Company's internal control over financial reporting.

### **PART III**

#### **Item 10. *Directors and Executive Officers of the Registrant***

The response to this item is contained in part under the caption “Executive Officers” in Part I of this Annual Report on Form 10-K, and in part in our Proxy Statement for the Annual Meeting of Stockholders for the fiscal year ended March 31, 2004 (the “2004 Proxy Statement”) in the sections “Corporate Governance—Members of the Board of Directors,” “Other Matters—Section 16(a) Beneficial Ownership Reporting Compliance,” and “Corporate Governance—Code of Business Conduct and Ethics,” which sections are incorporated herein by reference.

#### **Item 11. *Executive Compensation***

The response to this item is contained in the 2004 Proxy Statement in the sections “Executive Compensation” and “Corporate Governance—Compensation of Directors,” which sections are incorporated herein by reference. However, information under “Executive Compensation—Compensation Committee Report on Executive Compensation” and “Executive Compensation—Stock Performance Graph” in the 2004 Proxy Statement are not so incorporated.

#### **Item 12. *Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters***

The response to this item is contained in the 2004 Proxy Statement in the sections “General Information about Annual Meeting—Beneficial Ownership of Common Stock” and “Executive Compensation—Equity Compensation Plan Information,” which sections are incorporated herein by reference.

#### **Item 13. *Certain Relationships and Related Transactions***

Not Applicable.

#### **Item 14. *Principal Accountant Fees and Services***

The response to this item is contained in the 2004 Proxy Statement in the section entitled “Ratification of Selection of Independent Auditors (Proposal 5),” which section is incorporated herein by reference.

## PART IV

### Item 15. *Exhibits, Financial Statement Schedules, and Reports on Form 8-K*

- (a) The following documents are filed as Appendix B hereto and are included as part of this Annual Report on Form 10-K:

(1) Financial Statements:

Report of Independent Accountants  
Consolidated Balance Sheets  
Consolidated Statements of Operations  
Consolidated Statements of Cash Flows  
Consolidated Statements of Comprehensive Loss  
Consolidated Statements of Stockholders' Equity  
Notes to Consolidated Financial Statements

(2) Financial Statement Schedules:

Schedule II—Valuation and Qualifying Accounts for fiscal years ended March 31, 2004, 2003, and 2002.

All other schedules for which provision is made in the applicable regulation of the Securities and Exchange Commission are not required under the related instructions or are inapplicable, and therefore have been omitted.

(b) *Reports on Form 8-K*

On February 5, 2004, we furnished a Current Report on Form 8-K, dated February 5, 2004, to report under Item 12 the information required with respect to financial results for the quarter ended December 31, 2003.

- (c) The list of Exhibits filed as a part of this Annual Report on Form 10-K is set forth on the Exhibit Index immediately preceding such Exhibits, and is incorporated herein by reference.

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**AMERICAN SUPERCONDUCTOR CORPORATION**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL**  
**CONDITION AND RESULTS OF OPERATIONS**

**Executive Overview**

We were founded in 1987. We are focused on developing, manufacturing and selling products using two core technologies: high temperature superconductor (“HTS”) wires and power electronic converters for electric power applications. We also assemble superconductor wires and power electronic converters into fully integrated products, such as HTS ship propulsion motors and dynamic reactive compensation systems, which we sell or plan to sell to end users. Current or prospective customers for our products include electric utilities, electrical equipment manufacturers, industrial power users and commercial and military shipbuilders.

Our HTS wire addresses constraints on the power grids in the U.S. and other developed countries by increasing the electric current carrying capacity of the transmission cables comprising these power grids. In addition, our HTS wire, when incorporated into primary electrical equipment such as motors and generators, can provide increased manufacturing and operating savings due to a significant reduction in size and weight of this equipment. Also, our power electronic converters increase the quality and reliability of electric power that is transmitted by electric utilities or consumed by large industrial entities.

Our products are in varying stages of commercialization. Our power electronic converters have been sold commercially, as part of an integrated system, to utilities, manufacturers and wind farm owners since 1999. Our HTS wire has been produced commercially since the beginning of 2003, although its principal applications (power cables, rotating machines, specialty magnets) are currently in the prototype stage. Some of these prototypes are funded by U.S. government contracts, primarily with the Department of Defense and Department of Energy.

Our cash requirements depend on numerous factors, including successful completion of our product development activities, ability to commercialize our product prototypes, rate of customer and market adoption of our products and the continued availability of U.S. government funding during the product prototype phase. Significant deviations to our business plan with regard to these factors, which are important drivers to our business, could have a material adverse effect on our operating performance, financial condition, and future business prospects. We expect to pursue the expansion of our operations through internal growth and strategic alliances.

**Critical Accounting Policies and Estimates**

The preparation of consolidated financial statements requires that we make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses, and related disclosure of contingent assets and liabilities. We base our estimates on historical experience and various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ under different assumptions or conditions.

Our accounting policies that involve the most significant judgments and estimates are as follows:

- Revenue recognition and deferred revenue;
- Allowance for doubtful accounts;
- Long-lived assets;
- Inventory accounting;
- Deferred tax assets; and
- Goodwill.

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**CONDITION AND RESULTS OF OPERATIONS—(Continued)**

*Revenue recognition and deferred revenue.* For certain arrangements, such as contracts to perform research and development, prototype development contracts and certain product sales, we record revenues using the percentage of completion method, measured by the relationship of costs incurred to total estimated contract costs. We follow this method since reasonably dependable estimates of the revenue and costs applicable to various stages of a contract can be made. However, the ability to reliably estimate total costs at completion is challenging, especially on long-term prototype development contracts, and could result in future changes in contract estimates. Since many contracts extend over a long period of time, revisions in cost and funding estimates during the progress of work have the effect of adjusting earnings applicable to prior-period performance in the current period. Recognized revenues and profit or loss are subject to revisions as the contract progresses to completion. Revisions in profit or loss estimates are charged to income in the period in which the facts that give rise to the revision become known. Some of our contracts contain incentive provisions, based upon performance in relation to established targets, which are recognized in the contract estimates when deemed realizable.

We recognize revenue from product sales upon customer acceptance, which can occur at the time of delivery, installation, or post-installation, where applicable, provided persuasive evidence of an arrangement exists, delivery has occurred, the sales price is fixed or determinable and the collectibility is reasonably assured. When other significant obligations remain after products are delivered, revenue is recognized only after such obligations (including buyback provisions) are fulfilled. Customer deposits received in advance of revenue recognition are recorded as deferred revenue until customer acceptance is received. Deferred revenue also represents the amount billed to and/or collected from commercial and government customers on contracts which permit billings to occur in advance of contract performance/revenue recognition.

*Allowance for doubtful accounts.* If the financial condition of our customers were to deteriorate, resulting in an impairment of their ability to make payments, additional provisions for bad debt allowances may be required. The allowance for doubtful accounts was \$41,000 and \$2,657,000 on March 31, 2004 and March 31, 2003, respectively.

*Long-Lived Assets.* We periodically evaluate our long-lived assets for potential impairment under Statement of Financial Accounting Standards (SFAS) No. 144, "Accounting for the Impairment or Disposal of Long-Lived Assets." We perform these evaluations whenever events or circumstances suggest that the carrying amount of an asset or group of assets is not recoverable. Our judgments regarding the existence of impairment indicators are based on market and operational performance. Indicators of potential impairment include:

- a significant change in the manner in which an asset is used;
- a significant decrease in the market value of an asset;
- a significant adverse change in its business or the industry in which it is sold;
- a current period operating cash flow loss combined with a history of operating or cash flow losses or a projection or forecast that demonstrates continuing losses associated with the asset; and
- significant advances in our technologies that require changes in our manufacturing process.

If we believe an indicator of potential impairment exists, we test to determine whether impairment recognition criteria in SFAS No. 144 have been met. To analyze a potential impairment, we project undiscounted future cash flows over the remaining life of the asset or the primary asset in the asset group, using a probability-weighted multiple scenario approach, reflecting a range of possible outcomes. If these projected cash flows are less than the carrying amount, an impairment loss is recognized based on the fair value of the asset or asset group

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less any costs of disposition. Evaluating the impairment requires judgment by our management to estimate future operating results and cash flows. If different estimates were used, the amount and timing of asset impairments could be affected. We charge impairments of the long-lived assets to operations if our evaluations indicate that the carrying values of these assets are not recoverable.

In the fourth quarter of fiscal 2003 ended March 31, 2003, we recorded a \$39,231,000 impairment charge to write down our first-generation (1G) asset group, primarily comprised of the Devens, Massachusetts manufacturing facility and capital equipment, to an estimated fair value. No impairment charges were recorded in fiscal 2004.

*Inventory accounting.* We write down inventory for estimated obsolescence or unmarketable inventory in an amount equal to the difference between the cost of the inventory and the estimated realizable value based upon assumptions of future demand and market conditions. If actual market conditions are less favorable than those projected, additional inventory write-downs may be required.

*Deferred tax assets.* We have recorded a full valuation allowance to reduce our deferred tax assets to the amount that is more likely than not to be realized. While we consider future taxable income and tax planning strategies in assessing the need for the valuation allowance, if management were to determine that we would be able to realize deferred tax assets in the future in excess of the net recorded amount, an adjustment to the deferred tax asset would increase income in the period such determination was made. Likewise, should we determine that we would not be able to realize all or part of our net deferred tax assets in the future, an adjustment to the deferred tax asset would decrease income in the period such determination was made.

*Goodwill.* Goodwill represents the excess of cost over net assets of acquired businesses that are consolidated. Pursuant to SFAS No. 142 "Goodwill and Other Intangible Assets," goodwill is not amortized. In lieu of amortization, we perform an impairment review of our goodwill at least annually or when events and changes in circumstances indicate the need for such a detailed impairment analysis, as prescribed by SFAS 142. To date, we have determined that goodwill is not impaired, but we could in the future determine that goodwill is impaired, which would result in a charge to earnings.

**Impairment/Other Charges (Fiscal Year 2003)**

For fiscal 2003, we recorded a \$39,231,000 impairment charge primarily on our building and equipment assets in Devens, Massachusetts, in connection with our plans to transition over the next several years to a lower cost, second-generation (2G) HTS wire manufacturing methodology. The impairment charge was recorded in accordance with SFAS No. 144, "Accounting for the Impairment or Disposal of Long-Lived Assets".

In addition, we recorded other charges in March 2003 of \$3,421,000 relating to an increase in magnet inventory reserves at our Power Electronic Systems business unit in Wisconsin, which was reported in "Costs of revenue—product sales and prototype development contracts," and \$2,624,000 relating to an increase in the allowance for doubtful accounts to cover a Power Electronics System receivable which was reported under Selling, general, and administrative expense. This receivable was written off against the allowance for doubtful accounts in fiscal 2004.

**Restructuring/Pirelli/Other Charges (Fiscal Year 2002)**

In March 2002, we announced a series of restructuring, consolidation and cost-cutting measures to create a more streamlined and flatter organization aimed at reducing our cost structure as we drive to commercialize our

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**CONDITION AND RESULTS OF OPERATIONS—(Continued)**

technologies and products. The restructuring resulted in the reduction of 99 full-time employees across all business functions at our Massachusetts and Wisconsin locations. Our Power Quality and Reliability business unit, based in Middleton, Wisconsin, and Power Electronics business unit, based in New Berlin, Wisconsin, were combined into a new business unit called Power Electronic Systems. This change leveraged personnel with similar skills in the two business units and significantly reduced the cost structure. As part of the restructuring, we also announced our plans to outsource our future requirements for low temperature superconductor (LTS) magnets used in our superconductor magnetic energy storage (SMES) systems and as a result, we discontinued operations in one of our two buildings in Middleton, Wisconsin that comprises approximately 27,000 square feet. Cash payments related to the workforce reduction were substantially completed in the first quarter of fiscal 2003. Exit costs related to the leased facility were incurred over the 18-month period ended December 2003. In addition to restructuring charges of \$5,666,000 we recorded other charges in March 2002 of \$727,000 relating to an increase in allowance for doubtful accounts, \$3,464,000 for an inventory write-down and \$4,010,000 relating to the Pirelli license agreement.

**RESULTS OF OPERATIONS**

**Fiscal Years Ended March 31, 2004 and March 31, 2003**

*Revenues*

Total consolidated revenues increased to \$41,309,000 in fiscal 2004 from \$21,020,000 in fiscal 2003, an increase of \$20,289,000 or 97%.

<u>Revenues</u>	<u>2004</u>	<u>2003</u>
SuperMachines .....	\$26,501,000	\$ 6,125,000
AMSC Wires .....	7,796,000	3,961,000
Power Electronic Systems .....	7,012,000	10,934,000
Total .....	<u>\$41,309,000</u>	<u>\$21,020,000</u>

Our SuperMachines business unit recognized revenues of \$26,501,000 in fiscal 2004, an increase of \$20,376,000 or 333% over fiscal 2003 revenues of \$6,125,000. This was primarily the result of higher prototype development contract revenues associated with work performed on the 36.5 Megawatt (MW) HTS motor contract with the U.S. Navy, which was awarded in March 2003 at an estimated contract value of \$70,000,000 (including potential incentives). Over 93% of this business unit's fiscal 2004 revenues, or \$24,724,000, related to work performed on the 36.5 MW program. Backlog on the 36.5 MW contract as of March 31, 2004 was in excess of \$40,000,000, which we expect to recognize as revenue over our next two fiscal years ending March 31, 2006. As of March 31, 2004, U.S. Navy funding of \$30,948,000 had been allotted to the 36.5 MW contract, which we expect will continue to be funded on an incremental basis.

The remainder of SuperMachines' revenues for the fiscal year ended March 31, 2004 related to the completion of work on the 5 MW motor, which was delivered to the U.S. Navy in July 2003, progress made on the SuperVar™ synchronous condenser prototype being built for the Tennessee Valley Authority (TVA), and the commencement of work in the second half of fiscal 2004 on two other U.S. Navy programs to analyze HTS propulsion system benefits and to provide test support to the 5 MW motor. In the prior fiscal year ended March 31, 2003, revenues of \$6,125,000 consisted predominantly of work performed on the 5 MW motor program (\$4,914,000) and the beginning of work on the 36.5 MW program (\$1,185,000) in March 2003.



**AMERICAN SUPERCONDUCTOR CORPORATION**  
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Revenues in our AMSC Wires business unit were \$7,796,000 in fiscal 2004 compared to \$3,961,000 in fiscal 2003, an increase of \$3,835,000 or 97% caused primarily by the beginning of work on the project to install an HTS power cable in the transmission grid of the Long Island Power Authority (LIPA). Revenues associated with the LIPA project, which began in April 2003 and is funded by the U.S. Department of Energy, were \$3,628,000 in fiscal 2004. We expect our AMSC Wires business unit to record a total of approximately \$15,200,000 in revenue (of which approximately \$10,700,000 relates to subcontracts) from this project during the period April 2003 through approximately April 2006. Backlog on the LIPA project as of March 31, 2004 was approximately \$11,600,000.

The remaining \$207,000 increase in AMSC Wires' revenues resulted from higher HTS wire sales, which increased by \$1,030,000 in fiscal 2004 to \$2,636,000 from \$1,606,000 in fiscal 2003, offset by a decrease of \$225,000 in HTS current lead sales and a decrease of \$758,000 in revenue recognized on the Dupont coil program, which we completed in fiscal 2004. Contract revenues in the AMSC Wires business unit also increased by \$160,000 in fiscal 2004 to \$875,000 from \$715,000 in fiscal 2003, due primarily to a higher level of work performed on several U.S. government-sponsored programs focused on 2G wire development.

Power Electronic Systems business unit sales, which include D-VAR<sup>®</sup> and PQ-IVR<sup>™</sup> integrated power electronic systems and power electronic converters, were \$7,012,000 in fiscal 2004 compared to \$10,934,000 in fiscal 2003, a decrease of \$3,922,000. Fiscal 2004 revenues decreased in this business unit as a result of fewer D-VAR system sales in fiscal 2004, compared to fiscal 2003, and a \$1,583,000 reduction in prototype development contract revenues associated with our Power Electronic Building Blocks (PEBB) program with the U.S. Navy, which we substantially completed in fiscal 2004.

Included in the third quarter of fiscal 2004 was \$3,250,000 of revenues and \$3,250,000 of costs of revenue relating to the sale of six D-SMES units to ATC. These six D-SMES units were originally delivered in fiscal 2001 to another one of our customers, WPS, for a total purchase price of \$3,787,000. As the sale of these units to WPS was originally subject to certain return and buyback provisions that expired from 2002 to 2009, we deferred recognition of the revenue related to the original sale until the applicable buyback provisions lapsed. The buyback provisions, which were subject to a minimum 6-month written notice requirement, began to lapse in the quarter ended December 31, 2002, until which time WPS had the right to return all the units for the full purchase price of \$3,787,000. We recorded \$537,000 of revenue and an equal amount of cost of revenue in the quarter ended December 31, 2002, as the buyback price was reduced from \$3,787,000 to \$3,250,000. In December 2003, WPS exercised its buyback provision for the remaining \$3,250,000 price as part of an agreement whereby ATC unconditionally purchased the six D-SMES units. ATC's purchase of the D-SMES units was a follow-up to its purchase of substantially all of the transmission assets of WPS in January 2001 and a lengthy performance evaluation of the units. As a result, we recorded \$3,250,000 of revenue and an equal amount of cost of revenue on our consolidated statement of operations for the quarter ended December 31, 2003.

*Cost-Sharing Funding*

In addition to reported revenues, we also received funding of \$2,395,000 in fiscal 2004 under four U.S. government cost-sharing agreements, compared to \$764,000 in fiscal 2003 under two such cost-share programs, an increase of \$1,631,000 or 213%. Two of the fiscal 2004 programs were funded by the Air Force, the other two by the Department of Commerce and the Department of Energy; all four programs provided funding in support of 2G wire development work being done in the AMSC Wires business unit. Three of the four programs will remain active in fiscal 2005 ending March 31, 2005; the fourth cost-sharing program completed in the fourth quarter of fiscal 2004. As required by government contract accounting guidelines, funding from government cost-sharing agreements is recorded as an offset to research and development and selling, general and administrative

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expenses, rather than as revenue. We anticipate that a portion of our funding in the future will continue to come from cost-sharing agreements as we continue to develop joint programs with government agencies.

*Costs and expenses*

Total costs and expenses for the year ended March 31, 2004 were \$66,995,000 compared to \$109,532,000 for the prior year, a decrease of \$42,537,000. Fiscal 2003 costs and expenses included \$45,276,000 of non-cash charges recorded in the fourth quarter related to an asset impairment (\$39,231,000), an inventory write-down (\$3,421,000) and an increase in the allowance for doubtful accounts (\$2,624,000). Costs and expenses exclusive of impairment and other charges, which is a non-GAAP measure, were \$64,256,000 in fiscal 2003. Fiscal 2004 costs and expenses of \$66,995,000 were higher than the fiscal 2003 costs and expenses, excluding the impairment and other charges, of \$64,256,000 due primarily to higher material and subcontractor costs associated with the Navy 36.5 MW and LIPA programs, partially offset by cost reductions implemented by us in July 2003, including a reduction in force of 23 employees, or 8% of our workforce at the time. We present costs and expenses exclusive of impairment and other charges because we believe this presentation provides investors with a useful view of our operating results by isolating certain charges and describing our performance without them.

“Costs of revenue—product sales and prototype development contracts” increased by \$11,937,000 to \$43,455,000 in fiscal 2004 from \$31,518,000 in fiscal 2003 due to costs incurred in support of significantly higher fiscal 2004 product sales and prototype development contract revenues in the SuperMachines and AMSC Wires business units, partially offset by lower costs of revenue associated with the lower level of product sales in the Power Electronic Systems business unit. “Costs of revenue—contract revenue” increased proportionally with the higher level of contract revenue.

*Research and development*

A portion of our research and development (“R&D”) expenditures related to externally funded development contracts has been classified as costs of revenue (rather than as R&D expenses). Additionally, a portion of R&D expenses was offset by cost sharing funding. Our R&D expenditures are summarized as follows:

	<u>Year Ended 3/31/2004</u>	<u>Year Ended 3/31/2003</u>
R&D expenses per Consolidated Statements of Operations . . . . .	\$14,056,000	\$21,940,000
R&D expenditures classified as Costs of revenue . . . . .	25,442,000	10,997,000
R&D expenditures offset by cost sharing funding . . . . .	<u>1,852,000</u>	<u>510,000</u>
Pro forma R&D expenses . . . . .	<u>\$41,350,000</u>	<u>\$33,447,000</u>

R&D expenses (exclusive of amounts classified as costs of revenue and amounts offset by cost sharing funding) decreased by \$7,884,000 to \$14,056,000 in fiscal 2004 from \$21,940,000 in fiscal 2003 primarily as a result of a higher percentage of the R&D costs being classified as costs of revenue due to the higher level of funded prototype development contract work in the SuperMachines business unit. Pro forma R&D expenses, which include amounts classified as costs of revenue and amounts offset by cost sharing funding, increased by \$7,903,000 to \$41,350,000 in fiscal 2004 from \$33,447,000 in fiscal 2003 as a result of a \$7,988,000 increase in spending in SuperMachines, most of which was material, subcontractor, and temporary labor costs related to the 36.5 MW program. Other increases in spending, such as the additional subcontractor costs associated with the LIPA program, were offset by reductions in R&D spending in AMSC Wires and Power Electronic Systems and cost savings associated with the headcount and controllable expense reductions implemented in July 2003.

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*Selling, general, and administrative*

A portion of our selling, general, and administrative (“SG&A”) expenditures related to externally funded development contracts has been classified as costs of revenue (rather than as SG&A expenses). Additionally, a portion of SG&A expenses was offset by cost sharing funding. Our SG&A expenditures are summarized as follows:

	<u>Year Ended</u> <u>3/31/2004</u>	<u>Year Ended</u> <u>3/31/2003</u>
SG&A expenses per Consolidated Statements of Operations . . . . .	\$ 8,659,000	\$16,159,000
SG&A expenditures classified as Costs of revenue . . . . .	7,395,000	1,482,000
SG&A expenditures offset by cost sharing funding . . . . .	<u>543,000</u>	<u>255,000</u>
Pro forma SG&A expenses . . . . .	<u>\$16,597,000</u>	<u>\$17,896,000</u>

SG&A expenses (exclusive of amounts classified as costs of revenue and amounts offset by cost sharing funding) decreased by \$7,500,000 to \$8,659,000 in fiscal 2004 from \$16,159,000 in fiscal 2003 primarily as a result of a higher percentage of the SG&A costs being classified as costs of revenue due to the higher level of funded prototype development contract work in the SuperMachines business unit. Pro forma SG&A expenses, which include amounts classified as costs of revenue and amounts offset by cost sharing funding, decreased by \$1,299,000 to \$16,597,000 in fiscal 2004 from \$17,896,000 in fiscal 2003, which included \$2,624,000 relating to an increase in the allowance for doubtful accounts for a Power Electronics System receivable. SG&A expenses increased in certain areas in fiscal 2004 compared to fiscal 2003, related mainly to higher legal and other professional service fees, as well as a higher percentage of the rent and occupancy costs associated with our Westborough, Massachusetts corporate headquarters now being classified as SG&A expense rather than in costs of revenue and research and development expense, as they were in fiscal 2003. We have completed the relocation of our manufacturing workforce to Devens, Massachusetts from Westborough, which is now partially unoccupied. These increases in SG&A expenses were more than offset by a decrease in the allowance for doubtful accounts and the headcount and controllable expense reductions implemented in July 2003.

We present pro forma R&D and pro forma SG&A expenses, which are non-GAAP measures, because we believe this presentation provides useful information on our aggregate R&D and SG&A spending.

*Impairment*

An impairment charge was recorded in fiscal 2003 of \$39,231,000 primarily on our building and equipment assets in Devens, Massachusetts, in connection with our plans to transition over the next several years to a lower cost, 2G HTS wire manufacturing methodology.

*Non-operating expenses/Interest income*

Interest income decreased to \$296,000 in fiscal 2004 from \$869,000 in fiscal 2003. This decrease in interest income reflects the lower interest rates available on our investments and lower average cash balances available for investment over the course of fiscal 2004, compared to fiscal 2003, as a result of cash being used to fund our operations and to purchase property, plant and equipment. However, interest income and cash balances available for investment increased in the second half of fiscal 2004, compared to the first half of fiscal 2004, as a result of our October 2003 public equity offering of 5,721,250 shares of our common stock that generated net proceeds (after deducting underwriting discounts and commissions, but before deducting offering expenses) of \$51,148,000.

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Fees—abandoned debt financing of \$1,388,000 in fiscal 2004 represented various fees and expenses incurred in connection with our previously announced debt financing transaction that we decided not to pursue in August 2003 in favor of a public equity offering, which we completed in October 2003.

Other income (expense), net was \$45,000 in fiscal 2004, compared to \$10,000 in fiscal 2003, consisting primarily of income from gains on the sale of excess equipment.

We expect to continue to incur operating losses until at least the end of fiscal year 2005 as we continue to devote significant financial resources to our commercialization efforts and to our ongoing research and development activities.

Please refer to the “Future Operating Results” section below for a discussion of certain factors that may affect our future results of operations and financial condition.

**Fiscal Years Ended March 31, 2003 and March 31, 2002**

*Revenues*

Total consolidated revenues increased to \$21,020,000 in fiscal 2003 from \$11,650,000 in fiscal 2002, an increase of \$9,370,000 or 80%.

<u>Revenues</u>	<u>2003</u>	<u>2002</u>
Power Electronic Systems . . . . .	\$10,934,000	\$ 1,416,000
SuperMachines . . . . .	6,125,000	5,840,000
AMSC Wires . . . . .	3,961,000	4,394,000
Total . . . . .	<u>\$21,020,000</u>	<u>\$11,650,000</u>

Power Electronic Systems business unit sales, which include D-VAR integrated power electronic systems and power electronic converters, were \$10,934,000 in fiscal 2003 compared to \$1,416,000 in fiscal 2002, an increase of \$9,518,000. Power Electronic Systems sales for fiscal 2003 included multiple D-VAR system sales to Northeast Utilities and Rayburn Electric, and additional system sales to BC Hydro and PacifiCorp, compared to one D-VAR sale in fiscal 2002 to TVA. In addition, the Power Electronics Systems business unit recognized \$2,121,000 of prototype development contract revenues in connection with work performed on our U.S. Navy contract on PEBB in fiscal 2003, compared to \$197,000 in fiscal 2002.

Our SuperMachines business unit recognized revenues of \$6,125,000 in fiscal 2003, an increase of \$285,000 or 5% over fiscal 2002 revenues of \$5,840,000. This was the result of higher prototype development contract revenues associated with fiscal 2003 work performed on the 5 MW and 36.5 MW HTS motor contracts with the U.S. Navy, the second of which was awarded in March 2003. On March 3, 2003, we announced the receipt of a three-year \$70 million contract from the U.S. Navy for the delivery of a 36.5 MW HTS propulsion motor for future electric-powered warships. In the first month of work on this incrementally funded contract, we recognized revenues of \$1,185,000 on the 36.5 MW motor program. We expect SuperMachines business unit revenues to be significantly higher in fiscal 2004 (ending March 31, 2004) than they were in fiscal 2003, based on the receipt of this new cost plus incentive fee contract from the U.S. Navy. As of March 31, 2003, incremental funding of \$14,348,000 had been allotted to this contract.

Revenues in our AMSC Wires business unit were \$3,961,000 in fiscal 2003 compared to \$4,394,000 in fiscal 2002, a decrease of \$433,000 or 10% caused primarily by a \$1,396,000 reduction in contract revenues,

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partially offset by a \$963,000 increase in product sales in fiscal 2003. Pirelli Energy Cables and System provided us with \$1,500,000 of research and development funding in fiscal 2002, but no funding in fiscal 2003, causing the decline in contract revenues. This discontinuance of Pirelli funding in fiscal 2003 was the result of a license agreement signed with Pirelli in February 2002 which allows us to sell our HTS wire to other cable manufacturers in addition to Pirelli. AMSC Wires' product sales were \$3,246,000 in fiscal 2003, compared to \$2,283,000 in fiscal 2002. The \$963,000 increase in AMSC Wires' product sales in fiscal 2003 was driven by higher sales of HTS wire in the fourth quarter of fiscal 2003. We expect product sales to continue to increase in this business unit in fiscal 2004 as a result of our selection by the U.S. Department of Energy in April 2003 as the prime contractor for an HTS power transmission cable project in the LIPA transmission grid. Net of cost share, we expect our AMSC Wires business unit to record approximately \$15,200,000 in revenue (of which approximately \$10,700,000 will be awarded to subcontractors) from this project during the period April 2003 through approximately April 2006.

*Cost-Sharing Funding*

In addition to reported revenues, we also received funding of \$764,000 in fiscal 2003 under two government cost-sharing agreements, compared to \$603,000 in fiscal 2002. As required by government contract accounting guidelines, funding from government cost-sharing agreements is recorded as an offset to Research and development and Selling, general and administrative expenses, rather than as revenue. We anticipate that a portion of our funding in the future will continue to come from cost-sharing agreements as we continue to develop joint programs with government agencies. We expect cost sharing funding to continue to increase in fiscal 2004 as compared to fiscal 2003 based on the November 2002 receipt of a \$2,000,000, two-year contract from the Department of Commerce, under which we recorded \$238,000 of cost sharing funding in fiscal 2003.

*Costs and expenses*

Total costs and expenses for the year ended March 31, 2003 were \$109,532,000 compared to \$73,203,000 for the prior year, an increase of \$36,329,000. These costs and expenses included \$45,276,000 of non-cash charges recorded in the fourth quarter of fiscal 2003 related to an asset impairment, an inventory write-down and an increase in the allowance for doubtful accounts. Fiscal 2002 costs and expenses included \$13,867,000 of charges related to the restructuring and product line consolidation implemented in March 2002 and to the purchase of a license from Pirelli in February 2002. Costs and expenses exclusive of impairment and other charges, which are non-GAAP measures, were \$64,256,000 in fiscal 2003 and \$59,336,000 in fiscal 2002. This increase of \$4,920,000 was primarily due to materials and other outside costs associated with the higher level of fiscal 2003 revenues. We present costs and expenses exclusive of impairment and other charges because we believe this presentation provides investors with a useful view of our operating results by isolating certain charges and describing our performance without them.

"Costs of revenue—product sales and prototype development contracts" increased by \$14,219,000 to \$31,518,000 in fiscal 2003, compared to \$17,299,000 in fiscal 2002, due to higher fiscal 2003 revenues, particularly in the Power Electronic Systems business unit, and the costs related to the AMSC Wires business unit's occupancy of the Devens, Massachusetts manufacturing plant. "Costs of revenue—product sales and prototype development contracts" in Power Electronics Systems increased by \$6,121,000 due to higher systems shipments. Devens-related costs (including building and equipment depreciation) increased by \$6,428,000 in fiscal 2003 compared to fiscal 2002, when Devens costs were just beginning to be incurred. "Costs of revenue—product sales and prototype development contracts" also increased due to the higher level of product sales in the AMSC Wires business unit and the higher level of prototype development contract revenues in SuperMachines. "Costs of revenue—contract revenue" decreased proportionally with the lower level of contract revenue.

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*Research and Development*

Pro forma R&D expenses, which include amounts classified as costs of revenue and amounts offset by cost sharing funding, decreased by \$3,435,000 to \$33,447,000 in fiscal 2003, compared to \$36,882,000 in fiscal 2002. This decrease was primarily the result of reduced R&D spending in the AMSC Wires and Power Electronic Systems business units of \$3,096,000 and \$2,315,000, respectively, related to the reduction in force implemented as part of our March 2002 restructuring, and additional headcount reductions taken in January 2003. These decreases in R&D spending were partially offset by higher R&D spending, both internally and externally funded, in the SuperMachines business unit of \$1,976,000. A portion of the R&D expenditures related to externally funded development contracts has been classified as costs of revenue (rather than as R&D expenses). Additionally, a portion of R&D expenses was offset by cost sharing funding. Net R&D expenses (exclusive of amounts classified as costs of revenues and amounts offset by cost sharing funding) decreased to \$21,940,000 in fiscal 2003 from \$27,814,000 in fiscal 2002.

Our R&D expenditures are summarized as follows:

	<u>Year Ended</u> <u>3/31/2003</u>	<u>Year Ended</u> <u>3/31/2002</u>
R&D expenses per Consolidated Statements of Operations . . . . .	\$21,940,000	\$27,814,000
R&D expenditures on development contracts classified as Costs of revenue . . . . .	10,997,000	8,757,000
R&D expenditures offset by cost sharing funding . . . . .	<u>510,000</u>	<u>311,000</u>
Pro forma R&D expenses . . . . .	<u>\$33,447,000</u>	<u>\$36,882,000</u>

*Selling, general and administrative*

Pro forma SG&A expenses, which include amounts classified as costs of revenue and amounts offset by cost sharing funding, decreased by \$368,000 to \$17,896,000 in fiscal 2003, compared to \$18,264,000 in fiscal 2002. This decrease was primarily the result of the reductions in force implemented as part of our March 2002 restructuring, and additional headcount reductions taken in January 2003, partially offset by the \$2,624,000 increase in the allowance for doubtful accounts recorded in March of 2003. A portion of the SG&A expenditures related to externally funded development contracts has been classified as costs of revenue (rather than as SG&A expenses). Additionally, a portion of SG&A expenses was offset by cost sharing funding. Net SG&A expenses (exclusive of amounts classified as costs of revenue and amounts offset by cost sharing funding) was \$16,159,000 in fiscal 2003 compared to \$16,313,000 in the prior year.

Our SG&A expenditures are summarized as follows:

	<u>Year Ended</u> <u>3/31/2003</u>	<u>Year Ended</u> <u>3/31/2002</u>
SG&A expenses per Consolidated Statements of Operations . . . . .	\$16,159,000	\$16,313,000
SG&A expenditures on development contracts classified as Costs of revenue . . . . .	1,482,000	1,659,000
SG&A expenditures offset by cost sharing funding . . . . .	<u>255,000</u>	<u>292,000</u>
Pro forma SG&A expenses . . . . .	<u>\$17,896,000</u>	<u>\$18,264,000</u>

We present pro forma R&D and pro forma SG&A expenses, which are non-GAAP measures, because we believe this presentation provides useful information on our aggregate R&D and SG&A spending.

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*Impairment/Restructuring/Pirelli*

An impairment charge was recorded in fiscal 2003 of \$39,231,000 primarily on our building and equipment assets in Devens, Massachusetts, in connection with our plans to transition over the next several years to a lower cost, 2G HTS wire manufacturing methodology.

In fiscal 2002 we recorded \$5,666,000 in restructuring charges and an additional \$4,010,000 charge relating to a Pirelli license cost.

*Non-operating expenses/Interest income*

Interest income decreased to \$869,000 in fiscal 2003 from \$4,451,000 in fiscal 2002. This decrease in interest income reflects the lower cash balances available for investment as a result of cash being used to fund our operations and to purchase property, plant and equipment, as well as lower interest rates available on our investments. Other income (expense), net was \$10,000 in fiscal 2003, compared to \$117,000 in fiscal 2002, consisting primarily of investment gains from long-term marketable securities.

*Liquidity and Capital Resources*

At March 31, 2004, we had cash, cash equivalents and short and long-term marketable securities of \$52,647,000 compared to \$20,049,000 at March 31, 2003. The increase in cash, cash equivalents, and short and long-term marketable securities is the result of an October 2003 public equity offering of 5,721,250 shares of our common stock that generated net proceeds (after deducting underwriting discounts and commissions, but before deducting offering expenses) of \$51,148,000.

For fiscal 2004, our use of cash, excluding the proceeds from the October 2003 public offering, was \$18,550,000, compared to a fiscal 2003 use of cash of \$48,151,000. The principal uses of cash during the fiscal year ended March 31, 2004 were net losses of \$26,733,000, partially offset by depreciation and amortization of \$7,289,000 and higher accounts payable and accrued expenses of \$1,768,000. Cash used in investing activities of \$1,957,000 for capital expenditures was offset by cash provided by financing activities of \$2,852,000 (excluding the proceeds from the October 2003 public offering) derived primarily from proceeds from the exercise of stock options.

We have generated operating losses since our inception in 1987 and expect to continue incurring losses until at least the end of fiscal 2005. Operating losses for the fiscal years ended March 31, 2004, 2003, and 2002 have contributed to net cash used by operating activities of \$17,422,000, \$39,605,000, and \$26,456,000, respectively, for these periods.

In October 2003, we completed a public equity offering of 5,721,250 shares of our common stock that generated net proceeds (after deducting underwriting discounts and commissions, but before deducting offering expenses) of \$51,148,000, in order to supplement our anticipated cash needs for operations as well as our investment in the 2G wire development program. Although our cash requirements fluctuate based on a variety of factors, including customer adoption of our products and our research and development efforts to commercialize our products, we believe that with the proceeds from the public stock offering in October 2003, our available cash will be sufficient to fund our working capital, capital expenditures, and other cash requirements for at least the next 12 months.

We have potential funding commitments (excluding amounts included in accounts receivable) of approximately \$65,301,000 to be received after March 31, 2004 from government and commercial customers,

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compared to \$78,336,000 at March 31, 2003. However, these current funding commitments, including \$54,891,000 on U.S. government contracts, are subject to certain standard cancellation provisions. Additionally, several of our government contracts are being funded incrementally, and as such, are subject to the future authorization and appropriation of government funding on an annual basis. We have a history of successful performance under incrementally-funded contracts with the government.

Included in our current potential funding commitment amount is \$41,019,000 relating to the U.S. Navy 36.5 MW motor contract, which represents the total base program value (excluding certain potential performance-based incentive fees) of \$66,611,000, plus \$317,000 of approved incentive fees, less the \$25,909,000 of revenue recognized for the program through March 31, 2004.

Of the current commitment amount of \$65,301,000 as of March 31, 2004, approximately 60% is billable to and potentially collectable from our customers within the next 12 months.

The possibility exists that we may pursue acquisition and joint venture opportunities in the future that may affect liquidity and capital resource requirements.

To date, inflation and foreign exchange have not had a material impact on our financial results.

***Contractual Obligations***

As of March 31, 2004, we had committed to make the following payments under contractual obligations using cash:

<u>Contractual obligations</u>	<u>Payments due by period</u>				
	<u>Total</u>	<u>Less than 1 year</u>	<u>1-3 years</u>	<u>3-5 years</u>	<u>More than 5 years</u>
Operating leases (rent) . . . . .	\$15,757,000	\$ 3,136,000	\$ 5,762,000	\$5,247,000	\$1,612,000
Operating leases (other) . . . . .	452,000	236,000	214,000	2,000	—
Purchase obligations (subcontracts) . . . . .	22,568,000	11,581,000	10,987,000	—	—
Purchase obligations (purchase orders) . . . . .	5,885,000	5,885,000	—	—	—
Total contractual cash obligations . . . . .	<u>\$44,662,000</u>	<u>\$20,838,000</u>	<u>\$16,963,000</u>	<u>\$5,249,000</u>	<u>\$1,612,000</u>

Over 97% of the purchase obligations (subcontracts) of \$22,568,000 relate to the U.S. Navy 36.5 MW motor program and the U.S. Department of Energy LIPA cable project and would be cancelable in the event of a termination of contract funding by the U.S. government. Purchase obligations (purchase orders) of \$5,885,000 consist of ordinary-course purchase commitments for expense items and capital equipment, as well as a significant amount of purchase orders for materials and supplies on government-funded programs.

***New Accounting Pronouncements***

In January 2003, the FASB issued FASB Interpretation No. 46 (FIN 46), "Consolidation of Variable Interest Entities." In general, a variable interest entity is a corporation, partnership, trust or any other legal structure used for business purposes that either (a) does not have equity investors with voting rights or (b) has equity investors that do not provide sufficient financial resources for the entity to support its activities. A variable interest entity often holds financial assets, including loans or receivables, real estate or other property. Variable interest entities have been commonly referred to as special-purpose entities or off-balance sheet structures. This Interpretation



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requires a variable interest entity to be consolidated by a company if that company is subject to a majority of the risk of loss from the variable interest entity's activities or entitled to receive a majority of the entity's residual returns or both. In July 2003, the FASB added a limited-scope project to its agenda to modify FIN 46. In December 2003, the FASB released a revised version of FIN 46 (referred to as FIN 46R) clarifying certain aspects of FIN 46 and providing certain entities with exemptions from the requirements of FIN 46. FIN 46R requires the application of either FIN 46 or FIN 46R to all Special Purpose Entities ("SPEs") created prior to February 1, 2003 at the end of the first interim or annual reporting period ending after December 15, 2003. All entities created after January 31, 2003 were already required to be analyzed under FIN 46, and they must continue to do so, unless FIN 46R is adopted early. FIN 46R will be applicable to all non-SPEs created prior to February 1, 2003 at the end of the first interim or annual reporting period ending after March 15, 2004. The adoption of this Interpretation did not have a material effect on our consolidated financial statements for the year ended March 31, 2004.

In May 2003, the Financial Accounting Standards Board issued Statement of Financial Accounting Standards No. 150, "Accounting for Certain Financial Instruments with Characteristics of both Liabilities and Equity" (SFAS No. 150). This accounting standard establishes standards for classifying and measuring certain financial instruments with characteristics of both liabilities and equity. It requires that certain financial instruments that were previously classified as equity now be classified as a liability. This accounting standard is effective for financial instruments entered into or modified after May 31, 2003, and otherwise at the beginning of the first interim period beginning after June 15, 2003. The adoption of this SFAS did not have a material effect on our consolidated financial statements for the year ended March 31, 2004.

**FUTURE OPERATING RESULTS**

Various statements included herein, as well as other statements made from time to time by our representatives, which relate to future matters (including but not limited to statements concerning our future commercial success) constitute forward looking statements and are made under the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995. There are a number of important factors which could cause our actual results of operations and financial condition in the future to vary from that indicated in such forward looking statements. Factors that may cause such differences include, without limitation, the risks, uncertainties and other information set forth below.

**We have a history of operating losses, and we expect to incur losses in the future.**

We have been principally engaged in research and development activities. We have incurred net losses in each year since our inception. Our net loss for the fiscal years ended March 31, 2004, March 31, 2003, and March 31, 2002 was \$26,733,000, \$87,633,000, and \$56,985,000, respectively. Our accumulated deficit as of March 31, 2004 was \$299,843,000. We expect to continue to incur operating losses until at least the end of fiscal 2005, and there can be no assurance that we will ever achieve profitability.

We had cash, cash-equivalents and long-term marketable securities totaling \$52,647,000 at March 31, 2004. In October 2003, we completed a public offering of 5,721,250 shares of our common stock that generated net proceeds (after deducting underwriting discounts and commissions, but before deducting offering expenses) of \$51,148,000. With the proceeds from this stock offering in October 2003, we believe our available cash will be sufficient to fund our working capital, capital expenditures, and other cash requirements for at least the next 12 months. However, we may need additional funds sooner than anticipated if our performance deviates significantly from our current business plan, if there are significant changes in competitive or other market factors, or if unforeseen circumstances arise. Such funds may not be available, or may not be available under terms acceptable to us.

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**There are a number of technological challenges that must be successfully addressed before our superconductor products can gain widespread commercial acceptance, and our inability to address such technological challenges could adversely affect our ability to acquire customers for our products.**

Many of our products are in the early stages of commercialization and testing, while others are still under development. We do not believe any company has yet successfully developed and commercialized significant quantities of HTS wire or wire products. There are a number of technological challenges that we must successfully address to complete our development and commercialization efforts. We also believe that several years of further development in the cable and motor industries will be necessary before a substantial number of additional commercial applications for our HTS wire in these industries can be developed and proven. We may also need to improve the performance and/or reduce the cost of our HTS wire to expand the number of commercial applications for it. We may be unable to meet such technological challenges. Delays in development, as a result of technological challenges or other factors, may result in the introduction or commercial acceptance of our products later than anticipated.

**The commercial uses of superconductor products are very limited today, and a widespread commercial market for our products may not develop.**

To date, there has been no widespread commercial use of HTS products. Commercial acceptance of low temperature superconductor (LTS) products, other than for medical magnetic resonance imaging and superconductor magnetic energy storage (SMES) products, has been significantly limited by the cooling requirements of LTS materials. Even if the technological hurdles currently limiting commercial uses of HTS and LTS products are overcome, it is uncertain whether a robust commercial market for those new and unproven products will ever develop. It is possible that the market demands we currently anticipate for our HTS and LTS products will not develop and that superconductor products will never achieve widespread commercial acceptance.

**We have limited experience manufacturing our HTS products in commercial quantities, and failure to manufacture our HTS products in commercial quantities at acceptable costs and quality levels could impair our ability to meet customer delivery requirements.**

To be financially successful, we will have to manufacture our products in commercial quantities at acceptable costs while also preserving the quality levels we have achieved in manufacturing these products in limited quantities. This presents a number of technological and engineering challenges for us. In particular, we will need to improve the manufacturing yields we are achieving in the early stage of operation of our manufacturing plant located in Devens, Massachusetts. We cannot make assurances that we will be successful in developing product designs and manufacturing processes that permit us to manufacture our HTS products in commercial quantities at commercially acceptable costs while preserving quality. In addition, we may incur significant unforeseen expenses in our product design and manufacturing efforts. The failure to manufacture a sufficient quantity of HTS wire at acceptable quality levels could impair our ability to meet customer delivery commitments and adversely affect our revenue and cash flow.

**We have limited experience in marketing and selling our products, and our failure to effectively market and sell our products could adversely affect our revenue and cash flow.**

To date, we have only limited experience marketing and selling our products, and there are very few people anywhere who have significant experience marketing or selling superconductor products. Once our products are ready for widespread commercial use, we will have to develop a marketing and sales organization that will

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effectively demonstrate the advantages of our products over both more traditional products and competing superconductor products or other technologies. We may not be successful in our efforts to market this new and unfamiliar technology, and we may not be able to establish an effective sales and distribution organization.

We may decide to enter into arrangements with third parties for the marketing or distribution of our products, including arrangements in which our products, such as HTS wire, are included as a component of a larger product, such as a motor. For example, we have a marketing and sales alliance with GE Energy giving GE Energy the exclusive right to offer our Distributed-SMES (D-SMES) and dynamic VAR (D-VAR) product lines in the United States and South America to utilities and the right to sell industrial Power Quality-Industrial Voltage Restorers (PQ-IVR) to one of GE’s global industrial accounts. We also have a distribution agreement with Bridex Technologies Pte, Ltd., a power system solution integrator and technology company in Singapore, whereby Bridex markets and sells our integrated power electronic systems within Asia Pacific markets. By entering into marketing and sales alliances, the financial benefits to us of commercializing our products are dependent on the efforts of others. We may not be able to enter into marketing or distribution arrangements with third parties on financially acceptable terms, and third parties may not be successful in selling our products or applications incorporating our products.

**Our products face intense competition both from superconductor products developed by others and from traditional, non-superconductor products and alternative technologies, which could limit our ability to acquire or retain customers.**

As we begin to market and sell our superconductor products, we will face intense competition both from competitors in the superconductor field and from vendors of traditional products and new technologies. There are many companies in the United States, Europe, Japan and China engaged in the development of HTS products, including Sumitomo Electric Industries, Intermagnetics General, European Advanced Superconductors, Trithor, Fujikura, Furukawa Electric, and Innova Superconductor Technology. The superconductor industry is characterized by rapidly changing and advancing technology. Our future success will depend in large part upon our ability to keep pace with advancing HTS and LTS technology and developing industry standards. Our SMES products and integrated power electronic products, such as D-VAR, compete with a variety of other products such as dynamic voltage restorers (DVRs), static VAR compensators (SVCs), static compensators (STATCOMS), flywheels, power electronic converters and battery-based power supply systems. Competition for our PowerModules™ includes products from Ecostar, Inverpower, SatCon, Semikron and Trace. The HTS motor and generator products that we are developing face competition from copper wire-based motors and generators, and from permanent magnet motors that are being developed. Research efforts and technological advances made by others in the superconductor field or in other areas with applications to the power quality and reliability markets may render our development efforts obsolete. Many of our competitors have substantially greater financial resources, research and development, manufacturing and marketing capabilities than we have. In addition, as the HTS wire, HTS electric motors and generators, and power electronic systems markets develop, other large industrial companies may enter those fields and compete with us. If we are unable to compete successfully, it may harm our business, which in turn may limit our ability to acquire or retain customers.

**Third parties have or may acquire patents that cover the high temperature superconductor materials we use or may use in the future to manufacture our products, and our success depends on our ability to license such patents or other proprietary rights.**

We expect that some or all of the HTS materials and technologies we use in designing and manufacturing our products are or will become covered by patents issued to other parties, including our competitors. If that is the case, we will need either to acquire licenses to these patents or to successfully contest the validity of these

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL**  
**CONDITION AND RESULTS OF OPERATIONS—(Continued)**

patents. The owners of these patents may refuse to grant licenses to us, or may be willing to do so only on terms that we find commercially unreasonable. If we are unable to obtain these licenses, we may have to contest the validity or scope of those patents to avoid infringement claims by the owners of these patents. It is possible that we will not be successful in contesting the validity or scope of a patent, or that we will not prevail in a patent infringement claim brought against us. Even if we are successful in such a proceeding, we could incur substantial costs and diversion of management resources in prosecuting or defending such a proceeding.

**Our patents may not provide meaningful protection for our technology, which could result in us losing some or all of our market position.**

We own or have licensing rights under many patents and pending patent applications. However, the patents that we own or license may not provide us with meaningful protection of our technologies and may not prevent our competitors from using similar technologies, for a variety of reasons, such as:

- the patent applications that we or our licensors file may not result in patents being issued;
- any patents issued may be challenged by third parties; and
- others may independently develop similar technologies not protected by our patents or design around the patented aspects of any technologies we develop.

Moreover, we could incur substantial litigation costs in defending the validity of our own patents. We also rely on trade secrets and proprietary know-how to protect our intellectual property. However, our non-disclosure agreements and other safeguards may not provide meaningful protection for our trade secrets and other proprietary information. If the patents that we own or license or our trade secrets and proprietary know-how fail to protect our technologies, our market position may be adversely affected.

**Our success is dependent upon attracting and retaining qualified personnel, and our inability to do so could significantly damage our business and prospects.**

Our success will depend in large part upon our ability to attract and retain highly qualified research and development, management, manufacturing, marketing and sales personnel. Hiring those persons may be especially difficult due to the specialized nature of our business.

We are particularly dependent upon the services of Dr. Gregory J. Yurek, our co-founder, Chairman of the Board and Chief Executive Officer, and Dr. Alexis P. Malozemoff, our Chief Technical Officer. The loss of the services of either of those individuals could significantly affect our business and future prospects.

**Our contracts with the U.S. government are subject to audit, modification or termination by the U.S. government, and the continued funding of such contracts remains subject to annual congressional appropriation, which if not approved could adversely affect our results of operations and financial condition.**

As a company which contracts with the U.S. government, we are subject to financial audits and other reviews by the U.S. government of our costs and performance, accounting and general business practices relating to these contracts. Based on the results of its audits, the U.S. government may adjust our contract-related costs and fees. No assurances can be given that adjustments arising from government audits and reviews would not have a material adverse effect on our results of operations.

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL**  
**CONDITION AND RESULTS OF OPERATIONS—(Continued)**

All of our U.S. government contracts can be terminated by the U.S. government for its convenience. Termination for convenience provisions provide only for our recovery of costs incurred or committed, settlement expenses and profit on work completed prior to termination. In addition to the right of the U.S. government to terminate its contract with us, U.S. government contracts are conditioned upon the continuing approval by Congress of the necessary spending to honor such contracts. Congress often appropriates funds for a program on a fiscal-year basis even though contract performance may take more than one year. Consequently, at the beginning of many major governmental programs, contracts often may not be fully funded, and additional monies are then committed to the contract only if, as and when appropriations are made by Congress for future fiscal years. There can be no assurance that our U.S. government contracts will not be terminated or suspended in the future. The U.S. government's termination of, or failure to fully fund, one or more of our contracts would have a negative impact on our operating results and financial condition. Further, in the event that any of our government contracts are terminated for cause, it could affect our ability to obtain future government contracts which could, in turn, seriously harm our ability to develop our technologies and products.

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## **REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

To the Board of Directors and stockholders of  
American Superconductor Corporation:

In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of operations, comprehensive loss, stockholders' equity and cash flows present fairly, in all material respects, the financial position of American Superconductor Corporation and its subsidiaries at March 31, 2004 and 2003, and the results of their operations and their cash flows for each of the three years in the period ended March 31, 2004 in conformity with accounting principles generally accepted in the United States of America. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits of these statements in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

/s/ PricewaterhouseCoopers LLP

Boston, Massachusetts  
May 5, 2004

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**CONSOLIDATED BALANCE SHEETS**

	<u>March 31, 2004</u>	<u>March 31, 2003</u>
<b>ASSETS</b>		
Current assets:		
Cash and cash equivalents .....	\$ 31,241,237	\$ 18,487,752
Short-term marketable securities .....	15,045,419	—
Accounts receivable, net .....	8,566,657	5,446,007
Inventory .....	4,889,394	5,117,786
Prepaid expenses and other current assets .....	906,956	1,264,839
Total current assets .....	<u>60,649,663</u>	<u>30,316,384</u>
Property, plant and equipment:		
Land .....	4,021,611	4,021,611
Construction in progress—building and equipment .....	1,506,326	8,773,458
Building .....	34,102,138	34,102,138
Equipment .....	40,645,778	31,966,730
Furniture and fixtures .....	4,168,165	4,167,345
Leasehold improvements .....	6,269,037	6,246,497
	<u>90,713,055</u>	<u>89,277,779</u>
Less: accumulated depreciation .....	<u>(34,082,036)</u>	<u>(28,241,982)</u>
Property, plant and equipment, net .....	56,631,019	61,035,797
Long-term marketable securities .....	6,360,047	1,561,120
Long-term inventory .....	—	3,250,000
Goodwill .....	1,107,735	1,107,735
Other assets .....	5,150,492	4,707,603
Total assets .....	<u>\$ 129,898,956</u>	<u>\$ 101,978,639</u>
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
Current liabilities:		
Accounts payable and accrued expenses .....	\$ 11,541,634	\$ 9,773,874
Deferred revenue .....	2,905,792	1,136,002
Total current liabilities .....	14,447,426	10,909,876
Long-term deferred revenue .....	—	3,250,000
Commitments and contingencies (Note 11)		
Stockholders' equity:		
Common stock, \$.01 par value		
Authorized shares-50,000,000; shares issued and outstanding		
27,614,149 and 21,293,772 at March 31, 2004 and March 31,		
2003, respectively .....	276,141	212,938
Additional paid-in capital .....	415,729,441	361,024,689
Deferred compensation .....	(701,524)	(311,563)
Accumulated other comprehensive income (loss) .....	(9,337)	2,407
Accumulated deficit .....	<u>(299,843,191)</u>	<u>(273,109,708)</u>
Total stockholders' equity .....	<u>115,451,530</u>	<u>87,818,763</u>
Total liabilities and stockholders' equity .....	<u>\$ 129,898,956</u>	<u>\$ 101,978,639</u>

The accompanying notes are an integral part of the consolidated financial statements.



**AMERICAN SUPERCONDUCTOR CORPORATION**  
**CONSOLIDATED STATEMENTS OF OPERATIONS**

	Year ended March 31,		
	2004	2003	2002
Revenues:			
Contract revenue . . . . .	\$ 874,735	\$ 715,109	\$ 2,111,460
Product sales and prototype development contracts . . . . .	40,433,970	20,305,183	9,538,640
Total revenues . . . . .	41,308,705	21,020,292	11,650,100
Costs and expenses:			
Costs of revenue-contract revenue . . . . .	825,223	684,341	2,100,789
Costs of revenue-product sales and prototype development contracts . . . . .	43,454,971	31,517,605	17,298,856
Research and development . . . . .	14,056,035	21,940,369	27,814,044
Selling, general and administrative . . . . .	8,658,750	16,158,585	16,313,306
Pirelli license costs . . . . .	—	—	4,009,890
Restructuring charges . . . . .	—	—	5,666,059
Impairment charge . . . . .	—	39,230,877	—
Total costs and expenses . . . . .	66,994,979	109,531,777	73,202,944
Operating loss . . . . .	(25,686,274)	(88,511,485)	(61,552,844)
Interest income . . . . .	295,656	868,648	4,450,769
Fees—abandoned debt financing . . . . .	(1,387,857)	—	—
Other income (expense), net . . . . .	44,992	9,910	117,186
Net loss . . . . .	<u>\$(26,733,483)</u>	<u>\$(87,632,927)</u>	<u>\$(56,984,889)</u>
Net loss per common share			
Basic and Diluted . . . . .	<u>\$ (1.10)</u>	<u>\$ (4.21)</u>	<u>\$ (2.79)</u>
Weighted average number of common shares outstanding			
Basic and Diluted . . . . .	<u>24,196,077</u>	<u>20,830,846</u>	<u>20,409,233</u>

The accompanying notes are an integral part of the consolidated financial statements.

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**CONSOLIDATED STATEMENTS OF CASH FLOWS**

	Year ended March 31,		
	2004	2003	2002
Cash flows from operating activities:			
Net loss .....	\$(26,733,483)	\$(87,632,927)	\$(56,984,889)
Adjustments to reconcile net loss to net cash used in operations:			
Depreciation and amortization .....	7,289,225	8,102,136	5,509,043
Impairment charge .....	—	39,230,877	—
Allowance for doubtful accounts .....	—	2,624,010	727,028
Inventory write-down charges .....	—	3,421,100	3,464,275
Loss on disposal of PP&E and abandoned patents .....	128,163	875,123	—
Restructuring charges (non-cash portion) .....	—	—	2,929,741
Pirelli license payment (non-cash portion) .....	—	—	1,720,500
IRL license payment .....	202,950	—	—
Amortization of deferred compensation expense .....	262,078	14,777	106,067
Amortization of deferred warrant costs .....	53,290	174,457	268,470
Stock compensation expense .....	358,607	367,192	479,472
Changes in operating asset and liability accounts :			
Accounts receivable .....	(3,120,650)	(486,512)	4,947,670
Inventory-current and long-term .....	3,478,392	5,360,285	(2,376,178)
Prepaid expenses and other current assets .....	371,925	(532,114)	(167,801)
Accounts payable and accrued expenses .....	1,767,760	(10,665,557)	11,863,409
Deferred revenue—current and long-term .....	(1,480,210)	(457,804)	1,056,806
Net cash used in operating activities .....	(17,421,953)	(39,604,957)	(26,456,387)
Cash flows from investing activities:			
Purchase of property, plant and equipment .....	(1,957,208)	(7,799,235)	(63,122,176)
Proceeds from the sale of property, plant and equipment .....	115,235	—	—
Purchase of long-term marketable securities .....	(21,239,246)	(770,000)	—
Proceeds from the sale of long-term marketable securities .....	1,369,686	30,119,683	39,452,114
Increase in other assets .....	(1,614,098)	(992,457)	(3,173,100)
Net cash (used in) provided by investing activities .....	(23,325,631)	20,557,991	(26,843,162)
Cash flows from financing activities:			
Net proceeds from secondary public offering .....	50,649,030	—	—
Net proceeds from issuance of common stock .....	2,852,039	363,791	1,407,177
Net cash provided by financing activities .....	53,501,069	363,791	1,407,177
Net increase (decrease) in cash and cash equivalents .....	12,753,485	(18,683,175)	(51,892,372)
Cash and cash equivalents at beginning of period .....	18,487,752	37,170,927	89,063,299
Cash and cash equivalents at end of period .....	<u>\$ 31,241,237</u>	<u>\$ 18,487,752</u>	<u>\$ 37,170,927</u>
Supplemental schedule of cash flow information:			
Noncash purchase of NST Inventory .....	\$ —	\$ 149,340	\$ —
Noncash purchase of NST Property, Plant & Equipment .....	—	1,763,680	—
Noncash purchase of NST Patent assets .....	—	200,000	—
Noncash issuance of common stock-NKT Holding ....	<u>\$ —</u>	<u>\$ 2,113,020</u>	<u>\$ —</u>
Noncash issuance of common stock .....	\$ 823,635	\$ 727,469	\$ 585,539

The accompanying notes are an integral part of the consolidated financial statements.

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS**

	Year ended March 31,		
	<u>2004</u>	<u>2003</u>	<u>2002</u>
Net loss .....	\$(26,733,483)	\$(87,632,927)	\$(56,984,889)
Other comprehensive income (loss)			
Foreign currency translation .....	13,469	24,646	7,007
Unrealized gains (losses) on investments .....	<u>(25,213)</u>	<u>(117,880)</u>	<u>(681,007)</u>
Other comprehensive income (loss) .....	<u>(11,744)</u>	<u>(93,234)</u>	<u>(674,000)</u>
Comprehensive income (loss) .....	<u><u>\$(26,745,227)</u></u>	<u><u>\$(87,726,161)</u></u>	<u><u>\$(57,658,889)</u></u>

The accompanying notes are an integral part of the consolidated financial statements.

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY**

	<u>Common Stock</u>		<u>Additional Paid-in Capital</u>	<u>Deferred Compensation</u>	<u>Deferred Contract Costs</u>	<u>Other Comprehensive Income (Loss)</u>	<u>Accumulated Deficit</u>	<u>Total Stockholders' Equity</u>
	<u>Number of Shares</u>	<u>Par Value</u>						
Balance at March 31, 2001	20,290,596	\$202,906	\$355,843,848	\$(424,266)	\$(336,347)	\$ 769,641	\$(128,491,892)	\$227,563,890
Exercise of stock options	75,166	752	708,748					709,500
Issuance of common stock—ESPP	96,720	967	696,710					697,677
Amortization of deferred compensation				106,067				106,067
Stock compensation expense	35,032	350	479,122					479,472
Amortization of deferred warrant costs			53,290		215,180			268,470
Unrealized loss on investments						(681,007)		(681,007)
Cumulative translation adjustment						7,007		7,007
Net loss							(56,984,889)	(56,984,889)
Balance at March 31, 2002	20,497,514	\$204,975	\$357,781,718	\$(318,199)	\$(121,167)	\$ 95,641	\$(185,476,781)	\$172,166,187
Issuance of common stock—ESPP	88,881	889	362,902					363,791
Purchase of NST	546,000	5,460	2,107,560					2,113,020
Issuance of common stock to Pirelli	50,000	500	345,000					345,500
Deferred Compensation	30,000	300	7,841	(8,141)				0
Amortization of deferred compensation				14,777				14,777
Stock compensation expense	81,377	814	366,378					367,192
Amortization of deferred warrant costs			53,290		121,167			174,457
Unrealized loss on investments						(117,880)		(117,880)
Cumulative translation adjustment						24,646		24,646
Net loss							(87,632,927)	(87,632,927)
Balance at March 31, 2003	21,293,772	\$212,938	\$361,024,689	\$(311,563)	\$ —	\$ 2,407	\$(273,109,708)	\$ 87,818,763
Exercise of stock options	282,010	2,820	2,621,569					2,624,389
Secondary public offering of common stock	5,721,250	57,212	50,591,818					50,649,030
Issuance of common stock—ESPP	90,505	905	226,745					227,650
Issuance of common stock to IRL	15,000	150	202,800					202,950
Deferred Compensation	149,750	1,497	650,542	(652,039)				0
Amortization of deferred compensation				262,078				262,078
Stock compensation expense	61,862	619	357,988					358,607
Amortization of deferred warrant costs			53,290					53,290
Unrealized loss on investments						(25,213)		(25,213)
Cumulative translation adjustment						13,469		13,469
Net loss							(26,733,483)	(26,733,483)
Balance at March 31, 2004	27,614,149	\$276,141	\$415,729,441	\$(701,524)	\$ —	\$ (9,337)	\$(299,843,191)	\$115,451,530

The accompanying notes are an integral part of the consolidated financial statements.

# AMERICAN SUPERCONDUCTOR CORPORATION

## NOTES TO CONSOLIDATED STATEMENTS

### 1. Nature of the Business and Operations

American Superconductor Corporation (the Company or AMSC) was formed on April 9, 1987. The Company is focused on developing, manufacturing and selling products using two core technologies: high temperature superconductor (HTS) wires and power electronic converters for electric power applications. The Company also assembles superconductor wires and power electronic converters into fully-integrated products, such as HTS ship propulsion motors and dynamic reactive compensation systems, which the Company sells or plans to sell to end users. The Company operates in three business segments—AMSC Wires, SuperMachines and Power Electronic Systems.

The Company has generated operating losses since its inception in 1987 and expects to continue incurring losses until at least the end of fiscal 2005. Operating losses for the fiscal years ended March 31, 2004, 2003 and 2002 have contributed to net cash used by operating activities of \$17,421,953, \$39,604,957 and \$26,456,387, respectively, for these periods.

The Company had cash, cash equivalents, and short and long-term marketable securities of \$52,646,703 as of March 31, 2004. To supplement the Company's anticipated cash needs for operations, as well as its investment in the second generation (2G) wire development program, the Company issued 5,721,250 shares of its common stock in a public equity offering in October 2003 that raised \$51,147,975 (after deducting underwriting commissions and discounts but before deducting offering expenses).

The Company currently derives a portion of its revenue from research and development contracts. The Company recorded contract revenue related to research and development contracts of \$874,735, \$715,109 and \$2,111,460 for the fiscal years ended March 31, 2004, 2003, and 2002, respectively. In addition, the Company recorded prototype development contract revenue on U.S. Navy and other contracts of \$27,326,819, \$8,220,348 and \$6,036,591, which are included under "Revenues – Product sales and prototype development contracts," for the fiscal years ended March 31, 2004, 2003 and 2002, respectively.

Costs of revenue include research and development (R&D) and selling, general, and administrative (SG&A) expenses that are incurred in the performance of these development contracts.

R&D and SG&A expenses included as costs of revenue for these development contracts were as follows:

	For the years ended March 31,		
	2004	2003	2002
Research and development expenses . . . . .	\$25,442,000	\$10,997,000	\$8,757,000
Selling, general, and administrative expenses . . . . .	\$ 7,395,000	\$ 1,482,000	\$1,659,000

### 2. Summary of Significant Accounting Policies

A summary of the Company's significant accounting policies follows:

#### *Basis of Consolidation*

The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries. All significant intercompany balances are eliminated. Certain prior year amounts have been reclassified to be consistent with the current year presentation.

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

***Cash Equivalents***

The Company considers all highly liquid debt instruments with current maturities of three months or less to be cash equivalents. Cash equivalents consist principally of money market accounts and corporate debt instruments.

***Short-term Marketable Securities***

Short-term marketable securities, with current maturities of greater than 3 months but less than 12 months, consist primarily of corporate bonds and other debt securities, in accordance with Statement of Financial Accounting Standards (SFAS) No. 115, "Accounting for Certain Investments in Debt and Equity Securities" issued by the Financial Standards Accounting Board (FASB). The Company determines the appropriate classification of its marketable securities at the time of purchase and re-evaluates such classification as of each balance sheet date.

***Accounts Receivable***

Due to scheduled billing requirements specified under certain contracts, a portion of the Company's accounts receivable balance at March 31, 2004 and 2003 was unbilled. The Company expects most of the unbilled balance at March 31, 2004 to be billed by the first quarter of the fiscal year ending March 31, 2005. At March 31, 2004, the Company had two customers that represented approximately 40% and 17% of the total accounts receivable balance. At March 31, 2003, the Company had three customers that represented approximately 48%, 15% and 10% of the total accounts receivable balance.

***Long-term Marketable Securities***

Long-term marketable securities, with current maturities of 12 months or more, consist primarily of corporate bonds and other debt securities, in accordance with SFAS No. 115, "Accounting for Certain Investments in Debt and Equity Securities." The Company determines the appropriate classification of its marketable securities at the time of purchase and re-evaluates such classification as of each balance sheet date.

***Inventories***

Inventories are stated at the lower of cost (determined on a first-in first-out basis) or market.

***Property and Equipment***

The Company accounts for depreciation and amortization using the straight-line method to allocate the cost of property and equipment over their estimated useful lives as follows:

<u>Asset classification</u>	<u>Estimated useful life</u>
Building . . . . .	40 years
Process upgrades to the building . . . . .	10-40 years
Machinery and equipment . . . . .	5-10 years
Furniture and fixtures . . . . .	3 years
Leasehold improvements . . . . .	Remaining lease term

Expenditures for maintenance and repairs are expensed as incurred. Upon retirement or other disposition of assets, the costs and related accumulated depreciation are eliminated from the accounts and the resulting gain or loss is reflected in income.

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

Depreciation expense was \$6,313,238, \$7,098,641 and \$4,888,353 for the fiscal years ended March 31, 2004, 2003, and 2002, respectively.

***Acquisition of Assets***

On October 31, 2002, the Company acquired fixed assets, inventory and patents from Nordic Superconductor Technologies A/S (NST), a subsidiary of NKT Holding A/S, in exchange for 546,000 shares of the Company's common stock valued at \$2,113,020. NKT Holding has agreed to hold these shares for at least two years. NST had developed and marketed HTS wire to customers in Europe, Asia, and North America. The Company did not assume any debt or other liabilities in the transaction. No NST employees were retained by the Company. The assets acquired were fixed assets valued at \$1,763,680, patents valued at \$200,000, and inventory valued at \$149,340.

***Goodwill and Other Intangible Assets***

The Company has intangible assets consisting of goodwill, licenses and patents.

Effective April 1, 2001, the Company adopted the provisions of SFAS No. 142, "Goodwill and Other Intangible Assets," which requires that ratable amortization of goodwill and certain intangibles be replaced with periodic tests of goodwill's impairment and that other intangibles be amortized over their useful lives unless these lives are determined to be indefinite. SFAS No. 142 requires that goodwill be tested annually for impairment under a two-step process or whenever events or changes in circumstances suggest that the carrying value of an asset may not be recoverable. The Company amortizes licenses and patents using the straight-line method over a period up to 7 years.

The Company reviews its goodwill at least annually or when events or changes in circumstances indicate that the carrying amount of such assets may not be fully recoverable. If the carrying amount of the net tangible and intangible assets in a given reporting unit exceeds the reporting unit's fair value, a detailed impairment loss analysis would be performed to calculate the amount of impairment, if any, prescribed by SFAS No. 142. Goodwill of \$1,107,735 at March 31, 2004 and 2003 represents the excess of the purchase price paid for the acquisition of substantially all of the assets of Integrated Electronics, LLC (IE) on June 1, 2000, over the fair value of IE's assets, less amortization. The IE transaction was accounted for under the purchase method of accounting. Goodwill was initially calculated to be \$1,329,282, and was amortized until the adoption of SFAS 142 on April 1, 2001.

Goodwill amortization expense was \$0 in the fiscal years ended March 31, 2004, 2003 and 2002. Accumulated goodwill amortization was \$221,547 at March 31, 2004 and 2003.

***Accounting for Impairment of Long-Lived Assets***

The Company periodically evaluates its long-lived assets for potential impairment under SFAS No. 144, "Accounting for the Impairment or Disposal of Long-Lived Assets." The Company performs these evaluations whenever events or circumstances suggest that the carrying amount of an asset or group of assets is not recoverable. The Company's judgments regarding the existence of impairment indicators are based on market and operational performance. Indicators of potential impairment include:

- a significant change in the manner in which an asset is used;

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

- a significant decrease in the market value of an asset;
- a significant adverse change in its business or the industry in which it is sold;
- a current period operating cash flow loss combined with a history of operating or cash flow losses or a projection or forecast that demonstrates continuing losses associated with the asset; and
- significant advances in the Company's technologies that require changes in the manufacturing process.

If the Company believes an indicator of potential impairment exists, it tests to determine whether impairment recognition criteria in SFAS No. 144 have been met. To analyze a potential impairment, the Company projects undiscounted future cash flows over the remaining life of the asset or the primary asset in the asset group. If these projected cash flows are less than the carrying amount, an impairment loss is recognized based on the fair value of the asset or asset group less any costs of disposition. Evaluating the impairment requires judgment by the Company's management to estimate future operating results and cash flows. If different estimates were used, the amount and timing of asset impairments could be affected. The Company charges impairments of the long-lived assets to operations if its evaluations indicate that the carrying values of these assets are not recoverable.

***Revenue Recognition and Deferred Revenue***

For certain arrangements, such as contracts to perform research and development, prototype development contracts and certain product sales, the Company records revenues using the percentage of completion method, measured by the relationship of costs incurred to total estimated contract costs. The Company follows this method since reasonably dependable estimates of the revenue and costs applicable to various stages of a contract can be made. Since many contracts extend over a long period of time, revisions in cost and funding estimates during the progress of work have the effect of adjusting earnings applicable to prior-period performance in the current period. Recognized revenues and profit or loss are subject to revisions as the contract progresses to completion. Revisions in profit or loss estimates are charged to income in the period in which the facts that give rise to the revision become known. Some of the Company's contracts contain incentive provisions, based upon performance in relation to established targets, which are recognized in the contract estimates when deemed realizable.

The Company recognizes revenue from product sales upon customer acceptance, which can occur at the time of delivery, installation or post-installation, where applicable, provided persuasive evidence of an arrangement exists, delivery has occurred, the sales price is fixed or determinable and collectibility is reasonably assured. When other significant obligations remain after products are delivered, revenue is recognized only after such obligations (including buyback provisions) are fulfilled. Customer deposits received in advance of revenue recognition are recorded as deferred revenue until customer acceptance is received. Deferred revenue also represents the amount billed to and/or collected from commercial and government customers on contracts which permit billings to occur in advance of contract performance/revenue recognition.

For the fiscal year ended March 31, 2004, the Company had two customers that represented approximately 64% and 14% of total revenue, respectively. For the fiscal year ended March 31, 2003, the Company had two customers that represented approximately 39% and 37% of total revenue, respectively. For the fiscal year ended March 31, 2002, the Company had three customers that represented approximately 51%, 14% and 13% of total revenue, respectively.

***Research and Development Costs***

Research and development costs are expensed as incurred.



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**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

***Income Taxes***

Deferred income taxes are recognized for the tax consequences in future years of differences between the tax bases of assets and liabilities and their financial reporting amounts at each fiscal year end based on enacted tax laws and statutory tax rates applicable to the periods in which the differences are expected to affect taxable income. Valuation allowances are established when necessary to reduce net deferred tax assets to the amount expected to be realized. No current or deferred income taxes have been provided because of the net operating losses incurred by the Company since its inception.

***Stock-Based Compensation Plans and Pro Forma Stock-Based Compensation Expense***

The Company applies Accounting Principles Board Opinion (APB) No. 25, "Accounting for Stock Issued to Employees," and related interpretations in accounting for its stock-based compensation plan. Accordingly, no accounting recognition is given to stock options granted at fair market value until they are exercised. Upon exercise, net proceeds, including tax benefits realized, are credited to stockholders' equity.

In October 1995, the FASB issued SFAS No. 123, "Accounting for Stock-Based Compensation," which sets forth a fair-value-based method of recognizing stock-based compensation expense. As permitted by SFAS No. 123, the Company has elected to continue to apply APB No. 25 to account for its stock-based compensation plan.

Had compensation cost for awards granted under the Company's stock-based compensation plan been determined based on the fair value at the grant dates consistent with the method set forth under SFAS No. 123, the effect on certain financial information of the Company would have been as follows:

	<b>For the fiscal years ended March 31,</b>		
	<b>2004</b>	<b>2003</b>	<b>2002</b>
Net loss .....	\$(26,733,483)	\$(87,632,927)	\$(56,984,889)
Add: Stock compensation expense under APB 25 .....	262,078	14,777	106,067
Less: Stock compensation costs, net of tax, had all stock options been recorded at fair value per SFAS 123 .....	(4,211,225)	(6,725,805)	(10,096,333)
Adjusted net loss .....	\$(30,682,630)	\$(94,343,955)	\$(66,975,155)
Weighted average shares, basic and diluted .....	24,196,077	20,830,846	20,409,233
Net loss per share, as reported .....	\$ (1.10)	\$ (4.21)	\$ (2.79)
Net loss per share, adjusted .....	\$ (1.27)	\$ (4.53)	\$ (3.28)

The pro forma amounts include the effects of all activity under the Company's stock-based compensation plans since April 1, 1999. The fair value of each option grant is estimated on the date of grant using the Black-Scholes option pricing model with the following assumptions used for grants:

	<b>Fiscal 2004</b>	<b>Fiscal 2003</b>	<b>Fiscal 2002</b>
Dividend yield .....	None	None	None
Expected volatility .....	78%	101%	87%
Risk-free interest rate .....	3.0%	4.0%	4.5%
Expected life (years) .....	6.5	6.5	6.8

Weighted average fair value of options granted at fair market value during:

Fiscal 2004 .....	\$ 3.87
Fiscal 2003 .....	\$ 6.04
Fiscal 2002 .....	\$10.35

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**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

The above amounts may not be indicative of future expense because amounts are recognized over the vesting period and the Company expects it will have additional grants and related activity under these plans in the future.

***Computation of Net Loss per Common Share***

Basic earnings per share (EPS) is computed by dividing net income available to common stockholders by the weighted-average number of common shares outstanding for the period. Diluted EPS is computed using the weighted average number of common and dilutive common equivalent shares outstanding during the period. Common equivalent shares include the effect of the exercise of stock options and warrants. For the years ended March 31, 2004, 2003, and 2002, common equivalent shares of 3,165,917, 4,485,201 and 2,537,279, respectively, were not included in the calculation of diluted EPS as they were considered antidilutive.

***Foreign Currency Translation***

The functional currency of the Company's foreign subsidiary is the local currency. The assets and liabilities of this operation are translated into U.S. dollars at the exchange rate in effect at the balance sheet date and income and expense items are translated at average rates for the period. Cumulative translation adjustments are excluded from net loss and shown as a separate component of stockholders' equity. Foreign currency transaction gains and losses are included in the net loss and have not been material to date.

***Risks and Uncertainties***

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates and would impact future results of operations and cash flows.

The Company invests its available cash with high-credit, quality financial institutions and invests primarily in investment grade-marketable securities, including, but not limited to, government obligations, repurchase agreements, money market funds and corporate debt instruments.

The Company's accounts receivable are comprised of amounts owed by government agencies and commercial companies. The Company does not require collateral or other security to support customer receivables.

Several of the Company's government contracts are being funded incrementally, and as such, are subject to the future authorization, appropriation, and availability of government funding. The Company has a history of successful performance under incrementally-funded contracts with the U.S. government and it expects to continue to receive additional contract modifications in fiscal 2005 and beyond as incremental funding is authorized and appropriated by the government.

**3. Short and Long-term Marketable Securities**

Short and long-term marketable securities at March 31, 2004 and 2003 consisted primarily of corporate debt instruments.

	<u>2004</u>	<u>2003</u>
Aggregate cost .....	\$21,420,323	\$1,552,249
Fair value .....	<u>21,405,466</u>	<u>1,561,120</u>
Gross unrealized gain (loss) .....	<u>\$ (14,857)</u>	<u>\$ 8,871</u>

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

Gross unrealized gains for fiscal 2004 and 2003 were \$6,552 and \$8,871, respectively, and gross unrealized losses for fiscal 2004 and 2003 were \$21,409 and \$0, respectively. The Company's short and long-term marketable securities are classified as available-for-sale securities and, accordingly, are recorded at amortized cost plus accrued interest which approximates fair value. The difference between cost and fair value is included in stockholders' equity. The portion of the marketable securities due to mature within one year is \$15,045,419 and the remaining \$6,360,047 is due to mature between one year and 18 months.

**4. Accounts Receivable**

Accounts receivable at March 31, 2004 and 2003 consisted of the following:

	<u>2004</u>	<u>2003</u>
Accounts receivable (billed) .....	\$3,427,482	\$ 4,828,214
Accounts receivable (unbilled) .....	5,180,524	3,275,278
Less: Allowance for doubtful accounts .....	<u>(41,349)</u>	<u>(2,657,485)</u>
Net accounts receivable .....	<u>\$8,566,657</u>	<u>\$ 5,446,007</u>

The Company recorded a \$41,349 and \$2,650,398 allowance for doubtful accounts provision in fiscal 2004 and 2003, respectively. These are shown as part of selling, general and administrative expense. A \$2,624,010 receivable was written off in fiscal 2004 against the allowance for doubtful accounts, as were other miscellaneous receivables of \$33,475, which were also reserved for in prior years.

**5. Inventories**

Inventories at March 31, 2004 and 2003 consisted of the following:

	<u>2004</u>	<u>2003</u>
Raw materials .....	\$ 623,792	\$1,217,033
Work-in-progress .....	2,109,794	2,250,321
Finished goods .....	<u>2,155,808</u>	<u>1,650,432</u>
	<u>\$4,889,394</u>	<u>\$5,117,786</u>

The Company recorded a charge of \$3,421,100 in fiscal 2003 relating to the write-down of the remaining inventory value of low temperature superconductor storage devices. This inventory reserve provision was recorded as part of Costs of revenue—product sales and prototype development contracts.

Finished goods inventory includes the cost of products shipped to customers on contracts on which revenue will be deferred until final customer acceptance.

The Company also had long-term inventory as of March 31, 2003. See Note 7.

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

**6. Other Assets**

Other assets at March 31, 2004 and 2003 consisted of the following:

	<b>2004</b>	<b>2003</b>
Licenses .....	\$ 1,953,247	\$ 1,053,248
Patents .....	6,072,406	5,725,055
Deposits .....	58,535	56,962
	8,084,188	6,835,265
Less: accumulated amortization		
Licenses .....	(861,580)	(693,724)
Patents .....	(2,072,116)	(1,433,938)
Other assets .....	\$ 5,150,492	\$ 4,707,603

The Company recorded patent and license amortization expense of \$975,987, \$1,003,495 and \$620,690 for fiscal years 2004, 2003, and 2002, respectively. Abandoned licenses were \$0 and \$95,000 in fiscal 2004 and 2003, respectively, and abandoned patents were \$365,174 and \$812,529 in fiscal 2004 and 2003, respectively. The accumulated amortization on these abandonments was \$169,951 and \$320,645 for fiscal 2004 and 2003, respectively, resulting in a net abandonment-related change in Other assets of \$195,223 and \$586,884 for fiscal 2004 and 2003, respectively.

Amortization expense for the next five years consists of the following:

	For the fiscal years ended March 31,					Total
	2005	2006	2007	2008	2009	
Licenses .....	\$ 230,357	\$ 206,548	\$187,798	\$143,155	\$132,738	\$ 900,595
Patents .....	849,258	827,193	784,703	737,481	474,639	3,673,274
	\$1,079,615	\$1,033,741	\$972,501	\$880,636	\$607,377	\$4,573,869

**7. Long-term Inventory and Deferred Revenue**

Long-term inventory and long-term deferred revenue decreased from \$3,250,000 as of March 31, 2003 to \$0 as of March 31, 2004 due to the unconditional sale of six distributed superconducting magnetic energy storage (D-SMES) units to American Transmission Company (ATC) in December 2003. These six D-SMES units were originally delivered in fiscal 2001 to another one of the Company's customers, Wisconsin Public Service Corporation (WPS), for a total purchase price of \$3,787,000. As the sale of these units to WPS was originally subject to certain return and buyback provisions that expired from 2002 to 2009, the Company deferred recognition of the revenue related to the original sale until the applicable buyback provisions lapsed. The buyback provisions, which were subject to a minimum 6-month written notice requirement, began to lapse in the quarter ended December 31, 2002, until which time WPS had the right to return all the units for the full purchase price of \$3,787,000. The Company recorded \$537,000 of revenue and an equal amount of cost of revenue in the quarter ended December 31, 2002, as the buyback price was reduced from \$3,787,000 to \$3,250,000. In December 2003, WPS exercised its buyback provision for the remaining \$3,250,000 price as part of an agreement whereby ATC unconditionally purchased the six D-SMES units. ATC's purchase of the D-SMES units was a follow-up to its purchase of substantially all of the transmission assets of WPS in January 2001 and a lengthy performance evaluation of the units. As a result, the Company recorded \$3,250,000 of revenue and an equal amount of cost of revenue on its consolidated statement of operations for the quarter ended December 31, 2003. The Company also recorded a \$3,250,000 reduction in long-term inventory and long-term deferred revenue on its consolidated balance sheet as of December 31, 2003.

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**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

**8. Accounts Payable and Accrued Expenses**

Accounts payable and accrued expenses at March 31, 2004 and 2003 consisted of the following:

	<u>2004</u>	<u>2003</u>
Accounts payable .....	\$ 4,408,212	\$3,721,307
Accrued restructuring .....	119,493	435,317
Accrued employee stock purchase plan .....	189,659	199,567
Accrued expenses .....	6,100,914	4,749,327
Accrued vacation .....	723,356	668,356
	<u>\$11,541,634</u>	<u>\$9,773,874</u>

**9. Income Taxes**

The reconciliation between the statutory federal income tax rate and the Company's effective income tax rate is shown below.

	<u>For the Years Ended March 31,</u>		
	<u>2004</u>	<u>2003</u>	<u>2002</u>
Statutory federal income tax rate .....	-34%	-34%	-34%
State income taxes, net federal benefit .....	-7%	-6%	-7%
Nondeductible expenses .....	0%	0%	1%
Research & development credit .....	-1%	0%	-2%
Valuation allowance .....	42%	40%	42%
Effective income tax rate .....	<u>0%</u>	<u>0%</u>	<u>0%</u>

The principal components of the Company's deferred tax liabilities and assets were the following:

	<u>For the Years Ended March 31,</u>	
	<u>2004</u>	<u>2003</u>
Deferred tax assets and (liabilities):		
Net operating loss carryforward .....	\$ 106,789,000	\$ 93,547,000
Research and development and other credits .....	6,065,000	3,583,000
Accruals and reserves .....	4,239,000	4,146,000
Fixed Assets and intangibles .....	14,611,000	17,475,000
Other .....	411,000	302,000
Valuation allowance .....	<u>(132,115,000)</u>	<u>(119,053,000)</u>
Net .....	<u>\$ —</u>	<u>\$ —</u>

At March 31, 2004 the Company had available for federal income tax purposes net operating loss carryforwards of approximately \$276,200,000, which expire in years 2005 through 2024. This includes approximately \$14,700,000 of acquired net operating losses from Superconductivity, Inc. (SI) which begin to expire in the fiscal year ending 2005 through 2012, and their utilization by the Company will be subject to annual limitations. SI was acquired by the Company on April 8, 1997 through the merger of a wholly-owned subsidiary of the Company into SI.

The Company has recorded a deferred tax asset of approximately \$13,469,000 reflecting the benefit of deductions from the exercise of stock options. This deferred tax asset has been fully reserved since it is more

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

likely than not that the tax benefit from the exercise of stock options will not be realized. The benefit from this \$13,469,000 will be recorded as a credit to additional paid-in capital if realized. Research and development and other credit carryforwards amounting to approximately \$7,600,000 are available to offset federal and state income taxes and expire in years 2005 through 2024. Under current tax law, the utilization of net operating loss and research and development and other tax credit carryforwards may be subject to limitations in the event of certain changes in ownership.

**10. Stockholders' Equity**

*The Offering*

In October 2003 the Company completed a public offering of 5,721,250 shares of its common stock and received net proceeds (after the underwriters discount but before deducting offering expenses) of \$51,147,975.

*Stock Compensation Expense*

The composition of stock compensation expense in the Statement of Stockholder's Equity for the last three fiscal years was as follows:

	For the fiscal years ended March 31,		
	2004	2003	2002
401(k) Match . . . . .	\$339,203	\$360,003	\$461,892
Employee Stock Awards . . . . .	19,404	7,189	17,580
	\$358,607	\$367,192	\$479,472

*Stock-Based Compensation Plans*

The Company has six stock option plans including three Directors' Plans. The stock option plans (the Plans) include the 1987 Stock Plan (the 1987 Plan), the 1993 Stock Option Plan (the 1993 Plan), the 1996 Stock Incentive Plan (the 1996 Plan), the 1991 Director Stock Option Plan (the 1991 Director Plan), the 1994 Director Stock Option Plan (the 1994 Director Plan), and the Second Amended and Restated 1997 Director Stock Option Plan (the 1997 Director Plan). The Board of Directors authorized the issuance of 74,000 shares of restricted stock with a fair market value of \$636,400 to certain officers in fiscal year 2000. The shares are subject to restrictions on transfers and repurchase rights in favor of the Company; the restriction on sale can be removed upon meeting certain corporate performance targets or at the end of a six-year vesting period. The Company recorded expenses of \$75,184, \$106,067, and \$106,067 for the fiscal years ended 2004, 2003 and 2002, respectively, related to this issuance. The Board of Directors authorized an additional 31,000 shares of restricted stock in fiscal 2003 with a fair market value of \$193,440 to certain officers. The Company recorded expenses of \$32,244 in fiscal 2004 and 2003 related to this issuance. The Board of Directors authorized an additional 153,500 shares of restricted stock in fiscal 2004 with a fair market value of \$650,812 to certain officers and employees. The Company recorded expenses of \$154,650 in fiscal 2004 related to this issuance. Additionally, the Board of Directors authorized options for an additional 175,000 shares related to the acquisition of IE in fiscal 2001. All options issued under the IE plan are nonqualified. The Plans are administered by the Compensation Committee of the Board of Directors and permit the Company to sell or award common stock or to grant stock options for the purchase of common stock.

The Plans provide for the issuance of incentive stock options and non-qualified stock options to purchase the Company's common stock. In the case of incentive stock options, the exercise price shall be equal to at least the fair market value of the common stock, as determined by the Board of Directors, on the date of grant. The

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**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

1991, 1994 and 1997 Director Plans are stock option plans for members of the Board of Directors who are not also employees of the Company (outside directors). The 1997 Director Plan provides for the automatic grant of stock options for the purchase of common stock by outside directors at an exercise price equal to fair market value at the grant date. No further grants may be made under the 1987 Plan, the 1991 Director Plan, the 1993 Plan or the 1994 Director Plan, all of which have expired.

Options granted under the Plans, other than the Amended and Restated 1997 Director Stock Option Plan, generally become exercisable in equal annual increments over a three, four or five year period and expire 10 years from the date of grant or from two to three months after termination of employment.

The following table summarizes information about stock options outstanding at March 31, 2004.

Range of Exercise Price	Outstanding			Exercisable	
	Number Outstanding At 3/31/04	Weighted Average Remaining Contractual Life	Weighted Average Exercise Price	Number Exercisable at 3/31/04	Weighted Average Exercise Price
\$ 0.00– 5.89	1,036,100	8.7	\$ 2.71	133,000	\$ 1.25
5.89–11.78	1,326,890	6.0	9.56	846,769	10.07
11.78–17.66	768,515	5.0	13.29	577,780	13.06
17.66–23.55	411,150	1.2	20.64	374,750	20.57
23.55–29.44	491,700	6.1	25.50	295,020	25.50
29.44–35.33	750,000	6.3	32.56	450,000	32.56
35.33–41.21	55,000	6.6	36.43	33,000	36.43
41.21–58.88	40,000	5.9	58.88	40,000	58.88
\$ 0.00–58.88	<u>4,879,355</u>	6.1	\$15.48	<u>2,750,319</u>	\$18.06

The following table summarizes the information concerning currently outstanding and exercisable options:

	Shares	Weighted average Exercise Price	Number Exercisable
Outstanding at March 31, 2001	4,586,809	\$18.93	1,515,347
Granted	857,050	13.30	
Exercised	(75,166)	9.59	
Canceled	(416,153)	14.35	
Outstanding at March 31, 2002	4,952,540	18.51	2,235,801
Granted	524,300	6.76	
Exercised	0	0.00	
Canceled	(806,925)	15.16	
Outstanding at March 31, 2003	4,669,915	17.77	2,656,323
Granted	1,033,650	3.83	
Exercised	(282,010)	9.31	
Canceled	(542,200)	16.20	
Outstanding at March 31, 2004	<u>4,879,355</u>	<u>\$15.48</u>	<u>2,750,319</u>
Available for grant at March 31, 2004:	<u>852,695</u>		

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**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

***Stock Purchase Warrants***

The Company recorded an increase to additional paid-in capital and a corresponding charge to deferred warrant costs of approximately \$336,000 in January 1998 related to the issuance of stock purchase warrants for 250,500 shares of common stock at an exercise price of \$10.20 per share which were exercisable over a five-year period following the date of grant. These warrants, which were not exercised, were granted in consideration of ongoing financial services being provided to the Company. Expense related to these warrants was approximately \$0, \$50,000, and \$67,000 for the fiscal years ended March 31, 2004, 2003 and 2002, respectively.

The Company also granted warrants in 1996 and 1998 to the Electric Power Research Institute (EPRI). See Note 12.

**11. Commitments and Contingencies**

Under Delaware law, the Company is required to indemnify its officers and directors for liabilities incurred under certain circumstances. The term of the indemnification period is for the officer's or director's lifetime. The maximum potential amount of future payments the Company could be required to make is unlimited; however, the Company has a Director and Officer insurance policy that limits its indemnification exposure and enables it to recover a portion of any future amounts paid. As a result of its insurance policy coverage, the Company believes its indemnification exposure is minimal. These indemnification obligations were grandfathered under the provisions of FASB Interpretation No. (FIN) 45 as they were in effect prior to March 31, 2003. Accordingly, the Company has no liabilities recorded under FIN No. 45 as of March 31, 2004 or 2003.

The Company received notice on November 5, 2003 of a lawsuit filed against it by TM Capital Corp., a past financial advisor to the Company, under which TM Capital claims to be entitled to cash and equity compensation with respect to the Company's October 2003 public equity offering. Specifically, TM Capital is requesting a cash payment in excess of \$1,600,000 and warrants to purchase over 170,000 shares of the Company's common stock at an exercise price of \$9.50 per share. The Company filed an answer to this lawsuit, denying TM Capital's claims for damages and other relief and asserting several counterclaims against TM Capital, including breach of contract, gross negligence and breach of fiduciary duty. The lawsuit is currently in the early stages of discovery. As the Company believes it has meritorious defenses to this lawsuit and the Company cannot at this time conclude that potential losses associated with this litigation are probable based on SFAS No. 5, "Accounting for Contingencies", the Company has not recorded any liability on its balance sheet as of March 31, 2004 nor any expense to its Statement of Operations.

The Company rents its headquarters in Westborough, Massachusetts, under an operating lease, which expires in May 2009. In October 2000 the Company leased additional facilities in Westborough for the development of electric motor and generator technology under an operating lease that expires in 2005. The Company also rents an operating facility in Middleton, Wisconsin, under a lease which expires on December 31, 2006, and one facility in New Berlin, Wisconsin, under a lease which expires in 2011. As part of its restructuring, consolidation and cost cutting measures announced in March 2002, the Company is outsourcing requirements for low temperature superconductor (LTS) magnets used in its SMES systems and as a result ceased operations in one of its two buildings in Middleton, Wisconsin, comprising approximately 27,000 square feet. Under all leases, the Company pays for real estate taxes, certain insurance coverage and operating expenses.

Rent expense under the leases mentioned above was as follows:

	2004	2003	2002
Rent expense .....	\$3,113,000	\$2,043,000	\$1,994,000



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**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

Minimum future lease commitments at March 31, 2004 were as follows:

<u>For the years ended March 31,</u>	<u>Total</u>
2005 .....	\$ 3,135,774
2006 .....	2,983,289
2007 .....	2,778,835
2008 .....	2,623,637
2009 and beyond .....	<u>4,235,575</u>
Total .....	<u>\$15,757,110</u>

In September 2002, the Company entered into a standby letter of credit arrangement with a financial institution to provide a guarantee for rent of \$1,000,000 for the Two Technology Drive facility in Westborough, Massachusetts. The letter of credit amount may be reduced to \$750,000 at June 1, 2005 and to \$500,000 at June 1, 2007. This letter of credit will expire on July 31, 2009.

**12. Research and Development Agreements**

The Company signed an agreement with Pirelli in February 2002 giving the Company the right to sell HTS wire to other cable manufacturers in addition to Pirelli in exchange for a \$2,250,000 one-time license payment, 50,000 shares of its stock (valued at \$6.91 per share), royalties on future such sales of wire, and the forgiveness of \$1,375,000 of accounts receivable. The agreement discontinued Pirelli's funding of the Company's research and development effective January 1, 2002. Under the previous agreement, Pirelli provided the Company with \$500,000 per quarter in research and development funding. The Pirelli alliance was originally established in February 1990; in the 12-year period between 1990 and March 31, 2002, the Company received development funding of approximately \$23,100,000 from Pirelli. The Company recorded revenues under this contract of \$0, \$0 and \$1,500,000 in fiscal years ended March 31, 2004, 2003 and 2002, respectively.

In March 1996, the Company entered into a strategic alliance with EPRI to develop and commercialize a coated conductor composite HTS wire. This agreement ended on March 31, 2000. In March 1996, under the first phase of the agreement, the Company granted a warrant for 100,000 shares of common stock (87,500 of which have been exercised) to EPRI at \$14.00 per share which became exercisable over a five-year period following the date of grant. In March 1998, under the second phase of the agreement, the Company granted to EPRI another warrant to purchase 110,000 shares of common stock (41,250 of which have been exercised) of the Company at \$13.94 per share, which became exercisable over a five-year period. The Company has received exclusive license rights to intellectual property from EPRI. The Company recorded an increase to additional paid-in capital and a corresponding charge to deferred contract costs of \$618,000 and \$637,000 in fiscal 1998 and 1997, respectively, relating to these warrants. Warrant expense related to these agreements was approximately \$0, \$71,000 and \$148,000 for the fiscal years ended March 31, 2004, 2003 and 2002, respectively.

**13. Cost Sharing Arrangements**

The Company has entered into several cost-sharing arrangements with various agencies of the United States government. Funds paid to the Company under these agreements are not reported as revenues but are used to directly offset the Company's research and development and selling, general and administrative expenses, and to purchase capital equipment. The Company recorded costs and funding under these agreements of \$6,253,000 and \$2,395,000, respectively, for fiscal 2004, of \$1,820,000 and \$764,000, respectively, for fiscal 2003 and of \$1,206,000 and \$603,000, respectively, for fiscal 2002. At March 31, 2004, total funding received to date under these agreements was \$16,573,000. Future funding expected to be received under existing agreements is approximately \$1,071,000 subject to continued future funding allocations.

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

**14. Employee Benefit Plans**

The Company has implemented a deferred compensation plan under Section 401(k) of the Internal Revenue Code. Any contributions by the Company are discretionary. The company instituted a stock match program in July 1998 under which the Company matched 25% of the first 4% of eligible contributions to the plan. Effective July 1, 2000 this contribution increased to 25% of the first 6% of eligible contributions. Effective July 1, 2001 this contribution increased to 35% of the first 6% of eligible contributions. The Company recorded expense of \$329,036, \$382,615 and \$437,401 in fiscal years 2004, 2003 and 2002, respectively, and corresponding charges to additional paid-in capital related to this program. The Company does not have post-retirement or post-employment benefit plans.

The Company instituted an employee stock purchase plan (ESPP) on October 1, 2000. Employees purchase shares at a discount from fair market value every six months; this is a noncompensatory plan and accordingly no expense was recognized by the Company. Shares issued are recorded under "Issuance of Common Stock" in the Consolidated Statements of Stockholders Equity.

**15. Impairment of Long-lived Assets**

In the fourth quarter of fiscal 2003, in accordance with SFAS 144, the Company recorded charges totaling \$39.2 million for impairment of the group of long-lived assets associated with the AMSC Wires business segment, specifically the Devens wire manufacturing plant, the capital equipment in that plant, and first generation (1G) wire-related patents.

A number of factors indicated a potential impairment of the asset group, including substantial operating losses incurred and projected future losses associated with the AMSC Wires business segment, the Company's intent to transition to the manufacture of second generation (2G) wire within the next several years and the Company's market capitalization being less than the net book value for a significant period. In the fourth quarter of fiscal 2003, the Company revised its analysis of the probable timing of the transition to 2G wire, determining that the transition would be accelerated over previous expectations. The acceleration of the timing of the transition was the principal factor indicating a potential impairment.

To determine whether the asset group was impaired, the Company used a probability-weighted multiple scenario cash flow approach based on four potential scenarios that reflected a range of possible outcomes. The estimates used for future cash flows were based on producing and selling only 1G wire and excluded any costs or revenues that would be generated as a result of the transition to 2G wire. The success and timing for transitioning to a 2G wire manufacturing process remain uncertain. This uncertainty impacted the range of possible cash flow outcomes. The scenarios ranged from a long-term delay of the transition to 2G wire to successful introduction of 2G wire on an accelerated time-line. The Company believes that the most likely scenario is a successful transition to the 2G wire manufacturing process in the next several years.

On the basis of the probability-weighted cash flow analysis, the Company determined that the asset group was impaired and utilized a probability-weighted discounted cash flow as the best estimate of the fair value of the asset group. An impairment charge of \$39.2 million was recorded to write down the asset group to its estimated fair value.

In allocating the \$39.2 million impairment charge across the individual assets, the Company used an independent appraisal of the value of the property and plant as the current fair value for this asset, and assigned the remainder of the impairment charge on a pro rata basis between equipment and patents.

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

*Summary of Impairment Charge*

Building . . . . .	\$17,642,105
Equipment . . . . .	21,217,734
Patents (Other Assets) . . . . .	<u>371,038</u>
Total Impairment . . . . .	<u>\$39,230,877</u>

In conjunction with the impairment, the Company also reviewed and shortened the depreciable lives on the remaining net book value of the wires manufacturing equipment from 10 to six years.

**16. Restructuring/Pirelli Charges**

*Workforce Reduction*

In March of fiscal 2002, a restructuring program resulted in the reduction of 99 full-time employees across all business functions at the Company’s Massachusetts and Wisconsin locations. The workforce reductions were substantially completed in the fourth quarter of fiscal 2002, although nine affected employees were part of the Company’s reported headcount as of March 31, 2002. The Company recorded a workforce reduction charge of \$1,548,897 relating primarily to severance and related benefits.

*Consolidation of Facilities*

In March of fiscal 2002, the Company recorded a charge of \$4,117,161 relating to the consolidation of the Company’s Power Quality and Reliability business unit based in Middleton, Wisconsin with its Power Electronics business unit based in New Berlin, Wisconsin, into one new business unit called Power Electronic Systems. The total charge included \$2,826,403 related to the write-off of fixed assets and \$691,100 for a facility lease termination in Middleton, Wisconsin. The balance of \$599,658 related to cancelled purchase commitments. All such costs were recorded as restructuring costs.

*Accrued Restructuring Reserve*

The accrued restructuring reserve decreased from \$2,520,115 at March 31, 2002 to \$435,317 at March 31, 2003 to \$119,493 at March 31, 2004. The majority of the payments relating to the March 2002 restructuring were made in the fiscal year ended March 31, 2003, except for certain long-term contractual obligations on the Middleton, Wisconsin facility lease (which ended December 31, 2003) and on an equipment lease (which will end June 30, 2006).

*Pirelli License Costs*

In fiscal 2002, the Company recorded a charge of \$4,009,890 relating to the announcement of a license agreement with Pirelli to allow the Company to sell its HTS wire to other cable manufacturers in addition to Pirelli. The \$4,009,890 charge is shown as “Pirelli license costs” on the Consolidated Statements of Operations and is comprised of a \$2,250,000 cash license payment, 50,000 shares of the Company’s common stock (valued at \$6.91 per share) that were issued in fiscal 2003, and the forgiveness of \$1,375,000 of accounts receivable.

Cash payments for the restructuring activities and other charges were completed within fiscal 2003, except for certain long-term contractual obligations such as the Middleton, Wisconsin facility lease payments through the end of the third quarter of fiscal 2004.

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

**17. Business Segment Information**

The Company has three reportable business segments—AMSC Wires, SuperMachines, and Power Electronic Systems.

The AMSC Wires business segment develops, manufactures and sells HTS wire. The focus of this segment's current development, manufacturing and sales efforts is on HTS wire for power transmission cables, motors, generators, synchronous condensers and specialty electromagnets.

The SuperMachines business segment develops and commercializes electric motors, generators, and synchronous condensers based on HTS wire. Its primary focus for motors and generators is on ship propulsion.

The Power Electronic Systems business segment develops and sells power electronic converters and designs, manufactures and sells integrated systems based on those converters for power quality and reliability solutions and for wind farm applications.

The operating results for the three business segments are as follows:

<u>Revenues*</u>	<u>Fiscal Year Ended March 31</u>		
	<u>2004</u>	<u>2003</u>	<u>2002</u>
AMSC Wires .....	\$ 7,795,897	\$ 3,960,823	\$ 4,394,285
SuperMachines .....	26,501,073	6,125,151	5,839,895
Power Electronic Systems .....	7,011,735	10,934,318	1,415,920
Total .....	<u>\$41,308,705</u>	<u>\$21,020,292</u>	<u>\$11,650,100</u>

\* See Note 13. Cost share funding is not included in reported revenues.

<u>Operating profit (loss)</u>	<u>Fiscal Year Ended March 31</u>		
	<u>2004</u>	<u>2003</u>	<u>2002</u>
AMSC Wires .....	\$(18,815,738)	\$(66,727,224)	\$(26,143,475)
SuperMachines .....	966,130	(7,475,982)	(7,747,637)
Power Electronic Systems .....	(6,429,801)	(12,990,785)	(25,818,528)
Unallocated corporate expenses .....	(1,406,865)	(1,317,494)	(1,843,204)
Total .....	<u>\$(25,686,274)</u>	<u>\$(88,511,485)</u>	<u>\$(61,552,844)</u>

The assets for the three business segments (plus Corporate cash) are as follows:

	<u>Fiscal Year Ended March 31</u>	
	<u>2004</u>	<u>2003</u>
AMSC Wires .....	\$ 63,554,415	\$ 66,393,042
SuperMachines .....	6,018,468	4,992,328
Power Electronic Systems .....	7,679,370	10,544,397
Corporate cash and marketable securities .....	52,646,703	20,048,872
Total .....	<u>\$129,898,956</u>	<u>\$101,978,639</u>

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

Other significant segment information is as follows:

<u>Depreciation and amortization</u>	<u>Fiscal Year Ended March 31</u>		
	<u>2004</u>	<u>2003</u>	<u>2002</u>
AMSC Wires . . . . .	\$6,001,724	\$6,709,830	\$3,776,152
SuperMachines . . . . .	545,623	571,967	593,545
Power Electronic Systems . . . . .	741,878	820,339	1,139,346
Total . . . . .	<u>\$7,289,225</u>	<u>\$8,102,136</u>	<u>\$5,509,043</u>

<u>Capital expenditures</u>	<u>Fiscal Year Ended March 31,</u>	
	<u>2004</u>	<u>2003</u>
AMSC Wires . . . . .	\$1,715,518	\$7,599,488
SuperMachines . . . . .	166,953	66,835
Power Electronic Systems . . . . .	74,737	132,912
Total . . . . .	<u>\$1,957,208</u>	<u>\$7,799,235</u>

The accounting policies of the business segments are the same as those described in Note 2, except that certain corporate expenses which we do not believe are specifically attributed or allocable to any of the three business segments have been excluded from the segment operating income (loss).

**18. Abandoned Debt Financing**

Fees—abandoned debt financing of \$1,387,857 for fiscal year ended March 31, 2004 represent various fees and expenses incurred in connection with the Company’s previously-announced debt financing transaction that the Company decided not to pursue in August 2003 in favor of a public equity offering, which the Company completed in October 2003. None of these costs are related to the lawsuit filed against the Company in November 2003 by TM Capital Corp. See Note 11—Commitments and Contingencies.

**19. Quarterly Financial Data (Unaudited)**

<u>Three Months Ended</u>	<u>Fiscal year ended March 31, 2004:</u>			
	<u>June 30, 2003</u>	<u>September 30, 2003</u>	<u>December 31, 2003</u>	<u>March 31, 2004</u>
Revenues . . . . .	\$ 7,756,000	\$ 9,614,000	\$12,302,000	\$11,637,000
Operating (loss) . . . . .	\$(8,420,000)	\$(6,011,000)	\$(6,606,000)	\$(4,649,000)
Net loss . . . . .	\$(8,356,000)	\$(7,336,000)	\$(6,519,000)	\$(4,522,000)
Net loss per common share . . . . .	\$ (0.39)	\$ (0.34)	\$ (0.25)	\$ (0.16)

<u>Three Months Ended</u>	<u>Fiscal year ended March 31, 2003:</u>			
	<u>June 30, 2002</u>	<u>September 30, 2002</u>	<u>December 31, 2002</u>	<u>March 31, 2003 *</u>
Revenues . . . . .	\$ 2,860,000	\$ 4,480,000	\$ 2,751,000	\$ 10,929,000
Operating (loss) . . . . .	\$(11,180,000)	\$(10,502,000)	\$(12,805,000)	\$(54,024,000)
Net loss . . . . .	\$(10,829,000)	\$(10,222,000)	\$(12,615,000)	\$(53,967,000)
Net loss per common share . . . . .	\$ (0.53)	\$ (0.50)	\$ (0.60)	\$ (2.54)

\* See discussion on impairment charges in Note 15.

**AMERICAN SUPERCONDUCTOR CORPORATION**  
**NOTES TO CONSOLIDATED STATEMENTS—(Continued)**

**20. New Accounting Pronouncements**

In January 2003, the FASB issued FIN 46, “Consolidation of Variable Interest Entities.” In general, a variable interest entity is a corporation, partnership, trust or any other legal structure used for business purposes that either (a) does not have equity investors with voting rights or (b) has equity investors that do not provide sufficient financial resources for the entity to support its activities. A variable interest entity often holds financial assets, including loans or receivables, real estate or other property. Variable interest entities have been commonly referred to as special-purpose entities or off-balance sheet structures. This Interpretation requires a variable interest entity to be consolidated by a company if that company is subject to a majority of the risk of loss from the variable interest entity’s activities or entitled to receive a majority of the entity’s residual returns or both. In July 2003, the FASB added a limited-scope project to its agenda to modify FIN 46. In December 2003, the FASB released a revised version of FIN 46 (referred to as FIN 46R) clarifying certain aspects of FIN 46 and providing certain entities with exemptions from the requirements of FIN 46. FIN 46R requires the application of either FIN 46 or FIN 46R to all Special Purpose Entities (SPEs) created prior to February 1, 2003 at the end of the first interim or annual reporting period ending after December 15, 2003. All entities created after January 31, 2003 were already required to be analyzed under FIN 46, and they must continue to do so, unless FIN 46R is adopted early. FIN 46R will be applicable to all non-SPEs created prior to February 1, 2003 at the end of the first interim or annual reporting period ending after March 15, 2004. The adoption of this Interpretation did not have a material effect on the Company’s consolidated financial statements for the year ended March 31, 2004.

In May 2003, the FASB issued SFAS No. 150, “Accounting for Certain Financial Instruments with Characteristics of both Liabilities and Equity”. This accounting standard establishes standards for classifying and measuring certain financial instruments with characteristics of both liabilities and equity. It requires that certain financial instruments that were previously classified as equity now be classified as a liability. This accounting standard is effective for financial instruments entered into or modified after May 31, 2003, and otherwise at the beginning of the first interim period beginning after June 15, 2003. The adoption of this SFAS did not have a material effect on the Company’s consolidated financial statements for the year ended March 31, 2004.

**American Superconductor Corporation**  
**Schedule II—Valuation and Qualifying Accounts**

<u>Description</u>	<u>Balance, Beginning of Year</u>	<u>Additions Charged to Costs and Expenses</u>	<u>Deductions</u>		<u>Balance, End of Year</u>
			<u>Actual Write-Off</u>	<u>Less Recoveries</u>	
Allowance for doubtful notes and accounts receivable:					
Year ended March 31, 2004 . . . . .	\$2,657,485	\$ 41,349	\$2,657,485	\$—	\$ 41,349
Year ended March 31, 2003 . . . . .	42,000	2,650,398	34,913	—	2,657,485
Year ended March 31, 2002 . . . . .	71,187	727,028	756,215	—	42,000

**REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM  
ON  
FINANCIAL STATEMENT SCHEDULE**

To the Board of Directors and stockholders of American Superconductor Corporation:

Our audits of the consolidated financial statements referred to in our report dated May 5, 2004 also included an audit of the financial statement schedule listed in Item 15(a)(2) of this Form 10-K. In our opinion, this financial statement schedule presents fairly, in all material respects, the information set forth therein when read in conjunction with the related consolidated financial statements.

/s/ PricewaterhouseCoopers LLP

Boston, Massachusetts  
May 5, 2004



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## OFFICERS, DIRECTORS AND FOUNDERS

### Board of Directors

Gregory J. Yurek, Ph.D.  
Chief Executive Officer and  
Chairman of the Board

Albert J. Baciocco, Jr.  
Vice Admiral, U.S. Navy (Retired)  
President, The Baciocco Group, Inc.

Vikram S. Budhraj  
President, Electric Power Group, LLC

Peter O. Crisp  
Consultant,  
Rockefeller Financial Services, Inc.

Richard Drouin, O.C., Q.C.  
Corporate Director

Andrew G.C. Sage, II  
President, Sage Capital Corporation

John B. Vander Sande, Ph.D.  
Cecil and Ida Green Distinguished Professor  
Department of Materials Science and Engineering  
Massachusetts Institute of Technology

### Executive Officers

Gregory J. Yurek, Ph.D.  
Chief Executive Officer and  
Chairman of the Board

David Paratore  
President and Chief Operating Officer

Alexis P. Malozemoff, Ph.D.  
Executive Vice President and  
Chief Technical Officer

Kevin M. Bisson  
Senior Vice President,  
Chief Financial Officer and Treasurer

Ross S. Gibson  
Vice President, Chief Administrative Officer,  
Secretary

Stuart C. Karon  
Vice President, Business Development

Thomas M. Rosa  
Vice President, Finance and Accounting,  
Assistant Secretary

### Founders

Yet-Ming Chiang, Ph.D.  
Kyocera Professor of Ceramics  
Department of Materials Science & Engineering  
Massachusetts Institute of Technology

David A. Rudman, Ph.D.  
Group Leader, Quantum Devices Group  
Electro Magnetic Technology Division  
National Institute of Standards and Technologies

John B. Vander Sande, Ph.D.  
(see above)

Gregory J. Yurek, Ph.D.  
(see above)

## CORPORATE HEADQUARTERS

American Superconductor Corporation  
Two Technology Drive  
Westborough, MA 01581-1727  
Phone: 508-836-4200  
Fax: 508-836-4248  
www.amsuper.com

## OTHER LOCATIONS

SuperMachines Business Unit  
121 Flanders Road  
Westborough, MA 01581-4164  
Phone: 508-836-4200

AMSC Wires Business Unit  
64 Jackson Road  
Devens, MA 01432  
Phone: 978-842-3000

Power Electronic Systems Business Unit  
8401 Murphy Drive  
Middleton, WI 53562-2250  
Phone: 608-831-5773

1577 W. Schaefer Court  
New Berlin, WI 53151-8663  
Phone: 262-901-6000

## COMMON STOCK LISTING

Nasdaq National Market  
Symbol: AMSC

## PRICE RANGE OF COMMON STOCK

The quarterly range of high and low sales prices of the company's common stock for fiscal 2003 and 2004 is shown below:

<u>Fiscal 2003</u>	<u>High</u>	<u>Low</u>
First quarter	\$8.87	\$3.85
Second quarter	6.05	2.65
Third quarter	4.24	2.10
Fourth quarter	5.41	3.02
<u>Fiscal 2004</u>	<u>High</u>	<u>Low</u>
First quarter	\$ 7.35	\$ 3.18
Second quarter	13.85	4.95
Third quarter	14.67	9.10
Fourth quarter	19.95	11.29

## ANNUAL MEETING

The annual meeting of stockholders will be held at 9:00 a.m. local time on Thursday, July 29, 2004 at American Superconductor's Corporate Headquarters, Two Technology Drive, Westborough, MA.

## TRANSFER AGENT AND REGISTRAR

American Stock Transfer & Trust Company  
59 Maiden Lane  
Plaza Level  
New York, NY 10038  
800-937-5449

The transfer agent is responsible for handling shareholder questions regarding lost certificates, address changes, changes of ownership or name in which shares are held. As of June 9, 2004 there were 640 holders of record of common stock.

## LEGAL COUNSEL

Wilmer Cutler Pickering Hale and Dorr LLP  
60 State Street  
Boston, MA 02109

## AUDITORS

PricewaterhouseCoopers LLP  
One Post Office Square  
Boston, MA 02109

## FORM 10-K

The text of the company's annual report on form 10-K for the fiscal year ended March 31, 2004, as filed with the Securities and Exchange Commission, is included herein.

American Superconductor, its logo and *Revolutionizing the Way the World Uses Electricity* are trademarks of American Superconductor Corporation.

Any statements in this annual report that relate to future expectations or events - including statements regarding development, manufacturing and commercialization dates and benchmarks, and other statements containing words such as "plans", "expects", "anticipates" and "intends" - 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 suggested by these forward-looking statements. Please refer to the "Future Operating Results" section of this company's annual report on form 10-K, included as a part of this annual report, for a discussion of such factors.



*REVOLUTIONIZING THE WAY THE WORLD USES ELECTRICITY™*

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