

American Superconductor:

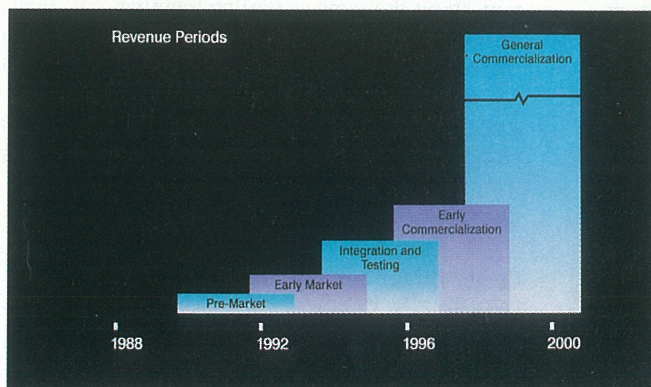
In 1986, scientists at IBM's Zurich Research Laboratory made one of the most important discoveries in science: high temperature superconductors (HTS). This new class of ceramic conducts electricity with little or no resistance, at temperatures that are maintainable with existing, convenient cooling technologies. Transforming these brittle ceramic HTS material into commercially viable wires and wire products is the mission of American Superconductor Corporation (ASC), founded in 1987 and now the leading U.S. company in the HTS market.

ASC is focusing on the development of superconductor wires and wire products for such applications as power transmission cables, electric motors, and magnetic energy storage devices. These applications hold the most commercial promise because of the energy savings delivered utilizing superconductor technology. Underground power cables using HTS will carry 3 to 5 times more power in cables equal to or smaller than conventional cables. The technology, when applied to electric motors, is expected to create efficiencies representing an annual savings of \$50,000 per motor. By the year 2000, U.S. sales of superconductors will total \$3 to \$5 billion, according to the U.S. Chamber of Commerce. ASC, engaged in the development and commercialization of HTS, clearly has an opportunity to generate significant revenue, while contributing to the search for more efficient sources of electrical power.

Other companies dedicated to new technology development may be interested in ASC's growth strategy. According to Dr. Gregory Yurek, company President and CEO, ASC will maintain its leadership position through an approach that combines market development with concurrent engineering. This means that ASC is actively building prototypes for customers, even as the production of HTS materials into usable form is still evolving.

Successful market development requires not only a thorough understanding of the timeline for commercialization, but the resources to achieve it. Market success, according to Dr. Yurek, means delivery of a 5000-hp motor by 1997, and field testing for power transmission cables by 1996, with early commercialization two years later. On the system level, this year ASC expects to integrate their electromagnetic coils with crycoolers, a key step in the process of commercialization of HTS wires and wire products.

This ambitious development schedule means that material science and manufacturing processes must be developed in parallel, as well as product engineering and application development. In the early stages of product development,



The market for high temperature superconductors is developing rapidly. A successful growth strategy must incorporate an understanding of the timeline for commercialization and the resources necessary to achieve it.

American Superconductor laid a strong foundation through hiring highly qualified people. The company's management team has more than 100 combined years of industry experience, with expertise in marketing and manufacturing, as well as 14 Ph.D.s in such disciplines as materials science, physics, metallurgy, and engineering.

Strategic alliances are also a key resource for American Superconductor in its work to transform HTS materials into usable systems for the power industry. Such relationships will be essential for long term development and marketing. With Pirelli

S.p.A., the second largest cable manufacturer in the world, American Superconductor is developing HTS cables for commercial power applications. There is an alliance with Inco Ltd., the world's largest producer of nickel and nickel-base alloys, which provides the capabilities for high volume production. There are also government contracts, including one to develop superconducting magnetic coils for a motor to be built at Reliance Electric Co.

Recently American Superconductor Corporation announced the signing of an agreement with Hoechst AG of Germany that will enable further advances in its techniques