

## **ROOM TEMPERATURE SUPERCONDUCTORS, INC. - RTS (MPI SUBSIDIARY)**

Cryogenic superconductors are part of a growing three billion dollar annual market, despite limited economic viability due to high cooling costs. By contrast, superconductors that can operate at room temperature, i.e. ULTRACONDUCTOR™ products, have a projected growth rate of about seven times that of refrigerated superconductors. Promising future applications include high-performance transformers, power storage devices, and electric power transmission lines. The latter is a huge market to perform the estimated \$160 billion in upgrades needed for the antiquated U.S. power grid. European Union and other developed countries will also be spending billions to modernize power transmission systems, with global estimates measured in the trillions of dollars.

Due to the resistance heating of wire, power transmission lines in the U.S. lose 11% of the electricity they carry in the form of heat - at a cost exceeding \$80 billion annually. Each 1% reduction of these transmission losses would save above \$500 million every year. Load leveling on a national basis might save an additional 5% of energy loss and 2% of new plant construction could be unnecessary - adding up to a savings of perhaps \$65 billion in avoided cost for infrastructure. In addition, national load leveling will reduce the plant construction needed for growing peak power demands. Thus, an UltraGrid™ Tieline has an extremely strong potential return on investment, especially on overloaded lines where losses currently approach 20%.

Other applications providing significant additional market expansion include electric motors (e.g. for vehicle propulsion, including maglev trains and later aircraft), computer chip applications, and medical equipment.

RTS presents a rare opportunity. As has occurred with the transistor, the Internet, and other disruptive technologies, applications will emerge in the future that can't even be foreseen today.

### **BUSINESS STRATEGY**

- Target applications such as wire and computer chips that establish high market value for ULTRACONDUCTOR polymers.
- Build significant asset value (e.g. patent portfolio) with early revenues from licensees/ strategic partnerships.
- License jointly developed products to strategic partners. Fund growth with revenue from advance fees.
- Broaden market dimensions by prioritizing partnerships with global market leaders. RTS will carry ULTRACONDUCTOR product and technology developments to pilot plant level, then continue as licensor.

### **FINANCIALS**

- Revenues projections: \$2 million, \$8 million and \$15 million in the 2<sup>nd</sup>, 3<sup>rd</sup>, and 4th years, following a \$5 million injection of new funding. Lay groundwork for \$100 million revenue in 5th year as multiple products from licensing partners gain widespread market acceptance and enter the growth stage.
- Recent developments in energy and transmission markets have the potential to greatly increase these revenue estimates.
- To date: \$5 million+ angel investments: \$4 million direct, \$1 million+ through parent, Magnetic Power, Inc.

### **PROJECTIONS/GOALS**

- Raise an additional \$5 million to resume full operations and test new approach to creating wire.
- Launch first joint development products utilizing films, such as interposers connecting computer chips with circuit boards.
- With >80% of current superconductor market, wire prototypes are RTS' major near-term goal. Transmission line cable will follow. A new approach, if it proves practical, may produce wire within one year.
- Produce a meter length of wire in three years or less. Full scale production can then ramp quickly.
- Become a division of Magnetic Power Inc. (MPI), where RTS would be nurtured as an attractive spin-off.
- Demonstrate solid revenue and growth supporting MPI's goal of becoming a publicly traded company.

## PROJECTIONS

RTS has the team and the technology to develop innovative ULTRACONDUCTOR products that will bring orders of magnitude performance improvements and cost savings to the global electricity industry as well as benefiting other major sectors of the global economy. A skilled scientific and management team had been together for 12+ years prior to vanishing of high-tech R&D funding following the 'dot.com' crash. The program to continue development and then commercialize these remarkable materials, is ready to resume.

## SCIENTIFIC ADVISORY BOARD

- **Dr. Matt Aldissi** - Internationally recognized in electrically conductive polymers. His company independently reproduced our ULTRACONDUCTOR polymers for the USAF.
- **Dr. A. Ze'ev Hed** - Specialties include technology assessment and product development.
- **Dr. William Little** - Professor Emeritus at Stanford University, who anticipated the possibility of a polymer room temperature superconductor in 1964.

## KEY PEOPLE

- **Mark Goldes** - Chairman & CEO...entrepreneur w/25+ years in alternative energy. Chairman & CEO - Magnetic Power Inc, parent firm. Former CEO of a financial consulting firm. Earlier founded SunWind Ltd. - renewable energy systems. (A Resume can be viewed on the MPI website).
- **Kevin Shambrook** - Former President & Director of Science & Technology...co-founder & co-inventor of ULTRACONDUCTOR polymers, continues as a consultant. Ph.D. Electrical Engineer, managed engineering and manufacturing programs, and new product introduction. Began with Westinghouse, responsible for largest R & D program with Hughes Aircraft. VP of Technology for three different technology development firms.
- **Dmitry N. Rogachev** - Ph.D., Senior Scientist, on leave of absence. Polymer physicist, 18 years with Ultraconductors.
- **Robert Zendels** - former CFO, also on leave of absence, has wide business and entrepreneurial experience.
- **Sue Engle** - Corporate Secretary and Administrator.

## THE COMPANY

- 20+ years of published, peer reviewed, scientific research...including 14 years in development.
  - RTS supported a team of Ph.D. scientists in Moscow, with three floors of laboratories.
  - Improved versions of their specialized equipment has since been airlifted and installed in our laboratory in Sebastopol, California, 50 mi. north of San Francisco.
- A subsidiary of Magnetic Power Inc. - RTS was incorporated in 1993. Both are California C corporations.
- Completed three Phase I, and a highly competitive Phase II, DOD Small Business Innovation Research contracts, about near-term applications of ULTRACONDUCTORS. One contract demonstrated feasibility of a breakthrough fabrication technique.

## ULTRACONDUCTOR MATERIALS (NEED NO REFRIGERATION)

- Ultraconductor technology is the polymer, soon-to-be-practical, equivalent of a room-temperature superconductor.
- ULTRACONDUCTORS perform at temperatures up to 390°F, more than 500°F higher than other superconductors.
- RTS polymers conduct electricity at least 100,000 times better than gold, silver or copper.

## PATENT POSITION

- First U.S. Patent - #5,777,292, then #6,552,883 and #6,804,105.
- Equivalent patents pending worldwide.
- Fourth application filed...being subdivided into ten applications.
- Intellectual Property is analogous to early days of biotech revolution, in that initial patent had no prior art.