

**Superconductor Technologies Inc.**

**July 23, 2018**



# Safe Harbor Provisions

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Statements in this presentation regarding our business that are not historical facts are "forward-looking statements" that involve risks and uncertainties. Forward-looking statements are not guarantees of future performance and are inherently subject to uncertainties and other factors, which could cause actual results to differ materially from the forward-looking statements. These factors and uncertainties include, but are not limited to: our limited cash and a history of losses; our need to materially grow our revenues from commercial operations and/or to raise additional capital (which financing may not be available on acceptable terms or at all) in the very near future, before cash reserves are depleted (which reserves are expected to be sufficient into the third quarter of 2018), to implement our current business plan and maintain our viability; the performance and use of our equipment to produce wire in accordance with our timetable; overcoming technical challenges in attaining milestones to develop and manufacture commercial lengths of our HTS wire; the possibility of delays in customer evaluation and acceptance of our HTS wire; the limited number of potential customers and customer pressures on the selling prices of our products; the limited number of suppliers for some of our components and our HTS wire; there being no significant backlog from quarter to quarter; our market being characterized by rapidly advancing technology; the impact of competitive products, technologies and pricing; manufacturing capacity constraints and difficulties; the impact of any financing activity on the level of our stock price; the dilutive impact of any issuances of securities to raise capital; the steps required to maintain the listing of our common stock with a U.S. national securities exchange and the impact on the liquidity and trading price of our common stock if we fail to maintain such listing; the cost and uncertainty from compliance with environmental regulations; and local, regional, and national and international economic conditions and events and the impact they may have on us and our customers.

Forward-looking statements can be affected by many other factors, including, those described in the "Business" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" sections of STI's Annual Report on Form 10-K for the year ended December 31, 2017, and in STI's other public filings. These documents are available online at STI's website, [www.suprtech.com](http://www.suprtech.com), or through the SEC's website, [www.sec.gov](http://www.sec.gov). Forward-looking statements are based on information presently available to senior management, and STI has not assumed any duty to update any forward-looking statements.

# Superconducting Wire Transforms the Power Industry

Superconducting wire is to power, as fiber optics was to telecom.

## **Conductus® wire product development efforts fully aligned with Next Generation Electric Machines (NGEMs) applications:**

- Capitalizing on several accelerating energy megatrends: decentralized renewable energy, high energy efficiency, and sustainable transportation
- Targeting applications at low temperature and in the presence of a high magnetic field
- Similar wire specifications for multiple NGEMs simplifies ramp to commercialization

## **Sustainable Conductus advantages: Superior performance with robust patent portfolio**


- Two recent awards on STI core technology and manufacturing system design



## **Commercial scale production in place**


- State of the art factory, *expandable by 5X*
- On track to begin shipments of Conductus wire in Q3 2018 to multiple commercial customers to fulfill evaluation orders
- DOE awarded \$4.5M to STI and partners - June 2017
  - \$1.2 million project revenue recognized through May 2018 of the three-year \$4.5 million total budget
  - Delivered 1.5X the critical current electrical performance and a 2X increase in in-field magnetic performance during year one.

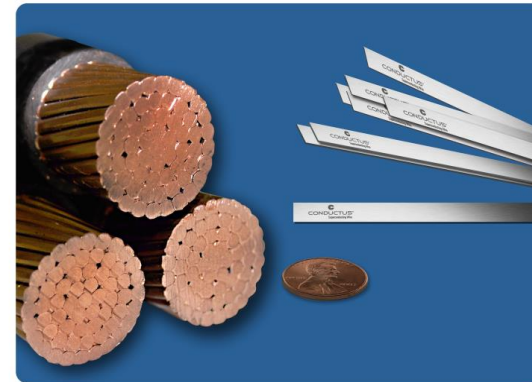
# Validation of the Gained Knowledge

## 2G HTS Superconducting Wire vs Conventional Copper

		<b>Conventional Copper</b>
Capacity	100X	Low
Efficiency	Extremely High	Poor - Significant Heat Loss
Size, Weight	Compact, Light Weight	Large and Heavy
Economics	Improving	Static, Limited
Design	Enabling New Devices	Limited





**Next Generation Electric Machines  
Enabling (NGEMs) Technology**

**Heavy Industry:** Highly efficient motors and generators

**Energy:** New high efficiency large scale wind turbines, new energy storage

**Defense:** High power density systems, electric aircraft

**Transportation:** Ship propulsion, MagLev

**Medical:** Ultra sensitive Imaging Techniques

**Science:** 3X the magnetic performance over low temperature superconducting for magnets, fusion

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# NGEMs; Transforming the future of power

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- **Overcoming the limitations of traditional materials and designs used in electric motor components**
- **Improving efficiency of machines far beyond existing technology – reducing on-going costs of operation**

## **Anticipated to significantly improve the performance of industrial electric motors**

- Today's industrial electric motors use approximately 70% of the electricity consumed by U.S. manufacturers and nearly a quarter of all electricity consumed nationally, according to the US Department of Energy (DOE)

## **Benefiting from increased use of energy from decentralized renewable energy such as solar, wind and water power generation technologies with access to energy storage for two-way power flows.**

- According to the DOE, from 2008 to 2015, U.S. installed solar power increased 20-fold from 1.2 gigawatts (GW) to 22.7 GW. By 2024, U.S. solar power is estimated to reach 246 GW.
- According to Navigant Consulting, an increasing number of customers are choosing to install decentralized energy resources. On a 5-year basis from 2015 to 2019, distributed energy resources in the United States is growing almost 3 times faster than traditional centralized generation.

# DOE Focused on Enabling Technology for NG Machines

<b>\$4.5M Award</b>	Began Work June 2017
<b>Provider</b>	U.S. Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE) on behalf of the Advanced Manufacturing Office (AMO)
<b>Prime Recipient</b>	Superconductor Technologies Inc.
<b>3-year Project</b>	Period one: Improve critical current capacity at 65K in the presence of an operating magnetic field of 1.5 Tesla Period two: Focus on optimizing the design and fabrication of 'best-in-class' wire in quantity, improve yield Period three: Build and validate an NGEM component that includes cryogenic testing



“Advancing these enabling technologies has the potential to boost the competitiveness of American manufacturers and take the development of more efficient electric machines a giant step further. These technology R&D projects aim to significantly improve industrial motors for manufacturing, helping companies who use these motors in manufacturing save energy and money over the long run.”

- Mark Johnson, director of the EERE Advanced Manufacturing Office

# Our best-in-class partners for DOE project



“TWMC recognized the immense value of superconductor technology for high-power electric machines early, and we are committed to their commercialization. We look forward to collaborating to develop the transformational technology needed to achieve commercial viability of high power superconducting next-generation electric machines.”

- Pat Rogers, President, TWMC



“STI’s goal of high performance at low cost can be a game changer for a wide range of applications, not only at temperatures near liquid nitrogen, but also at lower temperatures.”

- Joseph V. Minervini, Plasma Science and Fusion Center Assistant Director, MIT



“By bringing together university knowledge and capabilities from MIT and UNT with STI, a world class manufacturer of superconducting materials, and TWMC, the end user and device maker with over 100 years of experience in motor design and application, the full range of research and development to product manufacturing and wide scale commercialization of superconducting materials will be achieved.”

- Dr. Marcus L. Young, Assistant Professor Materials & Science Engineering, UNT

# Large Addressable Market: ~\$40B by 2030\*

Industry stake holders: Advanced Superconducting Manufacturing Institute (ASMI)\*



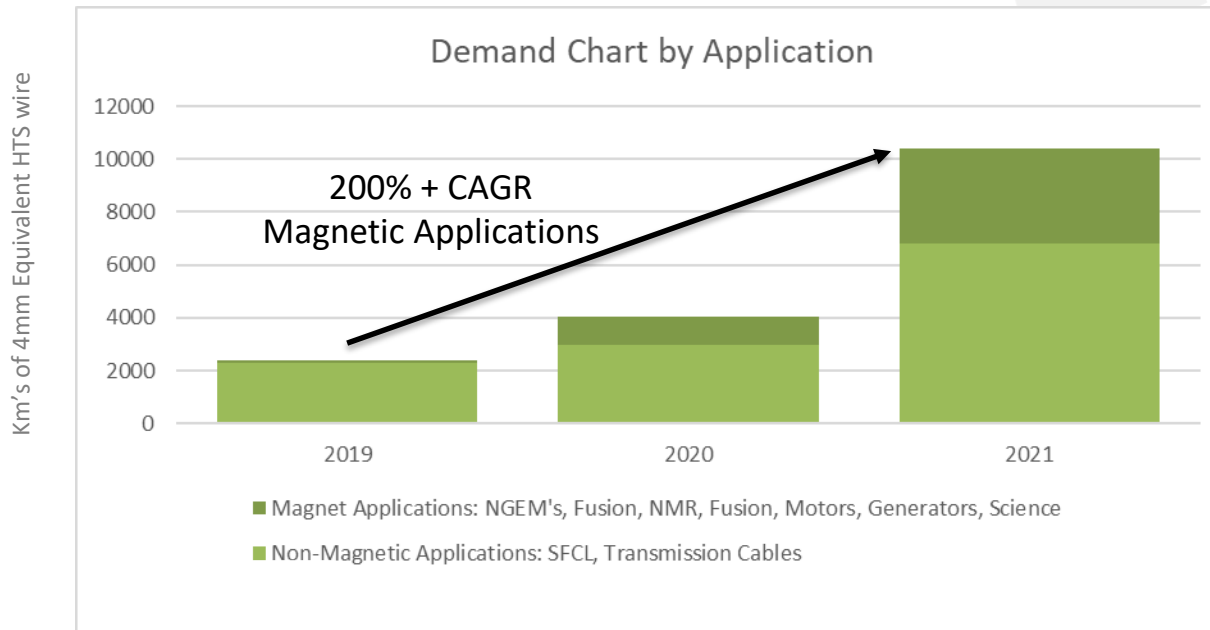
Figure 1.1. ASMI draws broad support from partners across the nation in industry, academia, and government.

\* ASMI estimates \$40B market opportunity by 2030



# Customers Signal Strong Demand for HTS Wire

*STI estimates customers' needs will exceed initial STI production capacity by more than 10X*



- Facilities are in place to scale capacity 5X
- Modular production process



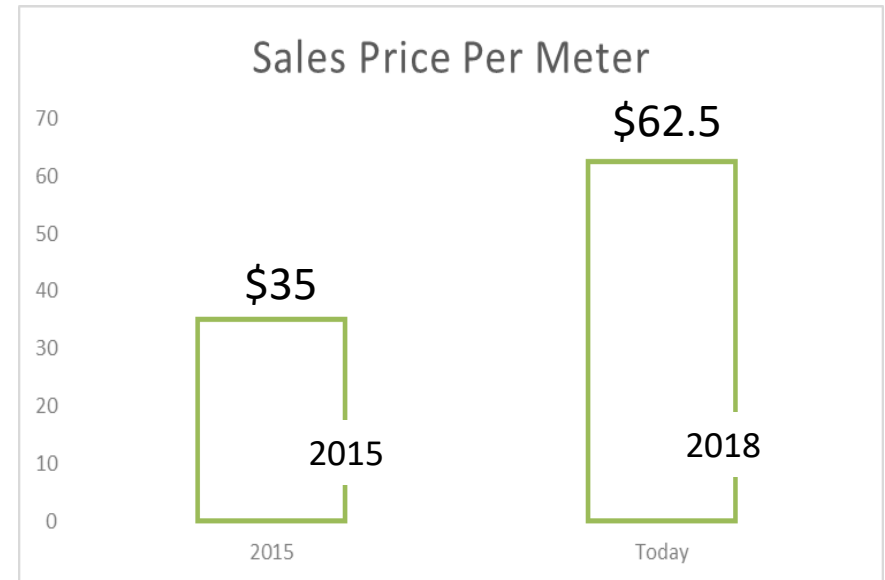
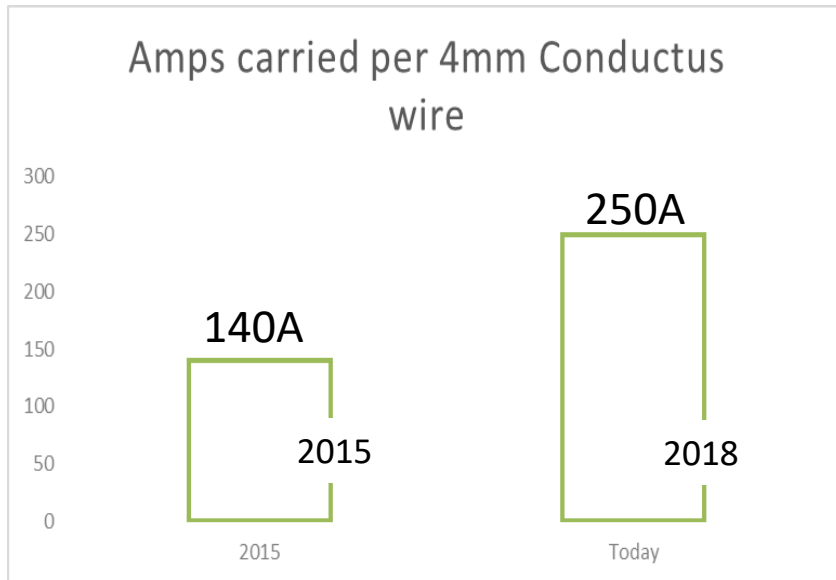
# Conductus High Volume Production System



<b>Tape Product Width:</b>	<b>3mm</b>	<b>4mm</b>	<b>10mm</b>	<b>12mm</b>
Batch Size: (meters)	3000	2150	1000	850
<b>Annual Capacity: (Km)</b>	<b>950</b>	<b>750</b>	<b>300</b>	<b>250</b>

## 2x Product Performance = Increase price per meter

Conductus performance superiority expected to command premium price



75% Improvement in sales price

- Price assumes \$250/kA-m
- Conductus roadmap targets both cost and performance

# Conductus Proprietary Wire Process

***Simple, Repeatable, Commercially Proven***

\$200M + investment to develop STI's proprietary manufacturing process

## **Utilizes simplified wire architecture**

- High performance
- Configurable to meet NGEMs and magnet applications

## **Leverages STI assets**

- \$200M+ investment
  - \$37M on Conductus wire development
- Manufacturing facility - \$11M in CapEx invested

## **Extensive IP portfolio - Developed over 100 patents**

## **Provides sustainable production advantage**

- Increased performance - Robust and flexible design
- Low cost - Simplicity of manufacturing process



# Focus on success of NGEM enabling technology

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## *New refined wire requirements match commercial needs*

- Executed on key year one milestones for DOE program
  - 1.5X performance improvement in electrical current carried by individual Conductus wire
  - 2X improvement in performance of in-field electrical performance
    - Applicable to ALL magnet applications
    - Improved economics for commercial customers
    - Improved margin – increased performance = increased price
- On target to begin evaluation shipments of wire to industry leaders for NGEM and large scale magnet applications in Q318 - leveraging 2017/18 wire developments.
- Year two of DOE program focuses on manufacturing wire for 5000 HP Motor
  - R&D effort will focus DOE year two objectives

# Leadership



**Jeff Quiram**  
President & CEO  
13 Years at STI



**Bob Johnson**  
SVP, Operations  
18 Years at STI



**Ken Pfeiffer**  
VP, Engineering  
6 Years at STI



**Bill Buchanan**  
CFO  
20 Years at STI



**Adam Shelton**  
VP, Product Management & Marketing  
12 Years at STI

## Goals

- Provide the world's most efficient, high-performance and cost effective superconducting wire for high field low temperature applications
- Improve our long-term competitiveness
- Reach profitability
- Deliver value to our shareholders and customers

# Financial Highlights

## Key Metrics:

- 95% of CapEx for initial production of Conductus wire has been invested
  - 750km capacity
- Additional production suites – 1500km increments
  - \$12.5M in CapEx expected to deliver \$75M in estimated revenue at current market prices

## Balance Sheet Highlights

<i>dollars in millions</i>	Mar 31, 2018
Cash	\$2.9
Working Capital	\$2.4
Total Assets	\$5.6
Debt	0

- Average trailing 12-month cash used to fund operations: \$1.79M per QTR
- As of 03/31/18, cash reserves are expected to be sufficient into Q3'18

# Pathway to Conductus Success

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Superconductor wire is to power, as fiber optics was to telecom.

- Addressing a large NGEM opportunity with disruptive technology
- Delivering market leading current handling product performance
- Obtaining customer validation of high performance compared to competitors
- Leveraging proprietary manufacturing process
- Utilizing scalable modular production plan
- Driving down production cost with manufacturing experience



