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Progress in 2G-HTS Tape Development at High Temperature Superconductors, Inc. (HTSI)

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***Abstract*—The global demand for second generation high temperature superconducting (2G-HTS) tapes has significantly increased over the past few years, largely driven by applications such as fusion or rotating machines requiring moderate to strong magnetic fields. As the only 2G-HTS tape manufacturer in the U.S. employing Pulsed Laser Deposition (PLD) for the HTS layer, High Temperature Superconductors, Inc. is uniquely positioned to become the leading HTS tape supplier in the United States.**

Over the last three years, we have qualified a fully functioning buffer line utilizing IBAD (Ion Beam Assisted Deposition) for long-length tapes (up to 600 m), and made significant progress on shorter length, high quality superconducting tapes. Our superconductor performance meets typical industry requirements for power transmission (150 A for 4 mm wide tape at 77 K, self-field), and at high magnetic fields suitable for fusion magnets (20 K, 20 Tesla). At CCA, we will share the most recent status of our development and journey to long-length, large scale production.

***Keywords (Index Terms)*—HTS cable, HTS magnet, Fusion, Wires and Tapes, Pulsed Laser Deposition**

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