SupernetNL program: 3.4 km 110 kV AC underground superconducting cable in the Dutch grid

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TenneT, a leading European electricity transmission system operator (TSO) is planning to install a 3.4 km long underground superconducting 110 kV cable as part of the Dutch electricity grid, in the city of Enschede. HTS cables have already been demonstrated on a relatively small scale in other countries, but they are usually not part of the meshed high-voltage grid and the length of the relevant cable section generally does not exceed 1 km. In 2009, a 600-meter section of HTS cable was installed in New York, and in 2014 a 1-km long section was taken in operation in Essen, Germany to replace a 10 kV AC medium-voltage line.

In the Supernet NL program, TenneT is working together with several leading knowledge institutes including University of Twente, Delft University of Technology, the Institute of Science and Sustainable Development (IWO), HAN University of Applied Sciences and RH Marine. These institutes have been investigating control engineering aspects and the requirements the cable must meet.

In the meantime, the tender process has been started which consists of two phases. In the first phase (summer 2017) appropriate candidates are selected directly followed by a call for tender in August. Receipt of the best and final offer is scheduled for the end of November.

In the presentation, the project will be introduced and requirements will be discussed, specifically focusing on the cryogenic aspects.