

Abstract Submitted
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100 Years of Superconductivity: Perspective on Energy Applications PAUL GRANT, W2AGZ Technologies — One hundred years ago this past April, in 1911, traces of superconductivity were first detected near 4.2 K in mercury in the Leiden laboratory of Kammerlingh Onnes, followed seventy-five years later in January, 1986, by the discovery of “high temperature” superconductivity above 30 K in layered copper oxide perovskites by Bednorz and Mueller at the IBM Research Laboratory in Rueschlikon. Visions of application to the electric power infrastructure followed each event, and the decades following the 1950s witnessed numerous, successful demonstrations to electricity generation, transmission and end use – rotating machinery, cables, transformers, storage, current limiters and power conditioning, employing both low and high temperature superconductors in the USA, Japan, Europe, and more recently, China. Despite these accomplishments, there has been to date no substantial insertion of superconducting technology in the electric power infrastructure worldwide, and its eventual deployment remains problematic. We will explore the issues delaying such deployment and suggest future electric power scenarios where superconductivity will play an essential central role.

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