

Solid oxide technology's contribution to green energy systems

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Abstract

Worldwide, the societies strive for an unprecedented transition from traditional energy systems based on fossil fuels towards systems relying on renewable energy sources for electricity production, instead. The most prominent renewable sources – wind and solar – are fluctuating by nature and pose challenges on securing the supply of electricity according to the needs of society, both in the private and industry sectors. The mismatch between the production patterns from wind / solar and electricity use patterns requires efficient technologies to produce electricity in periods of lack and store electricity in periods of excess production. Solid oxide technology in both modes: fuel cell and electrolysis can become key contributors to solve these challenges due to their high efficiencies and flexibility in regard to usable gasses and operating modes. Demonstration is progressing and first commercial units are available. The presentation will provide an overview over the development status and discuss remaining critical issues that are topic of research efforts.

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