

NETL-SUPPORTED SOLID OXIDE ELECTROLYSIS CELL PRODUCES HYDROGEN AT HIGH PRESSURES

Technology builds upon earlier extraplanetary success to create a stable, robust and low-cost system that produces hydrogen at high pressures — an important step toward the commercialization of clean energy devices.

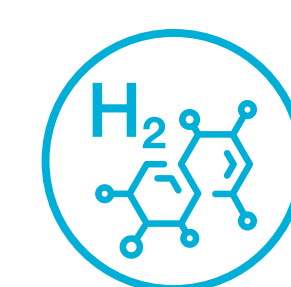


OxEon's solid oxide electrolysis cell.

Solid oxide electrolysis cells (SOECs) produce hydrogen by splitting it from water using an electric current. The newly developed SOEC is based on an electrolysis stack used during NASA's Mars 2020 Perseverance Rover mission developed by OxEon Energy.

- The NETL-supported project operated an SOEC that produced hydrogen at elevated pressures of 2 to 3 bar.
- SOEC hydrogen production at elevated pressures lowers costs — a key to commercializing new clean energy devices.
- The project also addressed common challenges faced by the SOEC industry by implementing process and cell component modifications to demonstrate improved cell performance and stability, oxidation recovery of the fuel electrode, performance stability through thermal cycles, and evaluation of the effect of contaminants.

RESEARCH PRIORITY



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