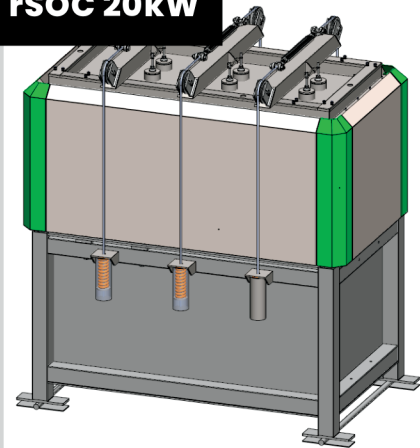


# Solid Oxide Systems: SOEC, SOFC & Reversible

OxEon Energy develops reversible solid oxide cell (rSOC) systems designed for power output in range of 20-150 kW that operate in high-temperature electrolysis and fuel cell modes. Each rSOC system is a separate generator, able to operate independently and autonomously, yet connected for remote management and monitoring. Installations of multiple parallel systems can form an on-site power plant capable of producing 1MW, securing critical loads, and providing fuel or power generation as a back-bone generator of a local microgrid.

**rSOC 20kW**



## ELECTROLYSIS

<b>Inputs</b>	3 SLPM H <sub>2</sub> (or recycle) >100 SLPM air (tailored to meet O <sub>2</sub> outlet dilution required) 125 g/min H <sub>2</sub> O steam 20 kW <sub>e</sub>
<b>Outputs</b>	15 kg/day H <sub>2</sub>
<b>Exhaust</b>	O <sub>2</sub> enriched air (<50% O <sub>2</sub> ) @ temperatures < 200 C
<b>Feed</b>	Steam, dry-CO <sub>2</sub> -, and co CO <sub>2</sub> -steam electrolysis modes with single system

## FUEL CELL

<b>Inputs</b>	150 SLPM H <sub>2</sub> (no H <sub>2</sub> O required) 1500-2000 SLPM air
<b>Outputs</b>	10 kW power production
<b>Exhaust</b>	90 g/min H <sub>2</sub> O (clean)
<b>Fuels</b>	Non-traditional fuels such as NH <sub>3</sub> , synthesis gas (CO/H <sub>2</sub> mixture)
<b>Input Pressure</b>	1.3 bara

## How does rSOC work?

The OxEon rSOC is a compact stack built primarily from abundant, low-cost ceramic materials enclosed within a high-temperature housing. In electrolysis mode, it utilizes electricity to split water molecules (H<sub>2</sub>O) into hydrogen (H<sub>2</sub>) and oxygen (O<sub>2</sub>). Hydrogen is compressed and stored on-site. When operated in fuel cell mode, hydrogen, is run through the system to generate electricity. This reversible system offers optimal plant flexibility with seamless mode operation.

- **Convenient:** The rSOC unit's high degree of automation and auto-response capability, across the entire hydrogen process, minimize oversight and training requirements – as well as associated risks – for efficient, convenient on-site hydrogen production and supply.
- **Efficient and Safe:** Experience 30% greater green-hydrogen output compared to other electrolysis technologies. Stacks are one of the most environmentally friendly, efficient, stable, and reliable methods for production of electricity and heat, and hydrogen.
- **Waste Heat to Power:** Reroute and monetize your plant's existing low-value heat to generate electricity and fuel.
- **Fuel flexibility:** The system can be configured for operating with different fuel gas compositions such as natural gas, biogas, ammonia, methane, and syngas.
- **Modular Footprint:** Maximize your plant's production capacity without altering its layout thanks to the compact, scalable design of the SOEC module.

OxEon designs rSOC systems for power security, competitiveness of life cycle costs, grid and fuel flexibility and minimal emissions. Our focus on component and systems development establishes revolutionary and accessible pathways to bring the implementation of renewable energy Beyond Current Potential.™

