



Commercial-scale SOFC systems

The **ComSOS - Commercial-scale SOFC systems** - project involves the demonstration of fuel-cell based energy solutions in real client environments, in cooperation with leading European system experts.

The ComSOS project aims at **strengthening the European SOFC industry's world-leading position** for SOFC products in the **range of 10-60 kW**, totalling 450 kW_e. Through this project, manufacturers prepare for developing capacity for serial manufacturing, sales and marketing of mid FC CHP products. All manufacturers will validate new product segments in collaboration with the respective customers and confirm product performance, the business case and size, and test in real life the distribution channel including maintenance and service. In function of the specific segments, the system will be suitable for volumes from few 10's to several 1000 systems per year.

ComSOS is an EU funded project aimed to validate and demonstrate fuel cell based combined heat and power solutions in the mid-sized power ranges of 10-12 kW, 20-25 kW, and 50-60 kW, referred to as **Mini Fuel Cell Combined Heat and Power - Mini FC-CHP systems**. The outcome gives proof of the superior advantages of such systems, underlying business models, and key benefits for the customer.

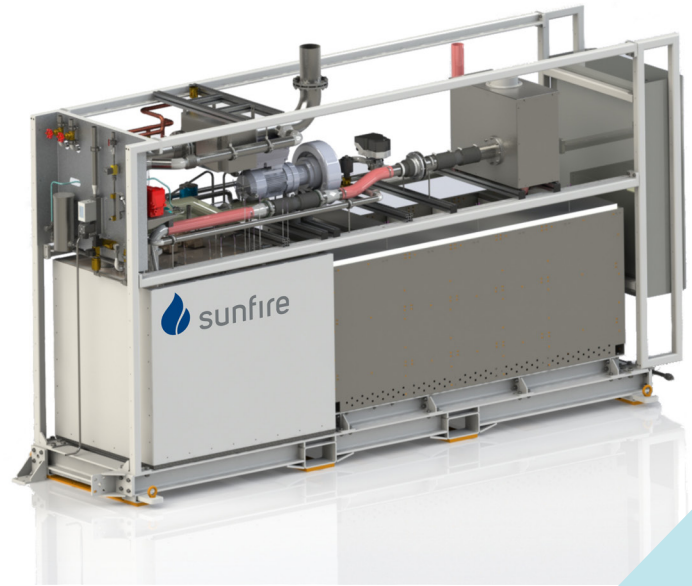
The ComSOS project will implement a total of **25 SOFC technology-based power generation solutions around the world** bringing the retail sector to an unprecedented **high efficiency** and **environmentally-friendly** approach to energy consumption.



Innovative, commercial and energy-efficient Solid Oxide Fuel Cell (SOFC) applications are thus emerging from the ComSOS EU project.

The technology and product concepts, in the aforementioned power range, has been developed in Europe under supporting European frameworks such as the FCH-JU.

The project will provide clear evidence to the commercial and retail sector, the building sector and the generic public of the **key advantages of SOFC systems**: high electrical efficiency (up to 60%, the highest achievable among competitors), modularity and zero emissions to atmosphere (NO_x, SO_x, PM, VOC ...). Moreover, the core actors of the consortium are three SOFC system manufacturers aligned with individual strategies along the value chain.



OBJECTIVE

VALIDATE AND DEMONSTRATE FUEL CELL BASED COMBINED HEAT AND POWER SOLUTIONS (MINI FC-CHP SYSTEMS) IN THE MID-SIZED POWER

RANGES OF
10-12KW
20-25KW AND
50-60KW

INNOVATION

MINI FC-CHP SYSTEMS
FOR COMMERCIAL APPLICATIONS

23 UNITS WITH A TOTAL POWER OUTPUT OF AT LEAST **450KW**

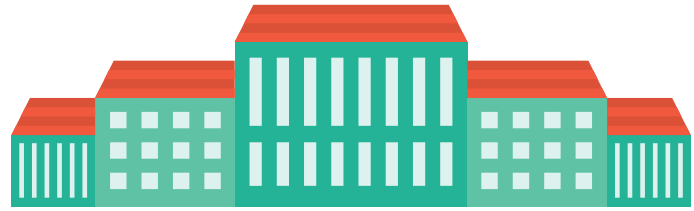
COMSOS **TARGET FOR ELECTRICAL EFFICIENCY IS MORE THAN 50%** AND OVERALL EFFICIENCY OVER 90%.

LIFETIME MORE THAN **10** YEARS, AVAILABILITY MORE THAN **90%** ACHIEVED DURING COMSOS PROJECT.

THE AVERAGE CONSUMPTION OF A 350 M² FAST FOOD IS 305 MWH/Y ELECTRICITY AND 205 MWH/Y HEAT.

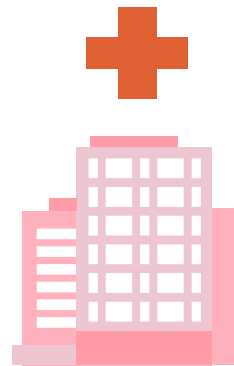
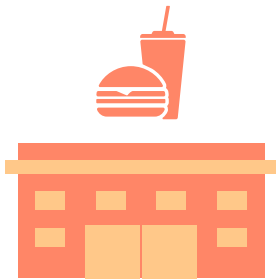
A 50 KWE SOFC SYSTEM CAN COVER **94%** OF THE ELECTRICAL LOAD AND **70%** OF THE THERMAL LOAD WITH A PRIMARY ENERGY SAVING OF **200 MWH/Y (-28%)** AND A CO₂ SAVING OF **11.6 TONS CO₂** PER YEAR.





END USERS

- HOSPITALS
- OFFICE BUILDINGS
- SUPERMARKETS
- SMALL COMMERCIAL SITES
- SHOPPING CENTERS
- HOTELS
- SMALL DATA CENTERS
- NEAR ZERO ENERGY BUILDINGS (NZEB)



PARTNERS

ComSos is a 42-months project (2018-2021) with a budget of EUR 10.2 million, granted EUR 7.4 million under the EU's Horizon 2020 programme managed by FCH-JU.

The project, coordinated by VTT includes the following partners:

- **Convion Oy (Finland),**
- **Sunfire GmbH (Germany),**
- **SOLIDpower SpA (Italy),**
- **Politecnico di Torino (Italy),**
- **Blueterra (The Netherlands),**
- **HTceramics SA (Switzerland).**



POLITECNICO
DI TORINO





More info at:
<https://www.comsos.eu/>

This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking under grant agreement No 779481. This Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme, Hydrogen Europe and Hydrogen Europe research.

