

The Laboratory of Process Systems Design and Implementation (PSDI)

The [Laboratory of Process Systems Design and Implementation \(PSDI\)](#) is a key laboratory of the Chemical Engineering Process Research Institute (CPERI), located in Thessaloniki, Greece. The main goals of PSDI include:

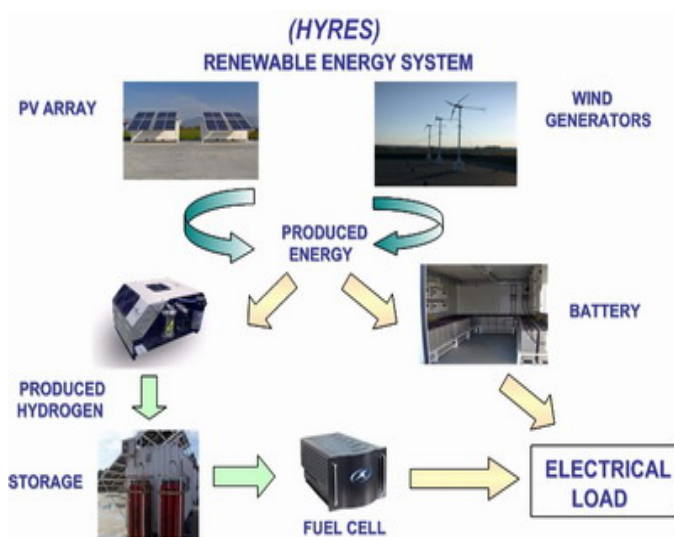
- Design and construction of complex process systems
- New power generation systems
- Fuel cells
- Energy and Fuels production from renewable energy sources

PSDI has participated in numerous competitive European and national research projects and has developed unique infrastructure, at European level, and technology in the following areas:

- Design and construction of process systems
- Modeling, control and optimization of systems and processes
- Development of electrochemical process systems
- Development of thermochemical and catalytic processes for energy, fuels and chemicals production
- BTL processes
- Hydrogen production from RES

PSDI is supported by competitive personnel of 30 employees including researchers, graduate students, control engineers, technicians and collaborative faculty members. Its infrastructure comprises of 8 pilot plant units (methanol, syngas, hydroprocessing, PEM) and 1 demonstration unit, a 230m² machine shop and calibration room, and informatics infrastructure including 15 servers (firewall protected).

DESCRIPTION OF ACTIVITIES



- Design and Development of Advanced Automatic Control Systems Operation and Monitoring Process.
- Support the operation and maintenance of pilot plants and infrastructure.
- Integrated energy systems.
- Fuel cells release polymer membrane (PEM) and solid oxide (SOFC).
- Electricity production from methanol
- Electricity generation from renewable sources and long-term storage in the form of hydrogen.
- Systems Development and Production of Biomass Hydrogen.
- Calibration Systems
- Development of Experimental Equipment Systems