



# Hydrogen Europe: European Hydrogen & Fuel cell Project Database

## Project HYDROSOL-PLANT

Thermochemical HYDROgen production in a SOLar monolithic reactor: construction and operation of a 750 kWth PLANT

The HYDROSOL-PLANT project is expected to develop, verify and operate all of the tools required to scale up solar H<sub>2</sub>O splitting to the pilot (750 kWth) scale. The work will be based on the successful HYDROSOL series projects and mainly on the outcome of the current FCH-JU co-funded project, HYDROSOL-3D, dedicated to the provision of all main design specifications of such a pilot plant. HYDROSOL-PLANT comes thus as the natural continuation of such an effort for CO<sub>2</sub>-free hydrogen production in real scale. The main objectives of HYDROSOL-PLANT are to: • Define all key components and aspects necessary for the erection and operation of a 750 kWth solar plant for H<sub>2</sub>O splitting (heliostat field, solar reactors, overall process monitoring and control, feedstock conditioning, etc.) • Develop tailored heliostat field technology (field layout, aiming strategies, monitoring and control software) that enables accurate temperature control of the solar reactors. • Scale-up the HYDROSOL reactor while advancing the state-of-the-art (redox materials, monolithic honeycomb fabrication and functionalization) for optimum hydrogen yield. • Design the overall chemical process, covering reactants and products conditioning, heat exchange/recovery, use of excess/waste heat, monitoring and control. • Construct a solar hydrogen production demonstration plant in the 750 kWth range to verify the developed technologies for solar H<sub>2</sub>O splitting. • Operate the plant and demonstrate hydrogen production and storage on site (at levels > 3 kg/week). • Perform a detailed techno-economic study for the commercial exploitation of the solar process.

## Project Information

**Type of project :** Research

**Timing :** 01/01/2014 > 31/12/2017

**Project website:** <http://www.hydrosol-plant.certh.gr/>

**Project Budget :** 3.480.806 €

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## Funding

European Union through FCH JU: [Grant agreement 325361 - CORDIS link](#)

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## Project partners

**Coordinator :**

[CERTH \(National Centre for Research and Technology Hellas\) with CPERI](#)

**Partners :**

[DLR - German Aerospace Center](#)

[CIEMAT - Centro De Investigaciones Energeticas, Medioambientales y Tecnologicas](#)

[HyGear B.V.](#)

[ELLINIKA PETRELAIA AE](#)

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**Sub project(s)**

**Sub project 1**

**Country:** Greece

**Address:**

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**Sub project categories**

Research

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Project Id: 998

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