Spike Renewables Srl

Engineering · Research · Prototyping for the Energy Transition

spike
RENEWABLES
a CO_2 balanced future

Florence, Italy

Who We Are

Spike Renewables is an independent **engineering company** operating at the intersection of system engineering, applied research and technology development for the energy transition.

We support industrial clients, public bodies and research consortia in the design, integration and validation of advanced energy systems, from concept to demonstration scale.

Our activities combine:

- solid engineering background
- research-driven innovation
- laboratory testing and prototyping

Our Approach

From idea to validated solution

Spike Renewables adopts an integrated and pragmatic approach, based on:

- system-level engineering
- numerical modelling and simulation
- laboratory-scale prototyping and testing
- close interaction with industrial partners

This approach allows risk reduction, performance optimisation and scalable solutions before full industrial deployment.

Areas of Activities

Core activities

- **Engineering & System Integration:** Renewable energy systems, HVAC, industrial processes, energy efficiency
- **Research & Innovation:** Horizon Europe and H2020 projects in energy and industrial decarbonisation
- **Hydrogen Technologies:** Production, storage, utilisation, system modelling
- **Laboratory & Prototyping Facilities:** Test rigs, pilot plants, experimental validation
- **Patents & Proprietary Technologies:** Protection and development of innovative solutions

Research & Innovation Projects

Spike Renewables actively participates in European research programmes, contributing with engineering design, system modelling and prototyping activities.

Main research domains include:

- geothermal energy and heat recovery
- hydrogen storage and utilisation
- advanced heat exchangers
- high-temperature thermal systems

Our role typically covers: system architecture definition; component and process optimisation; experimental validation and scale-up support

Engineering & Realised Projects

Spike Renewables has delivered engineering projects in civil, industrial and renewable energy sectors, including:

- renewable energy plants (biomass, photovoltaic, solar thermal)
- HVAC systems for complex buildings
- energy efficiency upgrades for industrial processes

Each project is developed with a customised, client-oriented approach, ensuring technical reliability and operational effectiveness.

Hydrogen Technologies

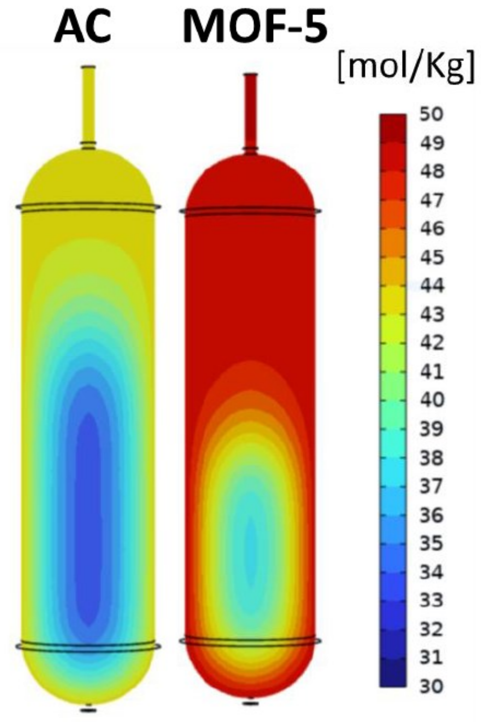
Hydrogen is a strategic focus area for Spike Renewables.

Our activities cover:

- hydrogen production systems
- advanced storage solutions (including porous materials)
- system integration and thermal management
- digital twins and dynamic simulation

Hydrogen-related R&D is strongly connected to

Horizon Europe projects and industrial applications.



Absolute adsorption

Laboratory & Prototyping

Experimental validation is a key differentiator of Spike Renewables.

We design and operate laboratory-scale and pilot facilities, including:

- molten salts test plants
- heat exchanger test rigs (single-phase, boiling, condensing)
- biomass and HTL pilot systems
- scaling and fouling experimental setups

Prototyping activities are tightly integrated with numerical simulations to support design optimisation and scale-up.

Patents & Intellectual Property

Spike Renewables develops and protects proprietary technologies arising from research and experimental activities.

Patents focus on:

- innovative energy conversion processes
- advanced thermal systems
- experimental plants and testing methodologies

Intellectual property supports industrial exploitation, technology transfer and future spin-off initiatives.

Why Spike Renewables

A reliable partner for advanced energy systems

- Engineering-driven innovation
- Strong EU research ecosystem
- Proven experience from lab to demonstration scale
- Lean, flexible and highly specialised SME

We turn complex energy challenges into engineered, validated solutions.

Ecosystem & Partners

TWI

Newcastle University

PIN - Polo Universitario Città di Prato

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FLOWPHYS

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IN SUPREMÆ DIGNITATIS 1343
UNIVERSITÀ DI PISA

Brunel University London

UNIVERSITÀ DEGLI STUDI FIRENZE

RE·CORD

UNIVERSITY OF LEEDS

IBT Group

Oliveris

Ne.m.e.sys.
NEw Mobility Electric SYStem

econotherm
WASTE HEAT RECYCLING TECHNOLOGY

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