

Use case of the Puertollano Green Hydrogen Plant

FEDECOM (FEDERated - "system of systems" - approach for flexible and interoperable energy COMMunities) is a Horizon Europe project demonstrating sector coupling by federating energy communities. FEDECOM provides a scalable and adaptable cloud-based platform including analytical, modelling and optimisation services for planning, supervision and control of integrated local energy systems.

FEDECOM project partners:



Before FEDECOM



The **Puertollano Green Hydrogen Plant**, located in Spain, is the second one Europe's largest facility for industrial green hydrogen production, developed by Iberdrola. It aims to reduce dependence on natural gas in ammonia and fertilizer production. The hydrogen will be used by Fertiberia as a main offtaker. The **FEDECOM platform** will further optimize the plant's energy generation and consumption, facilitating energy trading and enabling integration with renewable energy sources.

Existing Technologies

- ▶ A 100 MW photovoltaic solar power facility.
- ▶ 5 MW/20 MWh lithium-ion battery storage system.
- ▶ 20 MW PEM electrolyser system for green hydrogen production.
- ▶ Hydrogen compression and storage system with more than 6.5 tons of green hydrogen storage total capacity and more than 3.5 tons of green hydrogen storage available capacity.

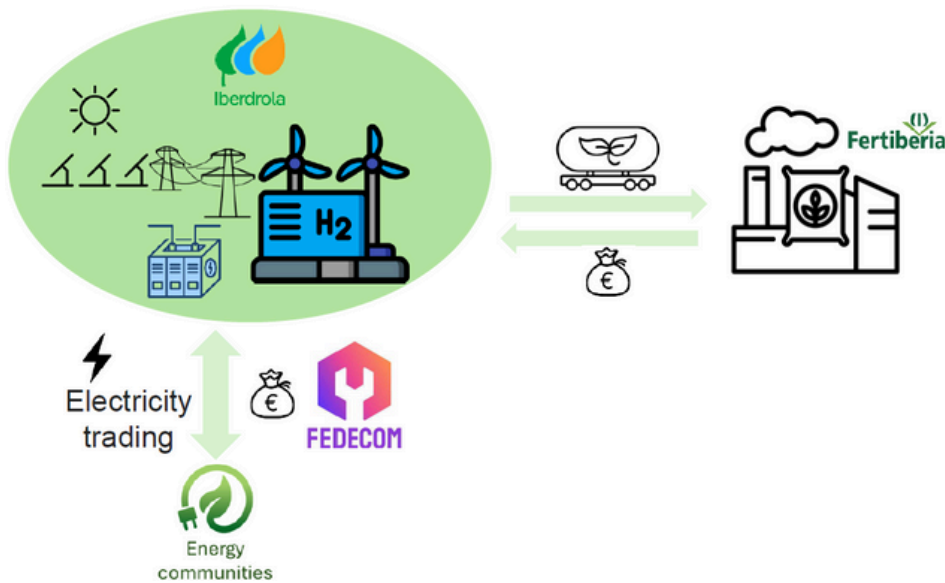


After FEDECOM

As part of FEDECOM project the Puertollano Green Hydrogen Plant will benefit from installation upgrades to enhance operations and data management, but the key innovation lies in implementing an advanced energy and flexibility trading platform to optimize energy use and enable renewable energy trading.

Installation upgrades

- ▶ Integration of data acquisition systems for enhanced monitoring and communication
- ▶ Implementation of the FEDECOM platform to optimize energy generation, consumption, and renewable energy trading
- ▶ Deployment of tailored data storage and communication systems aligning with Iberdrola's cybersecurity protocols



Project's benefits for the pilot

- **Enhanced energy efficiency** and optimization of hydrogen production and renewable energy consumption
- **Cost reductions** through improved resource utilization and energy trading capabilities
- Increased potential for **integration with energy communities** and improved readiness for energy trade facilitated by the FEDECOM platform

Innovations of the FEDECOM Platform

- **Real-time data integration** and monitoring of energy production, consumption, and hydrogen storage for responsive adjustments
- **Advanced operational optimization** of the Puertollano Green Hydrogen Plant's renewable energy usage
- Facilitation of **electricity and hydrogen trading** with external communities and partners

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Interested in Replicating this Use Case in Your Community?

Do not hesitate to contact us for more details:

