

BEST PRACTICE



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100% Renewable island

El Hierro, Spain – 10 600 inhabitants

**Wind and water technology –
Geothermal – energy self sufficiency**

Because of the topography of the surrounding seabed, El Hierro, an active volcanic island, could never hook up to Spain's power grid. Instead, it used to ship around 40 000 barrels of oil each year, to power electricity

generators. In 2014, El Hierro inaugurated the *Gorona del Viento* power plant, a wind and water turbine farm and in 2015 the island went 100% renewable for the first time.



Credit: Mataparda, CC BY 2.0

Project in a Nutshell

El Hierro 100% Renewable Project is managed by *Gorona del Viento El Hierro S. A.* and includes the El Hierro Island Council (65,82%), the Spanish utility company Endesa (23,21%), the Canary Islands Institute of Technology (7,74%) and the Autonomous Community of the Canary Islands (3,23%). The project costed €65 million and it was partly funded by a €35 million European Union grant. It consisted in the installation by the company ABB, of an 11,5 megawatt (MW) wind farm and an 11,3 MW hydroelectric pumped storage plant that can provide the island's inhabitants with 80% of their energy needs.

Impact & Next steps

The *Gorona del Viento* wind-hydro power plant now manages to produce all the energy that the island needs, with an annual average of 60% of energy from renewables, often hitting peaks of 100%. In February 2018, the island ran for 18 consecutive days with renewable energy only. During the next 20 years, this system is expected to provide annual savings of 18 700 tonnes of CO₂ emissions and €2 million, equivalent to the 5 000 tonnes of diesel fuel that no longer needs to be bought. El Hierro plans to reinvest the expected €4 million yearly in profits from the venture to develop solar heating and electric-vehicle systems by 2020.

Replicability: Challenges & Success Factors

The project is a model for other islands which are isolated from the mainland's energy grid. Islands can play a very important role as pioneers of energy self-sufficiency. The island as a whole can serve as an experiment not only for this particular energy combination, but also for other types of energy-related issues like mobility, like efficient transport solutions.



The initiative is supported by El Hierro's citizens: the green island credential should increase visibility and tourism. Locals also had the future energy security of the island at heart and the perspective of the creation of new jobs. These aspects are more appealing, concrete and easier to understand by the public than climate change and emission reductions.

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www.endesa.com/en/projects/a201611-el-hierro-renewable-sustainability.html

