

## Wind–Pumped Hydro Power Station – El Hierro, Spain

<p><b>Title</b></p> <p>Wind–Pumped Hydro Power Station in El Hierro, Spain</p>	<p><b>Partners involved</b></p> <ul style="list-style-type: none"> <li>- Cabildo El Hierro</li> <li>- Instituto Tecnológico de Canarias</li> <li>- Endesa</li> <li>- Regional Government</li> <li>- Institute for Diversification and Energy Saving (IDAE) depending from the National Government</li> </ul>
<p><b>Theme of Collaboration</b></p> <p>Financial mechanisms, Awareness raising and stakeholders involvement</p>	<p><b>Cluster of Spain</b></p> <p>Canary Islands</p>
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### Description

The island of El Hierro, Canary Islands, is implementing a hybrid hydroelectric and wind plant to meet its energy needs using renewable sources. Working together, the two technologies will help create reliable, efficient and stable power supply for the 10.960 persons residing on the island. The system designed for El Hierro will cover about 80% of the island's total annual energy demand.



**11,5 MW Wind farm**

This project is an ambitious initiative that includes many themes of multilevel governance collaboration. The National Government that approved a specific retribution rate for the electricity produced with this system, IDAE that provided part of the necessary funding, the Regional Government that authorized its installation, the insular Cabildo in charge of territorial issues and the Canary Islands Institute of Technology as technological adviser.

This challenge includes modelling of the whole electricity consumption of the island and its management (operating as isolated system); it also needs planning of future electricity consumption and continuous monitoring of its operation to assure its proper functioning. There are different components that must work coordinated together, following a strategy to guaranty the electricity supply to all inhabitants of el Hierro since there is no electric connection to any other island or mainland.

Moreover, the island was declared a Biosphere Reserve through the Man and the Biosphere Programme of UNESCO in January 2000. This seal was awarded to El Hierro for the special



conservation of its environmental and cultural richness, as well as for its efforts toward the progress and development of its people. This high protection of the territory entailed great obstacles when deciding where to install the wind farm, the reservoirs, pipe lines and all associated installations. Thorough environmental studies had to be conducted involving at that stage the Regional Ministry of Environment.



*Upper storage reservoir*

of

## Results related to MLG processes

### Company with shares of the main involved parties formed to develop the project

Three organizations — the Cabildo of El Hierro (island council), responsible of territorial issues; the utility Endesa S.A. which will manage and operate the system; and the Canary Islands Institute of Technology (ITC) as technological support — formed Gorona del Viento El Hierro, S.A. in 2004 to develop the project. The company is a partnership of the Cabildo (60%), Endesa (30%) and ITC (10%).

### Public financial support reassured through the involvement of IDAE

Agreement with the Institute for Diversification and Energy Saving (IDAE) governing the mechanisms for the provision of public funds, as well as control and monitoring of the actions of this initiative. This guaranteed the majority of the financing necessary to perform the relevant works.

IDAE is providing its experience to this project ensuring the correct application of budget funds by performing monitoring, inspection and control tasks related to budget execution during design, supply, assembly, start-up and operational testing.

### The diverse high added value of the project led to its public support

The public support needed by the initiative has been granted within the framework of the actions carried out by the National Government in terms of saving, energy diversification, use of renewable energies, respect for the

environment, as well as because of being a project with high technological exemplary innovation, which will allow an integrated hydroelectrical-wind energy management model that is highly replicable on other islands. Many meetings were held in Madrid including representatives of the Cabildo, ITC and the corresponding ministries of finances and industry at national level. The national interest was grasped proving the many benefits of this initiative in the terms referred at this paragraph.

#### **Good local environmental awareness and sensitivity**

The inhabitants of the island are very conscious about the environment protection of their territory and the direct benefits got from energy production through RES.

### **Lessons learnt on MLG processes**

#### **Strong political stimulation and follow-up is needed for large scale innovative energy infrastructure projects**

Regular meetings at different regional administrative levels (Cabildo, Regional Government of the Canaries, National Government) favoured administrative procedures. This kind of project is not included in any regulation, as it is an innovative initiative integrating different technologies.

#### **Important stakeholders should get involved the maximum degree**

Projects with such a complexity, including financial mechanisms, modelling, planning, monitoring and awareness raising, need to include important stakeholders in the managing council.

#### **Aiming to early social awareness can assist the realisation of the project**

Social awareness was needed to get the political commitment. As the island had been declared a Biosphere Reserve through the Man and the Biosphere Programme of UNESCO, inhabitants in El Hierro are very sensitive to environmental aspects. From the beginning they were told about the objectives to achieve with this initiative, which included lot of civil works for the wind farm and for the hydroelectric power plant.

#### **Public subsidy should be investigated for projects of national importance**

Projects like this need to have strong support through public subsidy since they may not be actually bankable but very important for the local environment and society.



## The MLG cooperation structure

The following diagram demonstrates the different governing structures and stakeholders involved in the whole process.

