EL HIERRO WIND-PUMPED HYDRO POWER STATION

Island self-sufficient in water and energy

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1. Who we are?

2. What have we done?

3. What can we contribute?

4. How can we work together?
Fortunate Islands

Problem

An Opportunity
El Hierro, the smallest of the Canary Islands

Outermost region and double insularity.
Total external energy Dependence

278 Km². 10,000 inhabitants.

Electric load (2014): 38,688 MWh/y
Socioeconomic conditions

Wind-Pumped Hydro Power Station

Socio-economic benefits
Canary Islands
El Hierro
World Biosphere Reserve (since 2000)
Sustainable Development Program (1997)
2. What have we done?

Sustainability Plan

- Sustainable tourism.
- Agriculture, Livestock and Fisheries.
- Job creation.
- Waste management.
- Trade and Industry.
- Sustainability Laboratory.
- El Hierro 100% RES.

WATER

CONNECTION

ENERGY
700 million people lack access to safe drinking water
3. What can we contribute?


Gorona del Viento El Hierro, S.A.
The Wind-Pumped Hydro Power Station
An innovative Project for island`s energy self-efficiency
Wind Farm

Potencia del parque: 11,5 MW

Enercon E-70 2,3 MW.
Upper Reservoir
Diagrama de Explotación
PROJECT REQUIREMENTS

- **Small electrical grid with greater stability risk.** Need to scale the facilities in order to guarantee running stability and security.

- **Need to develop a reliable wind prediction system to harness this highly variable resource.**

- **Need to integrate different types of wind-hydraulic-diesel generation** and to develop innovating management and control systems. In prolonged low wind conditions or during serious breakdowns of the hydro-wind system, need for emergency diesel generators.

- **Additional investment** is necessary for the construction of storage and pipeline depots.
Estructura de generación

Eólica
2.8 MW
48 %

RED ELÉCTRICA DE ESPAÑA
Operating Outline

Objectives

To Obtain Environmental Benefits and Reduced External Dependence
Operating Outline

Objectives

To supply the island with power and water
PROJECT STRENGTHS

- Electricity and water self-sufficiency on the island. Reduction of power vulnerability.
- Power generation with greater dependency on renewable energy sources. Greater implementation of wind power.
- Reduction of CO2 and contaminant emissions.
- Use of facilities to dispose of elevated water resources (supply, irrigation, fire extinguishment).
- Reduction of costs with respect to diesel generation on El Hierro.
3.048 h. equivalentes
13Gwh Excedente eólico
FUTURE
El Hierro, the perfect setting. A project that can be extrapolated to other territories.
• other opportunities

International
presence

Turism

Training
NOW...

Scientific tourism

Training

Media broadcast
4. How can we work together?

OBRIGADO

THANK YOU

VERY MUCH

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