

The Chile Market



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Happenings....

Many rural populations and a strong use of diesel generation to provide power to remote communities.

- UNDP Project for rural electrification
- Juan Fernandez Island
- Chiloé Electrification Project
- Commercial Projects

UNDP Project

- Providing power to rural communities without electrical service using renewable technologies
- Cooperation between the UNDP and CNE
- \$32 Million project looking at communities the full length of the country
- Community based electrification activities to provide power to 100,000 families without electricity
- Mostly small systems but include large islands



Project Description

- Remove the existing barriers to the use of Non-Conventional Renewable Energies.
- Initiated in December 01
- Focused on the areas to the north and south of Chile
- Have started the identification of isolated communities and retrofit projects
- Includes education as well as technology

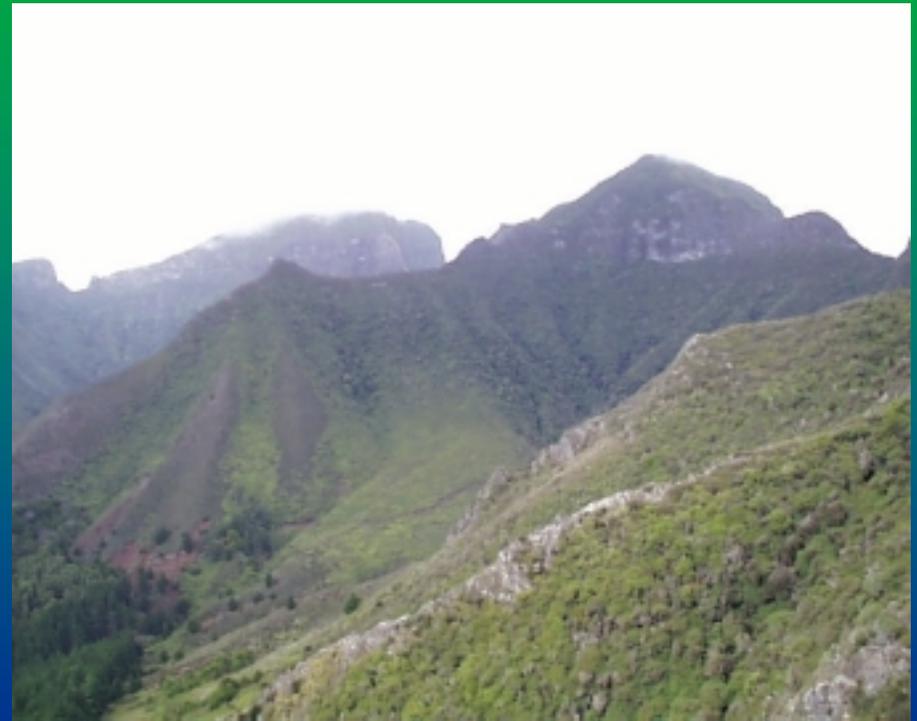


Isla Juan Fernandez



Isla Juan Fernandez

- 300 miles off the coast of Chile
- Primarily a complete National Park
- One main community
- Volcanic - Steep and vegetated
- Served by ship and small airplanes



Community

- Approximately 700 people in one village
- Average power of 90kW with max about 200
- Three phase output



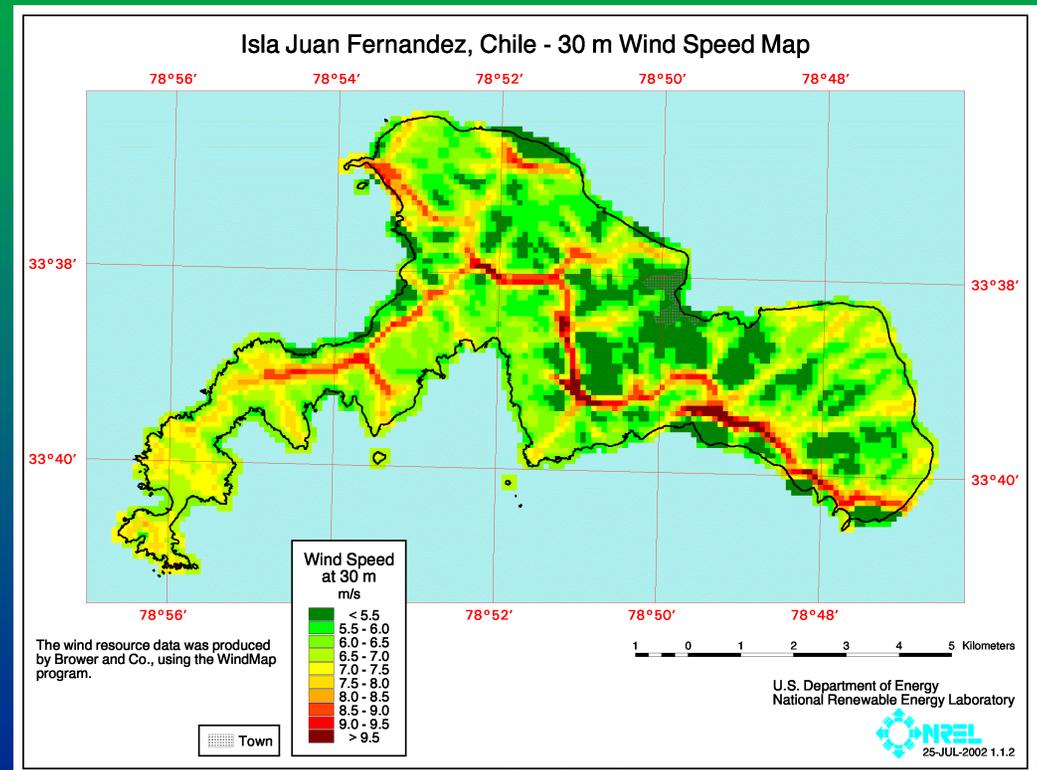
Diesel Plant

- Diesel Plant
 - 535 kW plant made up of three generators
 - Manually controlled and switched
 - 3 phase output with little monitoring
- Fuel Delivery
 - Completed by hand pumping from a barge to a on site storage tank
 - Fuel delivered 4 times per year



Wind monitored at several sites

- Winds monitored at three sites near town for over a year
- Wind map created by Brower and Co using Windmap
- Shows good winds at a number of sites near town



Planning and Implementation

Plans for system upgrade over the next year

- Transportation, offloading and storage to diesel fuel
- Current power plant review and improvement specification
- Interconnection between generators and grid analysis
- Grid assessment and upgrade
- Internal wiring of the end users including meters and energy efficiency
- Power system upgrade
- Environmental impact assessment



Chiloe Electrification Project

- 32 Islands in the Chiloe region
- Primarily small remote islands but have a few large island systems
- 3500 families



Private projects

- Diesel Retrofit Projects from utilities
- Remote resorts
- Commercial facility repowering for the gas industry
- Island community power



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