

PREDICTION OF AN OPTIMIZED SYSTEM WITH RENEWABLE ENERGIES IN CHILE

INTERNATIONAL COOPERATION PROJECT BMBF-CONICYT 20140039

Summary

The dynamic development of renewable energies in Chile makes it necessary to have a high-precision forecasting system for the energy generated by renewable sources such as photovoltaic (PV) and wind power plants. The Norte Chico of Chile presents excellent environmental conditions (wind and solar radiation) for the development of PV and wind power plants, which makes it possible for industries or mining companies to have partial energy autonomy and to inject energy to the central grid. However, the variability of the energy generated by wind and PV power plants makes it necessary to have a good energy forecast.

The main goals of this project are to implement a forecast system of the energy generated by a wind and PV farm. The Methodology is based on Artificial Neural Network (ANN), which are algorithms trained with historical information (hourly energy generated, meteorological data and historical weather forecasts). These goals can be achieved in cooperation of the German partner Center for Solar Energy and Hydrogen Research (ZSW), which have a vast experience on these issues.

The results are not restricted to plants connected to the central grid but also to island-type plants that satisfied the energy needs of an industry (e.g. a mining company) or an isolated community. In this context, the design of a wind-PV plant for self-sufficiency in energy, based on the energy consumption and meteorological conditions of selected case studies.

Main Goal

To implement an Energy Forecasting System for wind and solar PV farms in the Coquimbo Region

Specific goals

- o To improve the forecast of the energy generated by wind farms (complement of the FONDEF IDeA ID14I10016).
 - o To generate energy forecasts of the energy produced by a solar PV farm.
 - o To optimize a power central based on renewable energy for a mining company and/or an isolated location.
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TEAM IN CHILE

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