

## Hybrid Power Systems Planning with Geographical Information System Models

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**Abstract.** This paper presents suitable models for calculating the Levelized Energy Costs of hybrid distributed generation facilities. The models were implemented to develop software tools and applied in the region of La Rioja (Spain), providing a series of very useful geographical and technical results for decision-makers in electric power distribution systems planning.

The software and the created models can be used to analyse electricity production costs for a large set of alternatives of mixed renewable and non-renewable resources from data for a given geographical area; the software and models can evaluate both isolated distribution generation and distributed generation connected to the electric power distribution networks.

### Key words

Hybrid Power Systems, Optimal Planning, Distributed Generation (DG), Geographical Information Systems (GIS).

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