



## EXPANSION STRATEGY FOR GRID-CONNECTED RENEWABLES (WITH GRID STUDY)

As of: August 2019

## OBJECTIVE AND ACTIVITIES

Chile is experiencing strong growth rates, resulting in rising demand for energy, yet is greatly dependent on imported fossil fuels. Therefore it is important to secure economically efficient, sustainable energy supplies in the long term. The government is committed to diversifying its energy systems and making use of non-conventional renewable energy resources. This project supported the development of a strategy to expand the use of renewable energy in Chile's electrical power systems and the drafting of proposals for regulations. Expansion scenarios were examined to investigate how future electricity systems would develop, what structural, economic and environmental repercussions were to be expected and what risks there were to energy security. In addition, measures were developed to improve system integration, and the decision-making basis was put in place for a national expansion strategy for renewable energy.

### STATE OF IMPLEMENTATION/RESULTS

- Project completed
- A set of measures (regulatory adjustments) was drawn up, paving the way for and speeding up the further expansion and integration of renewables into Chilean electricity grids. This set of measures played a part in the drafting of the Energy Agenda 2014 produced by the Chilean Government in 2014.
- High-resolution wind and solar atlases and cadasters of potentials were created. These are accessible to the public via online databases.
- Wind atlas (external, Spanish: [walker.dgf.uchile.cl/...](http://walker.dgf.uchile.cl/))

## PROJECT DATA

### Country:

Chile

### Implementing organisation:

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

### Partner institution(s):

- Ministry of Energy - Chile
- National Energy Commission - Chile

### BMU grant:

€ 3,294,459.94

### Duration:

10/2009 till 12/2014

### Website(s):

[http://www.international-climate-initiative.com/fileadmin/Dokumente/landingpages/sairec2015/151001\\_10\\_Solar\\_Chile\\_Web.pdf](http://www.international-climate-initiative.com/fileadmin/Dokumente/landingpages/sairec2015/151001_10_Solar_Chile_Web.pdf);  
<http://walker.dgf.uchile.cl/Explorador/Eolico2/> (Spanish)(Spanish)  
[http://www.minenergia.cl/archivos\\_bajar/Estudios/Potencial\\_ER\\_en\\_Chile\\_AC.pdf](http://www.minenergia.cl/archivos_bajar/Estudios/Potencial_ER_en_Chile_AC.pdf) (Spanish)(Spanish)

### Fact sheet:

[Promoting Solar Energy in Chile \(PDF, 471 KB\)](#)

### Related news and movies

### Related publications





- Solar atlas (external, Spanish: [ernc.dgf.uchile.cl/...](http://ernc.dgf.uchile.cl/))
- A full analysis of wind, photovoltaic, CSP and hydropower potential was compiled, taking account of technical, economic and political land-use restrictions, and was published in book form: Energías Renovables en Chile (external, Spanish: [ernc.dgf.uchile.cl/...](http://ernc.dgf.uchile.cl/))
- Long-term analyses of comprehensive energy scenarios (2020/2030) were drawn up for Chile's two integrated grids (SING in the north and SIC in central Chile). These served to determine the respective cost-optimal energy mix and the necessary additions to the grids. The result was that the expansion of renewable energy technologies within a time frame through to 2030 proved to be economically efficient in every case.
- The greenhouse gas reduction potential of various expansion scenarios was determined.
- In addition, the completed expansion scenarios were tested for various risk factors affecting security of supply (e.g. power outage, price shock).
- Routes for new transmission lines were identified and dispatch (power station scheduling) was simulated for both integrated grids. Grid stability was also confirmed for the northern integrated grid SING.
- Pollutant dispersion from conventional thermal power plants in the northern integrated grid SING was simulated. A study was compiled on pollutant emissions and their impacts on health and agriculture.
- In the course of the project, the proportion of renewables in the Chilean electricity mix increased substantially. The statutory quota for renewables was raised from 10% in 2024 to 20% in 2025. The quota, which rises annually, has so far always been more than fulfilled.
- The project results have a multiplier effect. Mexico, for example, is producing analyses of potential according to the Chilean model.

