Geothermal Energy in Chile

Third geothermal dialogue

Gobierno de Chile

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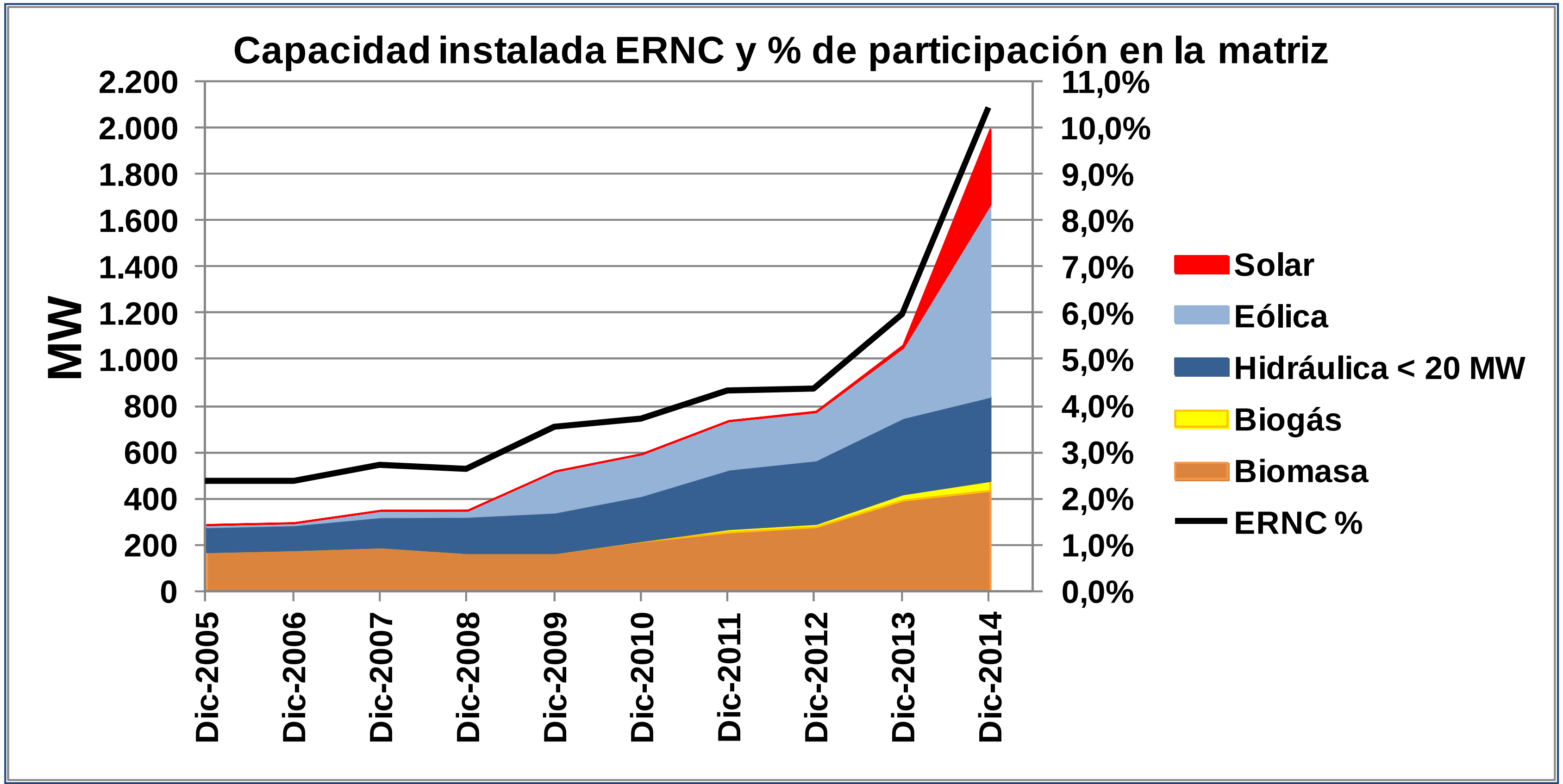
A growing market in Chile for Non‑Conventional Renewable Energy

- Today projects are competitive with traditional forms of generation;
- More than 100 new projects in operation since 2007;
- 90% of them related to new players in the electricity market;
- Portfolio with diversified types of technologies.

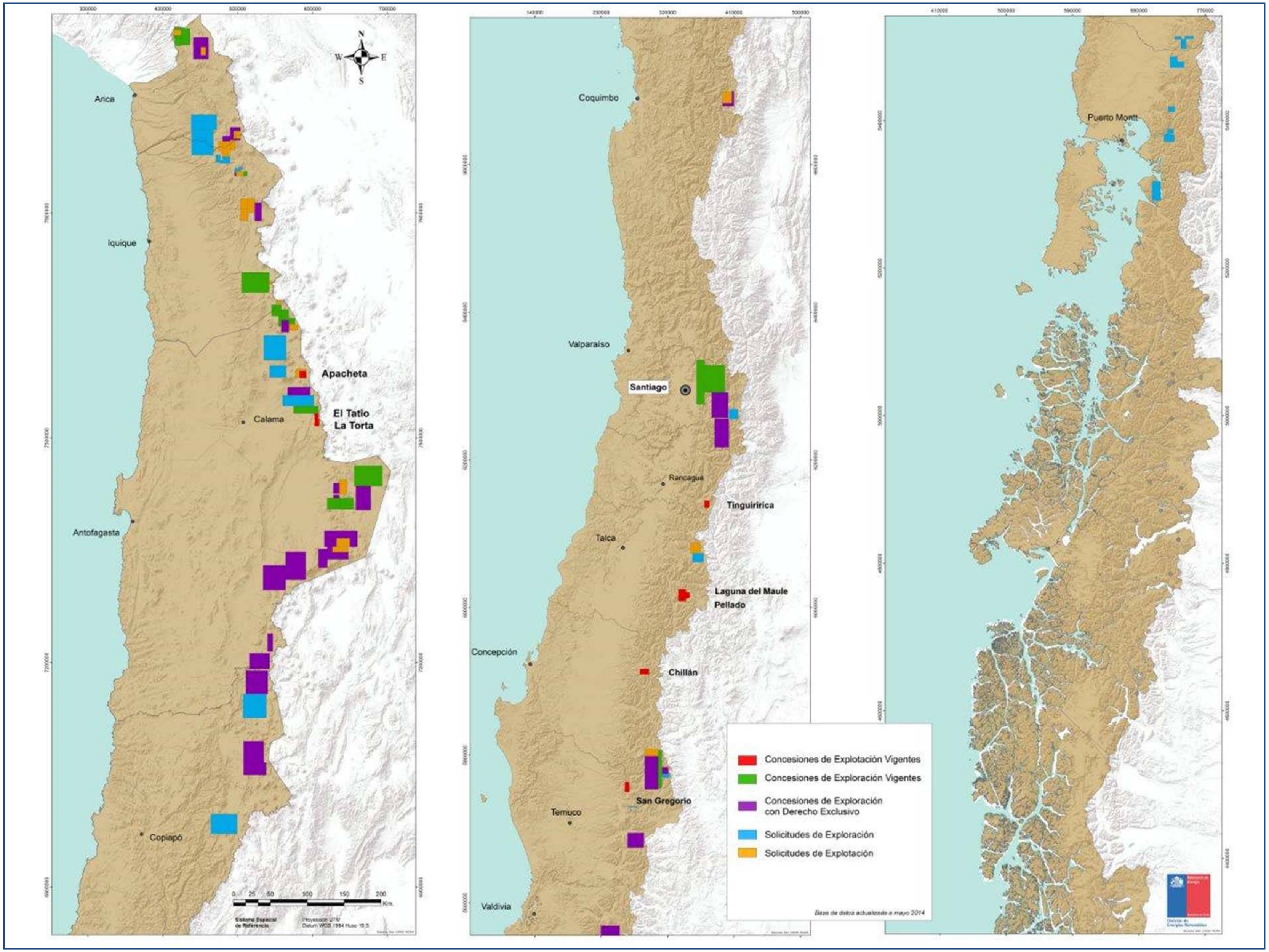


Geothermal Energy Concessions

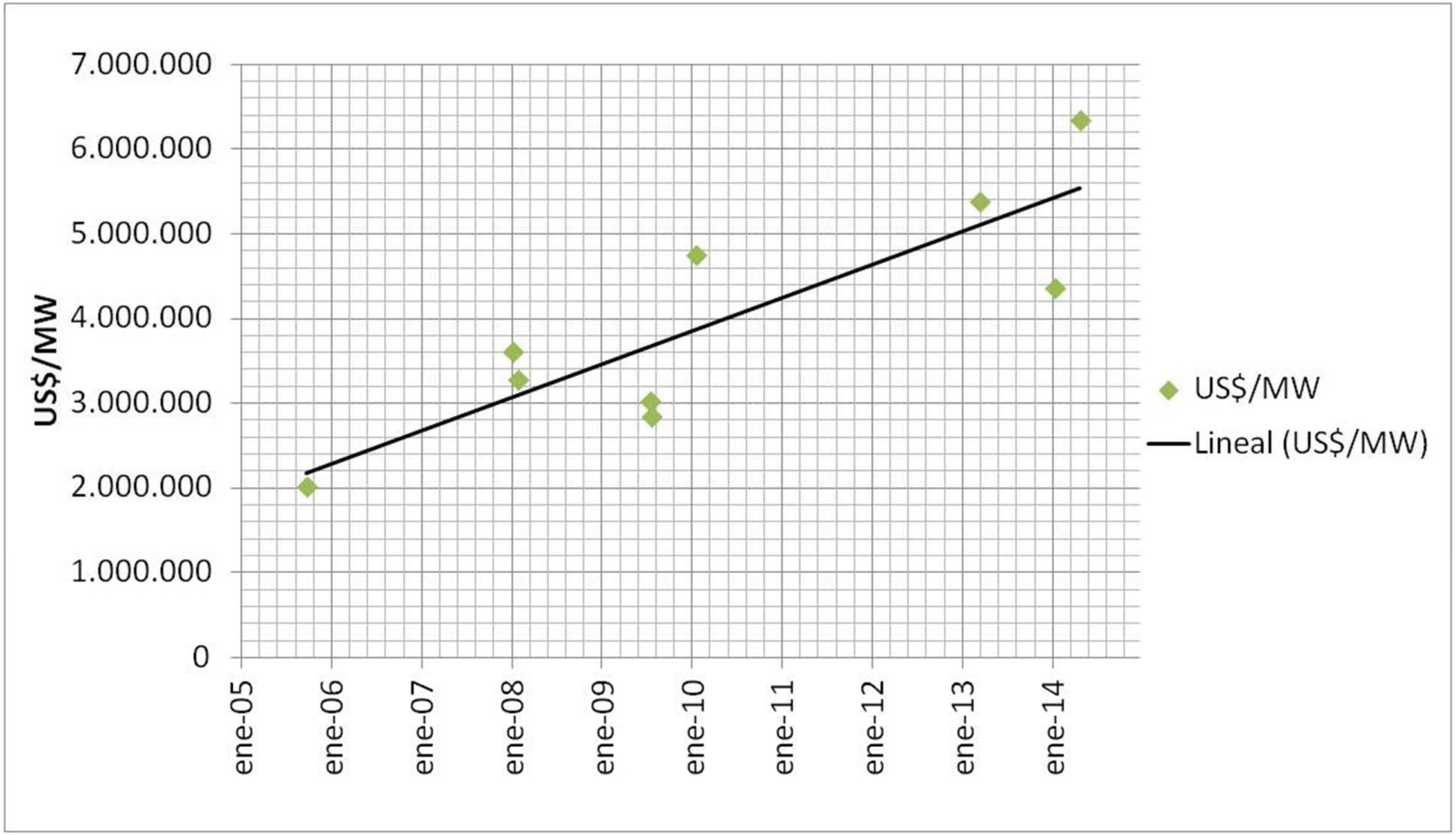
- All steps of the geothermal development are privates, without subsidies or preferential conditions. For the moment, all exploration risk is taken by concessionaires.
- Since 2007 there was big interest to obtain concessions, because we had high energy prices.

	Exploration	Explotation
N Existing concessions	17	9
N Expired concessions (with exclusive right)	34	N/A
N Existing requests	32	25
N Concessionaires	11	6

2.000.000 ha (aprox) with concessions



Development cost estimated by concessionaires



Higher structural cost than other countries

- The high altitudes create logistical difficulties for the location of camps and the extraction of industrial sites. Moreover, there is also a limited window of time when work can be carried out.
- Road and electric infrastructure far to geothermal reservoirs;
- Absence at this moment- of consolidated geothermal services industry;

Then, higher exploration cost → higher risk of the business → slower and difficult investment decision.

Not easy, but it´s possible, with private, public and international cooperation effort.

<u>Government defined special conditions for geothermal projects in energy bids:</u>

- They may opt to PPA (Power Purchase Agreement) without having “completely confirmed” the geothermal resources, with possibility of terminating the PPA if the project is determined to be unviable.
- It’s permitted delay in energy supply, because problems in developing of geothermal field.
- PPAs will be granted five years before the required energy delivery date, permitting developed de project with a previous PPA.

<u>MiRiG makes a big difference for the projects</u>

- Four projects was considered. An estimated total amount of at least US$150 million already has been investment by de concessionaires.
- The resources only permit than two companies were accepted for a final due diligence examination.

Some initial lessons of MiRiG implementation in Chile

- The main interest of companies is to cover the risk of drilling wells, whether exploratory or field development. All companies selected short-term loans, because the possibility to convert it in grant in case of exploration failure.

- Because the high geothermal cost in Chile, the operations have to allocate important budget. Otherwise their impact will be marginal.

- It's necessary to have flexibility in the implementation. BID and the companies are learning in the process.

- Probably will be necessary increasing the number of projects to support by MiRiG, if the intention is contribute to development a specialized service industry.

- Because the importance of MiRiG, we proposed to CTF budget reallocation from other instrument approved for Chile..

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