

## The 10th Chile – Taiwan Joint Business Council Meeting

Carlos Finat

Santiago de Chile

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# Asociación Chilena de Energías Renovables A.G. ACERA

- Non-for-profit industry association created in 2003 to promote and encourage the development of Non-Conventional Renewable Energy (NCRE) in Chile.
- Our fundamental focus is to promote and develop a national strategy for sustainable energy.

Sitio web: [www.acera.cl](http://www.acera.cl)

Twitter: @aceraag

# Membership of ACERA

- Power generators.
- Project developers.
- Services providers.
- Equipment manufacturers.

- NCRE generators that are members of ACERA currently represent:
  - 918 MW of power plants in operation
  - 500 MW of power plants in construction



# Empresas Asociadas



## Personas

Felipe Risi – Francisco Munchmeyer - Guillermo Baltra (Global Axxis) - Hugo Correa - Jaime Vasquez – Juan Walker (Wind Service) - Mauricio Zeman (Eólica Tablaruca) - Ricardo González (Anabática)

# Non-Conventional Renewable Energy (NCRE)

- Chilean law defines NCRE as:
  - Solar PV and termo.
  - Wind.
  - Biomass/Biogas
  - Minihydro (<20MW)
  - Geothermic
  - Wave and tidal



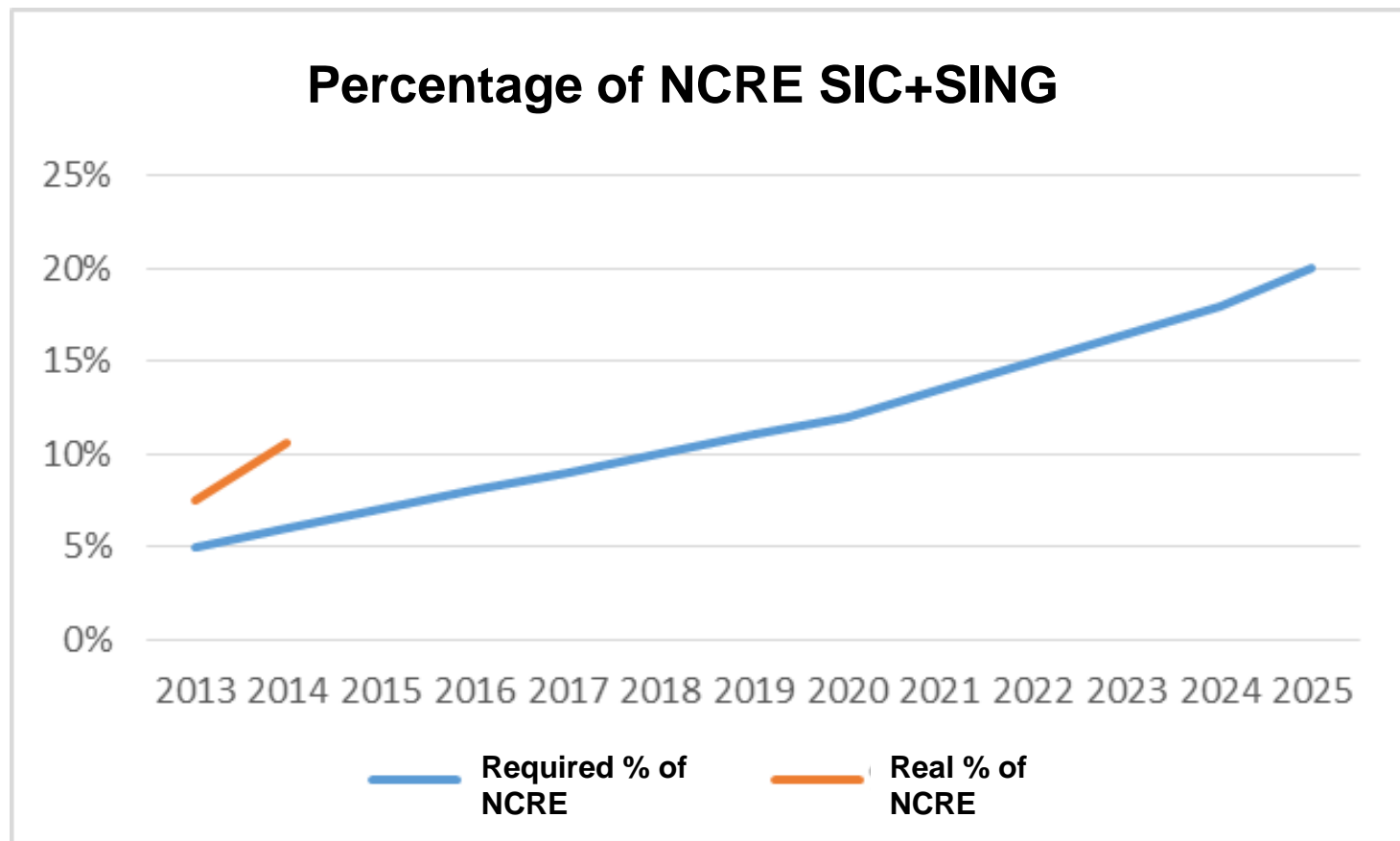


# NCRE Law

- Requires that for each year through 2025<sup>1</sup>, each generator (commercializer) must comply with a growing percentage of energy generated by injection from NCRE power plants to satisfy their contracts with customers.

Note 1: only for contracts affected by the law

# The NCRE Law is fulfilled and is widely exceeded





# NCRE: An industry in the fast lane.



- Country political and economic stability.
- Short development and construction time.
- Large stock of projects approved by environmental authority.
- High price of energy.
- Growing demand.
- Huge amount of non-conventional renewable resources.
  - More than 1.800.000 MW potential on wind, sun, hydro and geothermal sites.
- Growing environmental concern of the society.
- Investment costs of most NCRE maintain downtrend.





## Renewable energy country attractiveness index

Rank	Previous ranking	Country	RECAI score	Technology-specific indices rankings							
				Onshore wind	Offshore wind	Solar PV	Solar CSP	Biomass	Geothermal	Hydro	Marine
1	(2)	China	75.1	1	2	1	4	1	12	1	19
2	(1)	US	73.8	2	3	2	1	3	1	3	9
3	(3)	Germany	67.0	3	4	5	26	8	9	10	27
4	(4)	Japan	64.4	10	9	3	27*	2	3	4	12
5	(5)	Canada	60.3	4	11	7	24	12	19	5	4
6	(7)	India	60.2	8	19	4	3	15	13	7	11
7	(6)	UK	59.2	7	1	11	27*	5	18	26	1
8	(8)	France	58.5	12	8	8	17	10	15	16	5
9	(10)	Brazil	57.0	6	26	14	9	4	32	2	24
10	(9)	Australia	56.7	16	17	6	6	22	11	18	10
11	(11)	South Korea	55.4	21	13	10	25	11	28	17	3
12	(13)	Chile	54.3	25	24	9	2	20	10	14	14

RECAI Report – Ernst&Young – September 2014

October 2013

Estado	SEIA			
	Operación [MW]	Construcción [MW]	RCA aprobada [MW]	En calificación [MW]
Bioenergía	442	10	106	27
Eólica	302*	490	3.486	1.537
Mini-Hidro	323	76	262	146
Solar	6,7*	126	5.057	2.610
Geotermia	0	0	120	0
<b>Total</b>	<b>1.073</b>	<b>702</b>	<b>9.032</b>	<b>4.320</b>

Tabla 1 - Estado de Proyectos ERNC (MW).  
Fuente: CER, SEA, CDEC. Octubre 2013.

October 2014

Tecnología	Operación [MW]	Construcción [MW]	Calificación Ambiental aprobada	En evaluación
Biomasa	461	0	94	40
Biogás	43	0	1	8
Eólica	737	160	5.195	2.197
Mini Hidráulica	343	129	299	199
Solar - PV	219	456	7.811	2.591
Solar - CSP	0	110	760	0
Geotermia	0	0	120	0
<b>Total</b>	<b>1.803</b>	<b>855</b>	<b>14.280</b>	<b>5.035</b>

Tabla 1 - Estado de Proyectos ERNC (MW). Fuente: CER, SEA, CDEC, CNE. Octubre 2014.

# Last 12 Months Growth

NCRE: 5,8% of total  
production YTD  
October **2013**

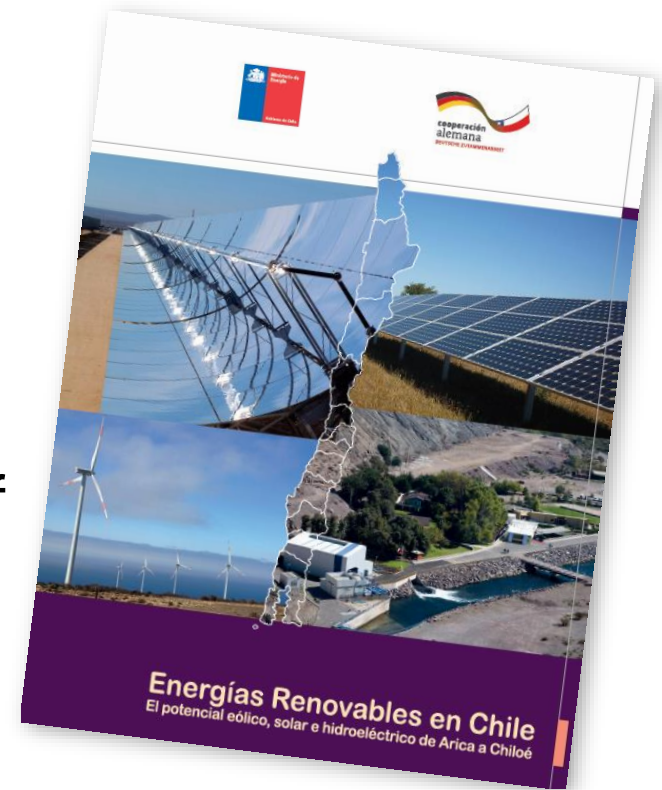
- Biomass/biogás: 53%
- Minihidro: 34%
- Wind: 13%
- Solar: 0,1%

NCRE: 9,25% of total  
production YTD  
October **2014.**

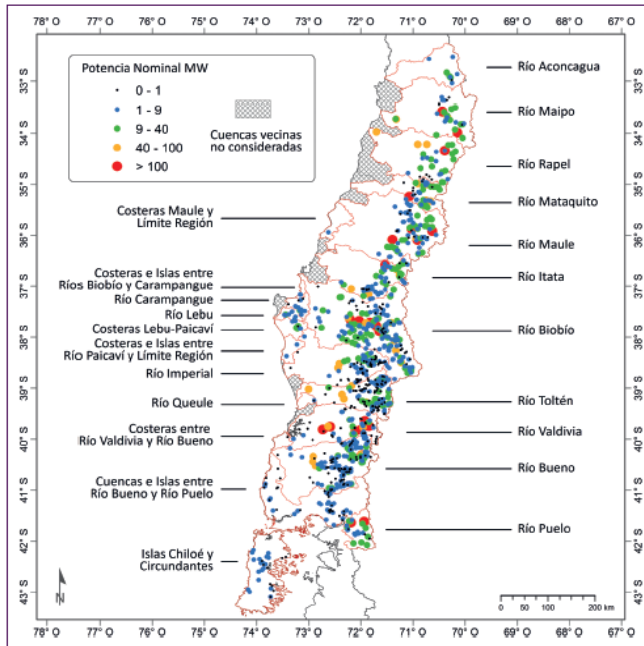
- Biomass/Biogas: 41,6%
- Wind: 27,9%
- Minihidro: 23,2%
- Solar: 7,2%

# The NCRE Potential

- The most recent assessment of the real potential of NCRE capacity available in Chile amounted to:
  - Solar CSP: 548.478 MW
  - Solar PV: 1.263.407 MW
  - Minihydro: 12.472 MW
  - Wind: 37.477 MW
- The Geothermal Council estimates a realizable potential of 2,000 MW power from this source.



# NCRE resources are distributed throughout Chile



Hydro



Thermosolar



Solar PV



WInd



In the fast lane, but



# Main barriers for NCRE

- Access for NCRE at the tenders of the distribution companies (regulatory).
- Access for NCRE at the supply contracts of large customers (commercial / regulatory).
- Transmission system access and transport capacity (regulatory).
- Land use:
  - Complexity and delays at the State owned land concessions processes.
  - Conflicts between surface concession and underground mining properties.
- Geothermic (the big forgotten) Risk and cost of the exploration phase:
  - Geothermal industry has already invested 300 US\$ mill.
  - Not a single MWh is currently generated from this source.



# The Energy Agenda

01

A NEW ROLE FOR  
THE STATE

02

REDUCTION OF  
ENERGY PRICES,  
WITH HIGHER  
COMPETITION,  
EFFICIENCY AND  
DIVERSIFICATION  
OF THE ENERGY  
MARKET

03

DEVELOPMENT OF  
OUR OWN ENERGY  
RESOURCES

04

CONNECTIVITY  
FOR ENERGY  
DEVELOPMENT

05

AN EFFICIENT  
SECTOR MANAGING  
CONSUMPTION

06

BOOST FOR  
INVESTMENT  
IN ENERGY  
INFRASTRUCTURE

07

CITIZEN  
INVOLVEMENT  
AND TERRITORIAL  
REGULATION



## In Summary

- NCRE have had a considerable growth in the last years in Chile.
- The rate of development of new projects can be maintained but requires regulatory changes.
- The NCRE industry is optimistic with the Energy Agenda of the current administration, which addresses the barriers that persist against the NCRE.



# Questions?





## **Carlos Finat D.**

Director Ejecutivo ACERA

- Ingeniero Civil Electricista
- Director de Operación y Peajes del CDEC-SING -- 1999 – 2008
- Gerente de Energía – Minera Collahuasi -- 2008 – 2012
- Representante de clientes libres en el Directorio del CDEC-SING -- 2010 – 2012
- Presidente del CDEC-SING -- 2011-2012

To receive the Monthly Bulletin of ACERA send an email request to [informaciones@acera.cl](mailto:informaciones@acera.cl)

