

A decorative border of various icons representing energy and environmental themes, including solar panels, wind turbines, water droplets, lightning bolts, and recycling symbols, surrounds the central text.

# MONTHLY NCRE REPORT

## CNE

VOLUME No.

2

October 2016

## HIGHLIGHTS

During the last month, the energy sector has witnessed a series of milestones that reflect the hard work of both the National Energy Commission and the Ministry of Energy. The following are among the principal achievements:

### Energy Minister published the Perceptions Survey results for Aysen region

The Ministry of Energy announced the results of the first perceptions survey, attitudes and practices of the Aysen region, in matters of energy, information that will be considered in the Energy Road Map.

The main results obtained from the survey, would be the challenges to accomplish in the region. Some of them are: to decrease energy prices of electricity and fuel (32%) and to boost the production of clean energy (25%), among others.

Meanwhile, wind energy (88%), solar radiation (81%), small hydroelectricity (58%) and hydroelectricity dam (52%) were listed by the participants as the most accepted technologies to generate energy.

### 39 projects applied for ERNCs watering contest

An unprecedented participation achieved the "Contest NCREs and small hydropower" that the Ministry of Agriculture - through the National Watering Commission (CNR, from its abbreviation in Spanish)- and in collaboration with the Ministry of Energy, launched to promote the development of watering projects with Non Conventional Renewable Energy supply.

There were 39 projects submitted, prepared by 19 different consultants companies registered in the CNR.

This "NCREs and small hydropower contest" will reward up to a 24.59% of the total investment (depending on the project), courted the participation of small farmers INDAP, indigenous communities, user organizations and both small and medium, agricultural entrepreneurs.

### Began the courses to develop abilities in NCREs projects

The Ministry of Energy in cooperation with the technical support of the United Nations Program for Development (UNDP) it's implementing the program "Strengthening Local Capacities for Project Development with Non Conventional Renewable Energy at a Small Scale".

This is a pilot initiative program taken place at first at Los Rios and Antofagasta regions; with a programmed duration of 24 months, and a funding of, approximately, 640 million pesos from the Ministry of Energy and a UNDP co-financing.

Pablo Diaz, delegate of the energy minister in the region, stated that "this project has the objective to design a training program for officials coming from public institutions and community, private sector and final users; for the formulation, management, operation and maintenance of projects with NCRE at a small scale in the region".

In this framework, were launched the workshops in the provinces of "Valdivia" and "Ranco", programmed for the months of October and November. The first sessions were held in the cities of "Valdivia" and "La Union", reaching up to 60 participants. Trainings would be extended until November 2nd, 2016.

### Professionals will be trained abroad

In order to promote the development of the energy sector in Chile, the Ministry of Energy with the National Commission for Scientific and Technological Research (CONICYT) awarded scholarships Internships Abroad for Researchers and Professionals of Public and Private Sector.

This year there were 29 beneficiaries which will promote and strengthen and enhance their skills by attending to international institutions from the energy field, all of these in order to increase the knowledge and professional experiences for the energy sector.

## SUMMARY

September ended with 44 renewable energy projects declared under construction according to Exempt Resolution N° 675/2016, released by the National Energy Commission (CNE), specifying that the operation dates for the projects is foreseen between October 2016 and August 2018.

The installed capacity of renewable energy is now 13.62% (2,843 MW), with SIC concentrating almost 90% of the projects.

The output of NCRE power plants to the grid during last month reached 841 GWh, which represents 14.38% of the total generation. Regarding the legal requirements, that forces conventional generators to certify that a percentage of their generation comes from NCRE sources, the obligation of 265 GWh, was almost doubled by the 734 GWh declared by the generators. The technology analysis indicates that 238 GWh were wind injection, 198 GWh were solar farms, 166 GWh from small hydro plants and 131 GWh from bioenergy.

Finally, during September, the Environmental Evaluation Service (SEA) started evaluating six new NCRE projects (641 MW, 1,062 MMUSD investment) and gave an approved RCA to four projects (268 MW, 556 MMUSD investment).

Summary – NCRE Project Status

Technology	Operación [MW] (*)	Construcción [MW]	RCA Aprobada [MW]	En Calificación [MW]
Biomass	410	0	112	87
Biogas	49	0	8	0
Wind	1,021	477	6,593	2,384
Geothermal	0	48	120	0
Small Hydro (**)	405	22	476	92
Solar - PV	958	1,591	12,891	5,825
Solar - CSP	0	110	1,085	1,270
Total	2,843	2,248	21,286	9,659

Source: CNE, SEIA, CDEC-SIC / CDEC-SING.

(\*) It takes into account only projects ready for commercial operation .

(\*\*) Hydroelectric (run-of-river) power plant with installed capacity less than to 20 MW.



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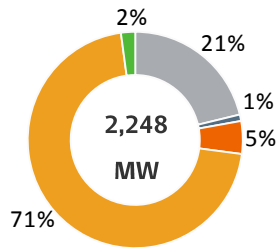


## STATUS OF RENEWABLE ENERGY PROJECTS

### 1 Electricity Generation Projects Under Construction

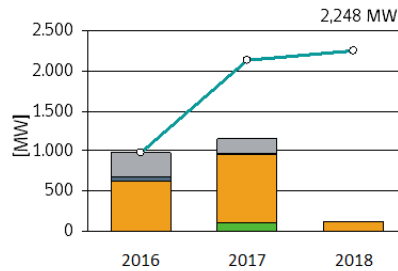
According to Exempt Resolution N° 675/2016, released by the National Energy Commission (CNE), that "Updates and Communicates Construction Projects", there are 44 renewable energy projects under construction by September 22th, 2016, corresponding to a power of 2,248 MW. These projects should be operating between October 2016 and August 2018.

#### NCRE Projects Under Construction

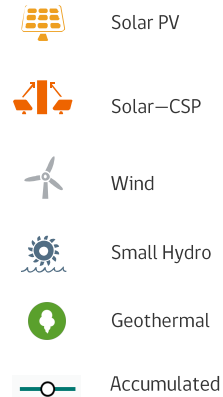


Source: CNE.

#### Starting Operation Date Forecast



Source: CNE.

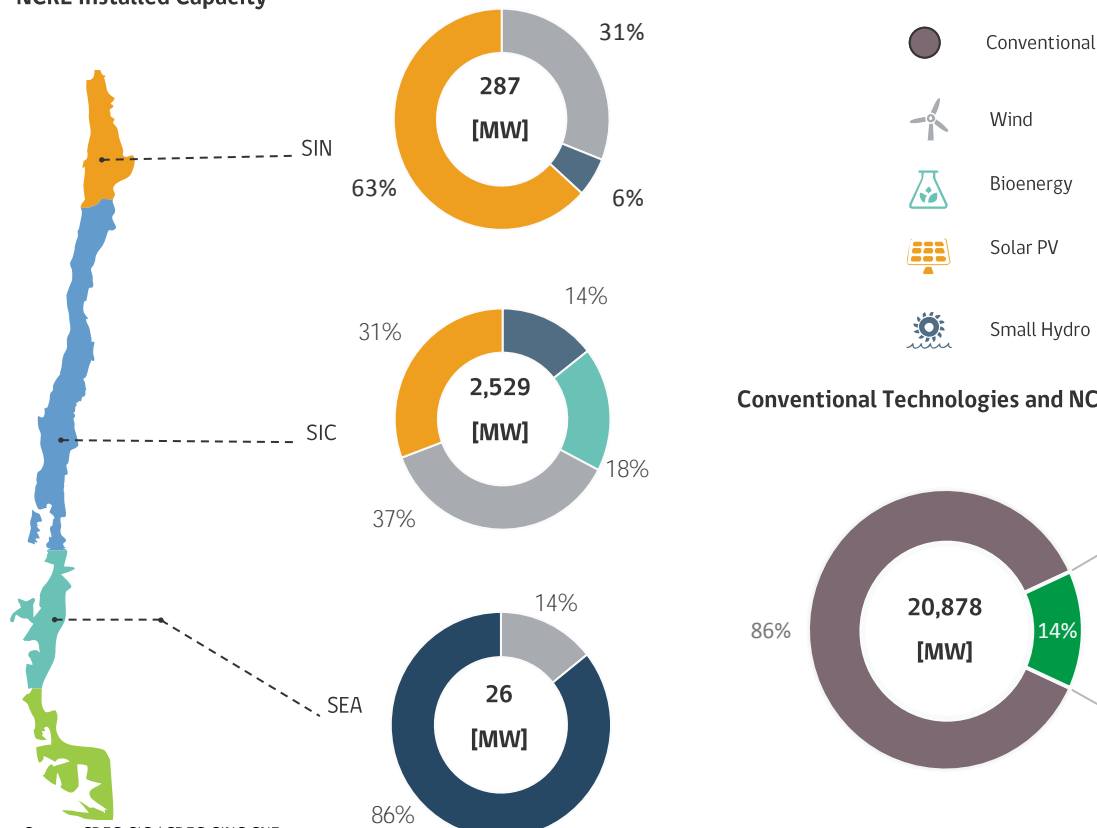


### 2 Installed Capacity for Electricity Generation

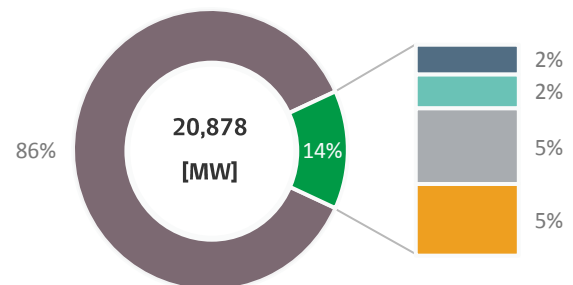
The installed capacity of projects based on renewable energy, recognized as such by Chilean regulations (NCRE), on September 30th, 2016, reached 2,843 MW (\*). 88.97% (2,529 MW) is located on SIC (Central Interconnected System), 10.10% (287 MW) is connected to the SING (Northern Interconnected System) and the 0.93% (26 MW) left, belongs to the Electrical System of Aysén.

The NCRE installed capacity represents an 13.62% of the total electrical capacity of the Chilean distribution systems.

#### NCRE Installed Capacity



#### Conventional Technologies and NCRE into the Chilean Grids



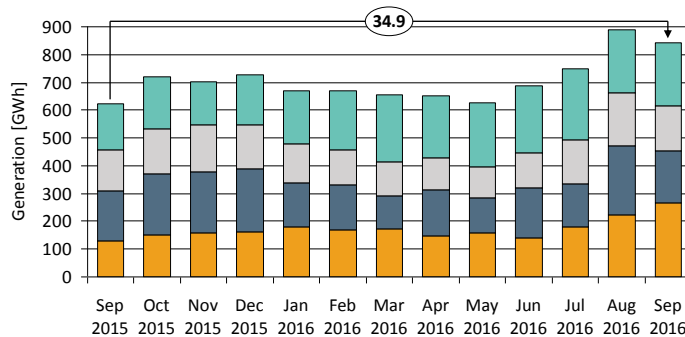
(\*) The total installed capacity also includes Los Lagos (1 MW).

### 3 Electricity Generation

Electricity generation for the major electrical distribution systems reached 5,847 GWh during September 2016. 841 GWh of them come from ERNC sources.

Separated by technology we get that 31.53% (265 GWh) was generated by solar farms, followed by a 26.77% (225 GWh) by bioenergy, in third place was wind, with 22.41% (188 GWh), then small hydro with 19.30% (162 GWh).

#### NRCE Electricity Generation Evolution



Source: CDEC-SIC / CDEC-SING, CNE.

#### Electricity Generation Variation

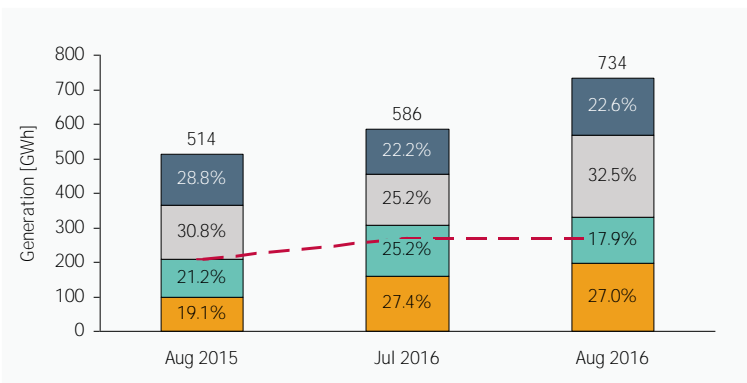
	Generation [GWh]	Monthly	Annual
● NCRE	841	↓ -5.4%	↑ 34.9%
● Conventional	5,006	↓ -4.9%	↓ -3.2%
● Total	5,847	↓ -5.0%	↑ 0.9%

(\*) Electricity Generation includes all the power plants considered into the Law 20.257

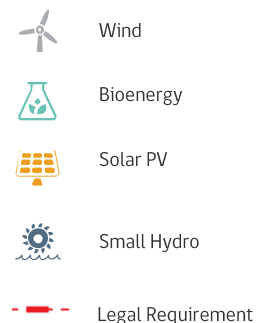
### 4 Compliance with Laws 20,257 and 20,698

According to the ERNC balance released by the Independent System Operators, corresponding to August 2016, the obligation defined by Laws 20,257 and 20,698 was of 265.31 GWh of electricity generation from a NCRE source. During that period the recognized NCRE energy put into the system reached 733.80 GWh (276.58% of the requirement), with a shared of 238.46 GWh from wind, 198.41 GWh from solar pv, 165.83 GWh from small hydro plants and 131.10 GWh from bioenergy.

#### Technology NCRE Laws Compliance



Source: CDEC-SIC / CDEC-SING, CNE.





## PROJECTS UNDER ENVIRONMENTAL EVALUATION

### 1. New Projects on Environmental Evaluation

During September, the Environmental Evaluation Service (SEA) started evaluating six new NCRE projects totaling 641 MW and 1,062 MMUSD of investment. Three of the projects are solar PV technology, two are a wind farm, and the last one is a small hydro plant.

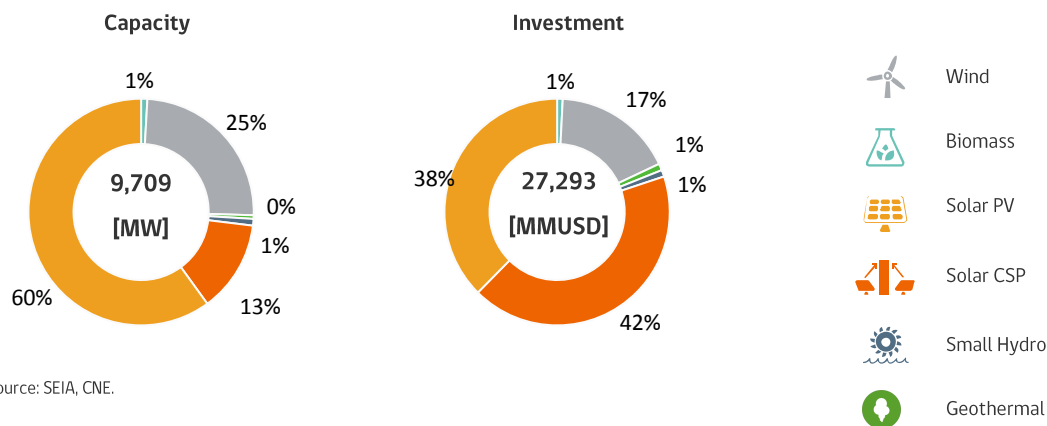
Technology	Region	Company	Project Name	Capacity [MW]	Investment [MMUSD]	Date	Link
Small Hydro	X	HIDROELÉCTRICA LUMEN SA	Parque Eólico La Esperanza II	18	15	23-sep-2016	<a href="#">Link</a>
Solar - PV	IV	GR Huingan SpA	Proyecto Fotovoltaico "Aurora del Huasco"	50	16	23-sep-2016	<a href="#">Link</a>
Solar - PV	II	TSGF SpA	Planta Fotovoltaica Alturas de Ovalle	6	600	22-sep-2016	<a href="#">Link</a>
Solar - PV	RM	Diana Solar SpA	Planta Bioenergía Ñuble	20	15	22-sep-2016	<a href="#">Link</a>
Wind	IX	Parque Eólico San Gabriel SpA	Parque solar fotovoltaico El Laurel	9	360	22-sep-2016	<a href="#">Link</a>
Wind	VIII	Eólica La Esperanza S.A.	Parque Solar Fotovoltaico Ovejería	9	56	21-sep-2016	<a href="#">Link</a>

Source: SEIA, CNE.

### 2. Projects undergoing Environmental Evaluation

On September 2016, there were 104 NCRE projects undergoing qualification by the SEIA. From this total, 4 are biomass power plants, 26 wind farms, 1 is a geothermal project, 8 small hydro, 4 solar CSP, and 61 solar PV. All the projects added 9,709 MW and 27,293 MMUSD of investment.

#### NCRE Projects Distribution



Source: SEIA, CNE.

### 3. Project with Environmental Qualification Resolution

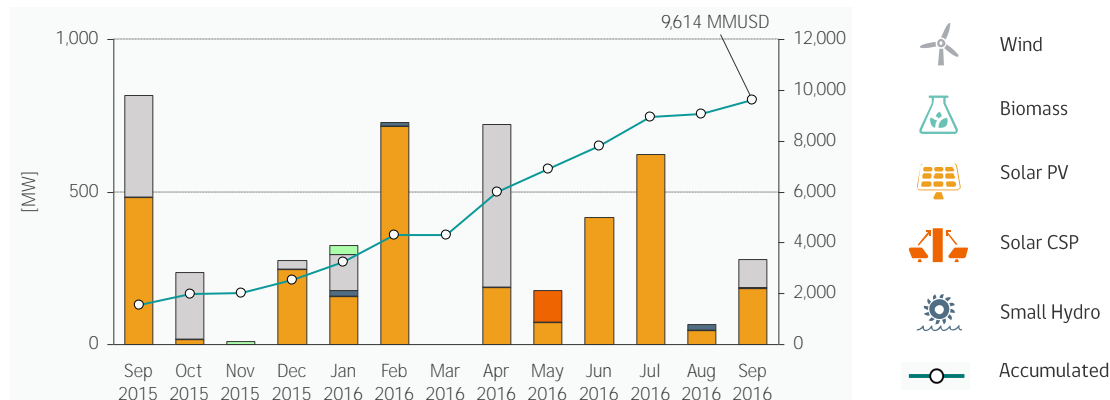
During September, the Environmental Evaluation Service (SEA), gave four Environmental Qualification Resolutions (RCA) to NCRE projects, totalling 268 MW and investment of 556 MMUSD. Two of them are solar photovoltaic plants, one is wind and the other one is a small hydro power plant.

Technology	Region	Company	Project Name	Capacity [MW]	Investment [MMUSD]	Date	Link
Solar - PV	IV	AR Energía Chile SpA	AR VALLE ALTILLO SOLAR	18	59	06-sep-2016	<a href="#">Link</a>
Wind	IV	Parque Eólico Punta de Talca	Proyecto Parque Eólico Punta de Talca	93	120	06-sep-2016	<a href="#">Link</a>
Small Hydro	VIII	Asociación de Canalistas del Laja	DECLARACIÓN DE IMPACTO AMBIENTAL DEL PROYECTO "CENTRAL HIDROELÉCTRICA DIUTO II" (VIII REGIÓN, CHILE)	4	17	14-sep-2016	<a href="#">Link</a>
Solar - PV	III	Tamarico Solar Dos SpA	Parque Solar Fotovoltaico Tamarico	153	360	13-sep-2016	<a href="#">Link</a>

Source: SEIA, CNE.

The following graph, presents the 12 months evolution of approved projects by the SEIA. The total investment during that period was 9,614 MMUSD, and the total power was 4,673 MW.

Evolution of NCRE Projects with approved RCA



Source: SEIA, CNE.





## ENERGY GEOTHERMAL LICENSES

The Ministry of Energy is responsible for the administration of Law No. 19,657 appliance, which applies to Geothermal Energy Concessions and regulate the process and evaluations for geothermal energy concessions, requests for extension of exploration concessions and enforcement of the law and its implementing regulations.

A geothermal concession is an administrative act -granted by the State- where is authorized a natural or legal person to carry out exploration or exploitation of geothermal energy in a given area.

A geothermal exploration concession confers the right to conduct studies, measurements and other investigations to determine the existence of sources of geothermal resources, its physical and chemical characteristics, their geographical spread and their skills and conditions for its use, with a period of two years, renewable for two additional years.

A geothermal exploitation concession confers the right to use and exploit geothermal energy that exists within its boundaries, including: conducting drilling activities, construction, commissioning and operation of a geothermal power plant, with an indefinite term and covered by compliance with the obligations for the concessionaire in the concession decree and payment of an annual fee.

Below are the concessions Exploration and Exploitation of Geothermal Energy Ongoing through August 2016:

### 1. Existing Exploration Concessions

Concession	Owner	Region(s)	Province(s)	Commune(s)	Area [ha]
CARCOTE	SERVILAND MINERGY S.A	ANTOFAGASTA	EL LOA	CALAMA—OLLAGÜE	99.000
CARITAYA	SERVILAND MINERGY S.A	ARICA Y PARINACOTA	ARICA	CAMARONES—HUARA—CAMIÑA—COLCHANE	98.600
LASCAR	TRANSMARK CHILE SpA	TARAPACÁ	DE TAMARUGAL	SAN PEDRO DE ATACAMA	24.000
LATARANI 1	ENERGÍA ANDINA S.A.	ANTOFAGASTA	EL LOA	COLCHANE—HUARA	1.000
LATARANI 2	ENERGÍA ANDINA S.A.	TARAPACÁ	DEL TAMARUGAL	COLCHANE	800
LINZOR	TRANSMARK CHILE SpA	ANTOFAGASTA	EL LOA	CALAMA	33.000
PUCHULDIZA 3	MRP CHILE EXPLORACIÓN LIMITADA	TARAPACÁ	DEL TAMARUGAL	COLCHANE	3.000
TIMALCHACA	SERVILAND MINERGY S.A	ARICA Y PARINACOTA	ARICA	ARICA—CAMARONES—PUTRE	68.000
EL VALLE	TRANSMARK CHILE SpA.	ARAUCANÍA	CAUTÍN	PUCÓN—CURARREHUE	18.200
LLONQUEN	TRANSMARK CHILE SpA.	LOS RÍOS	VALDIVIA	PANGUIPULLI	16.200

Source: Ministry of Energy

### 2. Existing Exploitation Concessions

Concession	Owner	Region(s)	Province(s)	Commune(s)	Area [ha]
APACHETA	GEOTERMICA DEL NORTE S.A	ANTOFAGASTA	EL LOA	OLLAGÜE	8.100
CHILLAN	EMPRESA NACIONAL DE GEOTERMIA S.A	BIOBÍO	CURICÓ	COIHUECO—PINTO	8.400
EL TATIO	GEOTERMICA DEL NORTE S.A	ANTOFAGASTA	TALCA	CALAMA	4.160
LA TORTA	GEOTERMICA DEL NORTE S.A	ANTOFAGASTA	EL LOA	CALAMA	5.400
LAGUNA DEL MAULE	COMPAÑÍA DE ENERGÍA LIMITADA ENERCO	DEL MAULE	TALCA	SAN PEDRO DE ATACAMA	4.000
OLCA	COMPAÑÍA MINERA DOÑA INES DE COLLAHUASI SCM	TARAPACÁ	DEL TAMARUGAL	SAN CLEMENTE—COLBUN	2.500
PELLADO	COMPAÑÍA DE ENERGÍA SPA	ANTOFAGASTA	EL LOA	PICA—OLLAGÜE	16.000
ROLLIZOS	SAMUEL SANTA CRUZ	MAULE	SAN CLEMENTE	TALCA—LINARES	260
TINGUIRIRICA	ENERGÍA ANDINA S.A	DE LOS LAGOS	COLBUN	LLANQUIHUE—PUERTO VARAS	6.175
		DEL LIBERTADOR GENERAL BERNARDO O'HIGGINS	TALCA	SAN CLEMENTE—COLBUN	
			LINARES		
			PUERTO VARAS		
			LLANQUIHUE		
			COLCHAGUA	SAN FERNANDO	

Source: Ministry of Energy



## DISTRIBUTED ENERGY GENERATION LAW

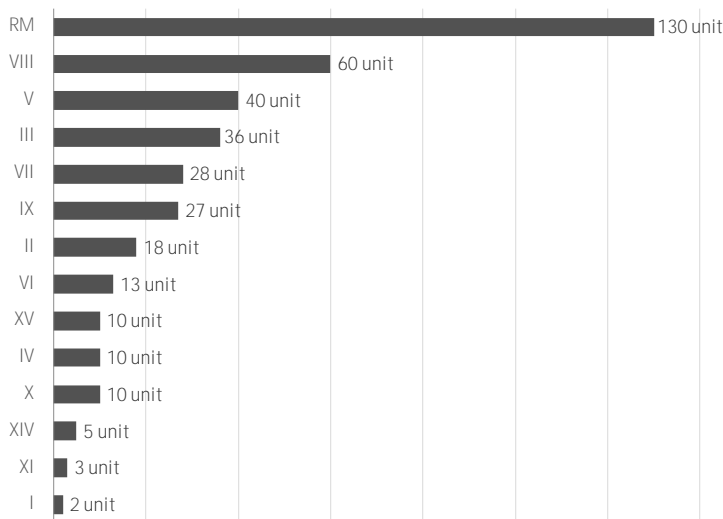
Energy generation by the citizen is established by Law No. 20,571, is a system that allows the self-generation of energy based on Non-Conventional Renewable Energy (NCRE) and efficient cogeneration. This law, also known as Net Billing, Net metering or distributed energy generation, delivers the permission to energy customers to become energy generators by selling their generation directly to the electricity distributor at a regulated price, which is published on the website of each distributor.

All power generation system which would like to generate energy under this regulation, must declared to the Superintendency of Electricity and Fuels (SEC in Spanish) its installations. This declaration must be made by an authorized installer, and must also contain the technical details of the installation and use of products. Subsequently, the SEC will oversees the installation and only if it fulfills the technical requirements will authorized its operation. Hereafter the owner must notify the network connection to the electricity distribution company.

Down below the list of facilities declared to the SEC by the electric procedure No. 4 from September, 2016.

### 1. Facilities declared

Number of facilities declared by region



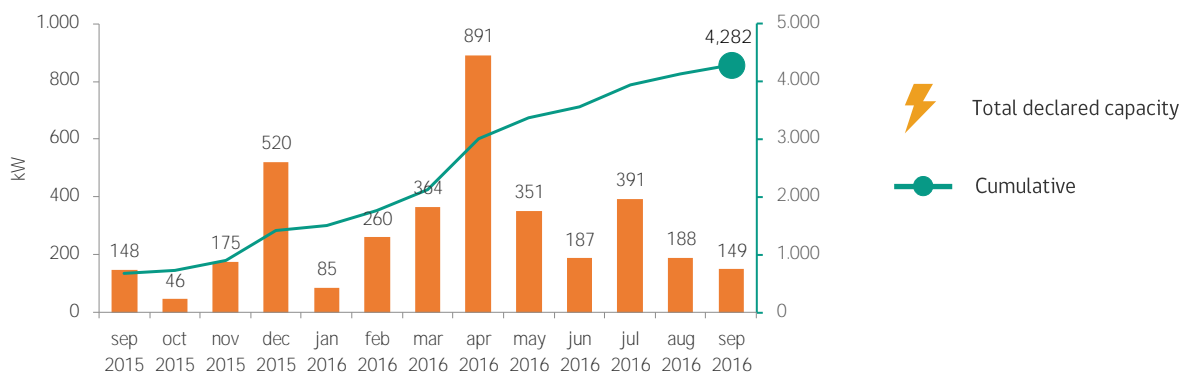
Source: SEC

Detail of facilities declared by region

Region	Quantity [unit]	Capacity [kW]
RM	130	1494
VIII	60	333
V	40	409
III	36	487
VII	28	647
IX	27	182
II	18	80
VI	13	184
XV	10	85
IV	10	266
X	10	82
XIV	5	7
XI	3	8
I	2	17
<b>Overall total</b>	<b>392</b>	<b>4,282</b>

Source: SEC

Declared capacity evolution in the last 12 months



Source: SEC

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