

MONTHLY ENERGY SECTOR REPORT

NATIONAL ENERGY COMMISSION



HIGHLIGHTS

During the last month, the energy sector has witnessed a series of milestones that reflect the hard work of both the National Ener-

Andrés Rebolledo is designated as the new Energy Minister

Michelle Bachelet, chosen Andrés Ignacio Rebolledo Smitmans –an economist at the University of Chile with post-graduate studies in International Economics and Economic Development at the *Complutense* University of Madrid, Spain– to be the chairman at the Ministry of Energy.

Minister Rebolledo occupational history, includes different positions at the General Mainboard of International Economic Relations (known in Spanish as DIRECON); as Ambassador of Chile in Uruguay and Permanent Chile Representation at LAIA, and also as senior consultant at the Inter-American Development Bank (IDB) in Washington, USA.

Before being nominated to occupied Minister of Energy position, Andrés Rebolledo was Director of the Economic Directorate of the Chancellery (also part of DIRECON).

The thanked the management developed by the Outgoing Energy Minister, Máximo Pacheco, for his efforts and achievements in the energy sector.

“Renewable Networks” Conference introduced regional and international overview in relation to the distributed generation systems

The Minister of Energy launched on October 25th, the Latin American Conference "Renewable Networks" in relation to the distributed generation systems, which brought together the main professionals of the international energy sector and exhibitors of organizations with a long history in energy matters, with emphasis on the distributed generation.

The activity –which was organized by the Ministry of Energy in collaboration with the International Energy Agency (IEA) and the Deutsche Gesellschaft für International Zusammenarbeit (GIZ)– count with the presence of the Executive Director of the International Energy Agency, IEA, Paul Simons; the Coordinator of Advisors of the Mexican Energy Regulatory Commission, Alejandro Chanona; the Regulatory specialist of the National Electric Energy Agency of Brazil, Daniel Vieira and the Head of the Electricity and Market Connections Office, OFGEM (UK), James Veaney, among others.

Continues pre-legislative process for a new regulatory framework for electricity distribution

More than 300 participants related to the academy, private companies, consultants and NGOs; signed up to participate in the dialogue process launched by the Ministry of Energy and the National Energy Commission with the main objective to have a clear diagnosis over the new proposed regulation for the electrical distribution segment.

In order to meet this objective, the participants were divide in four working groups: "The development of the distribution network", "Financing the network of the future and its pricing", "Distribution business models" and "Network services from the future".

The main objective of this process is to deliver a draft law for the electricity distribution system by the end of 2017. For more information visit www.cne.cl.

Was formed the managing board of the future Independent Coordinator for the National Electricity System

With the participation of the five members of the new managing board of the future Independent Coordinator for the National Electricity System, was set the ceremony for the constitution of this new institutionally considered under the Law No. 20.936, from October 11th, 2016, which establishes a new Electric Transmission System.

In this event attend the president of the Managing Board of the Coordinator, Germán Henríquez with all the advisers; Pilar Bravo –as lawyer– and civil engineers Andrés Alonso, Claudio Espinoza and Jaime Peralta.

SUMMARY

This report was prepared in November 2016 in order to provide energy information and statistics October 2016.

The report's content has been organized into four chapters to facilitate analysis. These four chapters provide information about the electricity sector, international and domestic markets for oil and gas, the status and progress of environmental approvals for energy projects, and finally the main regulatory aspects affecting the sector during the month of October.

This publication contains official information from external sources as well as from the National Energy Commission (CNE).

To prepare the report, an average exchange rate of 663.92 CLP per USD observed during October 2016.

According to Exempt Resolution No. 736, there were 49 electricity generation projects under construction in the SIC and SING, equivalent to a capacity of 3,836 MW.

The installed capacity of the SIC in October was 16,724 MW and SING it was 4,043 MW, plus the installed capacity in the Aysén (SEA) and Magallanes (SEM) electricity systems. In aggregate, the four systems—including Easter Island and Los Lagos—reach up to an installed capacity of 20,941 MW.

Meanwhile, total electric power generation in the SIC during October was 4,391 GWh, and in the SING it reached 1,557 GWh. Therefore, the total generated was 5,948 GWh, 1.7% lower than in September 2016.

The maximum hourly demand recorded in the SIC and the SING in October were 7,308 MW and 2,420 MW, respectively. The maximum in the SIC was recorded on October 27th while the measurement in the SING corresponds to October 10th, 2016.

Regarding electricity rates, it is important to note that the average marginal cost in October in the SIC was 48.8 USD/MWh, -0.9% higher compared to the previous month, September 2016. In the SING meanwhile, the average marginal cost was 47.5 USD/MWh, -25.7% higher than the previous month.

It is worth to highlight the average market prices recorded in October in the SIC and SING which were 96.0 USD/MWh and 79.5 USD/MWh, respectively.

In terms of international fuel prices, the Brent crude price was 49.7 USD/bbl, 6.5% higher than the previous month. Meanwhile, the average price of WTI crude was 49.9 USD/bbl, and 10.4% higher than the previous month. The Henry Hub price (international natural gas price reference) increase -0.6% compared to September, with an average value of 2.95 USD/MMBtu. The average price of coal was 86.0 USD/ton, increasing about 4.3% over the previous month.

In terms of gasoline prices, those of 93-octane gasoline (unleaded) and diesel should be noted. In October the average domestic price of the former was 700 CLP/liter, while the average price of the latter was 465 CLP/liter. In terms of percentages, these represent a down of 3.5% and 2.5% respectively in comparison to September 2016.

A total of 5 energy sector projects were submitted to the Environmental Impact Evaluation System (Sistema de Evaluación de Impacto Ambiental, SEIA): 2 were for electricity generation, 1 was for electricity transmission energy projects. Meanwhile, those projects which are already being evaluated represent a total investment of USD 32,386 million. In addition, 8 projects related to the energy sector obtained favorable environmental qualification resolutions (Resolución de Calificación Ambiental, or RCA) in October, and of those, 7 were for electricity generation, 1 were for high-voltage electricity transmission line projects and 1 was for oil and gas energy projects.

Finally, among the most relevant regulatory milestones taken place during October, is the publication in the Official Bulletin from October 12th, 2016, of Decree No. 128 of the Ministry of Energy, which approves regulations for pumping power plants without hydrological variability, which regulates technical characteristics, availability and systemic impact for its capacity as energy storage systems; subject to the coordination of the Independent Coordinator of the National Electric System according to what is indicated in the new article 72-2 of the General Electrical Services Law.

Also highlights the issuance from October 19th, 2016, of the Exempt Resolution No. 717 of the National Energy Commission which takes into account for all, legal and administrative purposes, the appointment of the first meeting of the managing board of the Independent Coordinator from the National Electricity System, carried out by the Special Nomination Committee.



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ELECTRICITY SECTOR

1 Electricity Generation Projects Under Construction

As indicated in Article 31 of the Node Price Setting Regulation (0586/2012), "installations under construction" are defined as generation units, transmission lines and electrical substations that have been granted the respective construction permits for civil works or have been granted the order to proceed in the fabrication and/or installation of the corresponding electrical or electromagnetic equipment for electricity generation, transmission or transformation. For more information about NCRE projects, please go to the [Monthly NCRE Report](#).

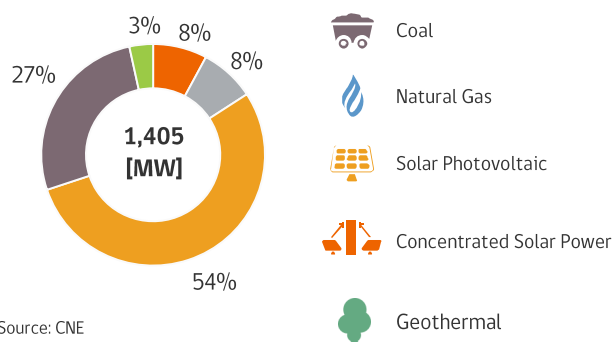
According to Exempt Resolution Num. 736, "Works under Construction Update and Report," as of October 27 th there were 22 power generation projects under construction in the SING. Together they represent capacity of 1,405 MW and are projected to begin operation between October 2016 and June 2018.

Projects under Construction in the SING

Categoría	Fecha	Nombre del Proyecto	Región	Tecnología	Capac. [MW]
ERNC	nov-16	Uribe Solar	II Región	Solar Fotovoltaica	50
	nov-16	Sierra Gorda	II Región	Eólica	112
	nov-16	PV Cerro Dominador	II Región	Solar Fotovoltaica	100
	dic-16	Blue Sky 1	II Región	Solar Fotovoltaica	52
	dic-16	Blue Sky 2	II Región	Solar Fotovoltaica	34
	dic-16	Cerro Pabellón	II Región	Geotérmica	48
	dic-16	Bolero I	II Región	Solar Fotovoltaica	84
	ene-17	Bolero II	II Región	Solar Fotovoltaica	42
	feb-17	Bolero III	II Región	Solar Fotovoltaica	20
	mar-17	Quillagua I	II Región	Solar Fotovoltaica	23
	jun-17	Cerro Dominador	II Región	Concentración Solar de Potencia	110
	jun-17	Pular	II Región	Solar Fotovoltaica	29
	jun-17	Paruma	II Región	Solar Fotovoltaica	21
	jun-17	Lascar I	II Región	Solar Fotovoltaica	30
	jun-17	Lascar II	II Región	Solar Fotovoltaica	35
	sep-17	Huatacondo	I Región	Solar Fotovoltaica	98
	sep-17	Arica Solar I	XV Región	Solar Fotovoltaica	18
	sep-17	Arica Solar II	XV Región	Solar Fotovoltaica	22
	oct-17	Quillagua II	II Región	Solar Fotovoltaica	27
	oct-17	Usya	II Región	Solar Fotovoltaica	25
	jun-18	Quillagua III	II Región	Solar Fotovoltaica	50

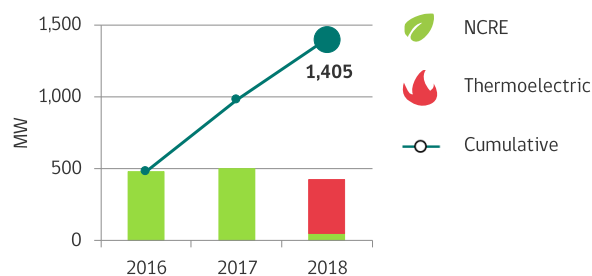
Source: CNE

Total under construction in the SING, by technology



Source: CNE

Projected operation start date, SING



Source: CNE



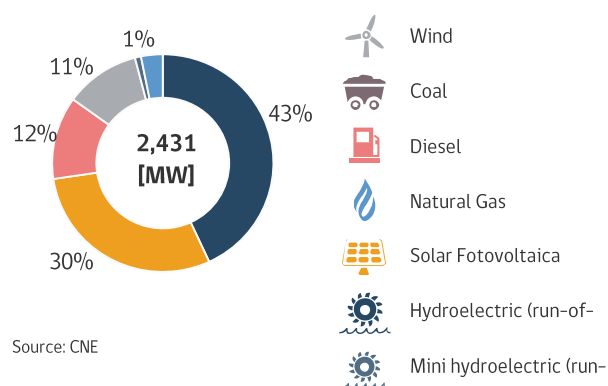
According to Exempt Resolution No. 736 , "Works under Construction Update and Report," as of October 27 there were **27** power generation projects under construction in the SIC. Together they represent capacity of 2,431 MW and are projected to begin operation between September 2016 and October 2020.

Projects under Construction in the SIC

Categoría	Fecha	Nombre del Proyecto	Región	Tecnología	Capac. [MW]
ERNC	oct-16	El Romero	III Región	Solar Fotovoltaica	196
	oct-16	San Juan II	III Región	Eólica	30
	nov-16	San Juan III	III Región	Eólica	30
	dic-16	San Juan IV	III Región	Eólica	33
	ene-17	Guanaco Solar	III Región	Solar Fotovoltaica	50
	ene-17	Río Colorado	VII Región	Mini-Hidráulica de Pasada	15
	ene-17	Valleland	III Región	Solar Fotovoltaica	67
	ene-17	San Juan V	III Región	Eólica	26
	ene-17	San Juan VI	III Región	Eólica	33
	abr-17	Doña Carmen	V Región	Solar Fotovoltaica	40
	abr-17	Malgarida	III Región	Solar Fotovoltaica	28
	abr-17	El Pelicano	III Región	Solar Fotovoltaica	100
	abr-17	Cabo Leones I	III Región	Eólica	116
	ago-17	Divisadero	III Región	Solar Fotovoltaica	65
	oct-17	Santiago Solar	RM	Solar Fotovoltaica	98
	feb-18	Las Nieves	IX Región	Mini-Hidráulica de Pasada	7
	ago-18	Valle Solar	III Región	Solar Fotovoltaica	74
Hidroeléctrica Convencional	dic-16	La Mina	VII Región	Hidráulica de Pasada	34
	abr-17	Ancoa	VII Región	Hidráulica de Pasada	27
	dic-18	Los Cóndores	VII Región	Hidráulica de Pasada	150
	dic-18	Las Lajas	RM	Hidráulica de Pasada	267
	abr-19	Ñuble	VIII Región	Hidráulica de Pasada	136
	may-19	Alfalfal II	RM	Hidráulica de Pasada	264
	oct-20	San Pedro	XIV Región	Hidráulica de Pasada	170
Termoeléctrica	may-17	Doña Carmen	V Región	Petróleo Diesel	48
	jun-17	CTM-3*	II Región	Diésel/gas	251
	dic-17	Cogeneradora Aconcagua	V Región	GNL	77

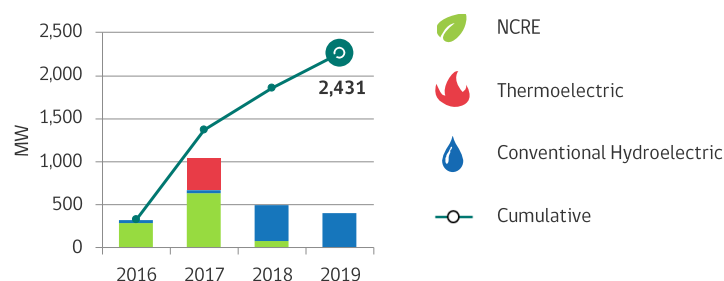
Source: CNE

Total under construction in the SIC, by technology



Source: CNE

Projected operation start date, SIC



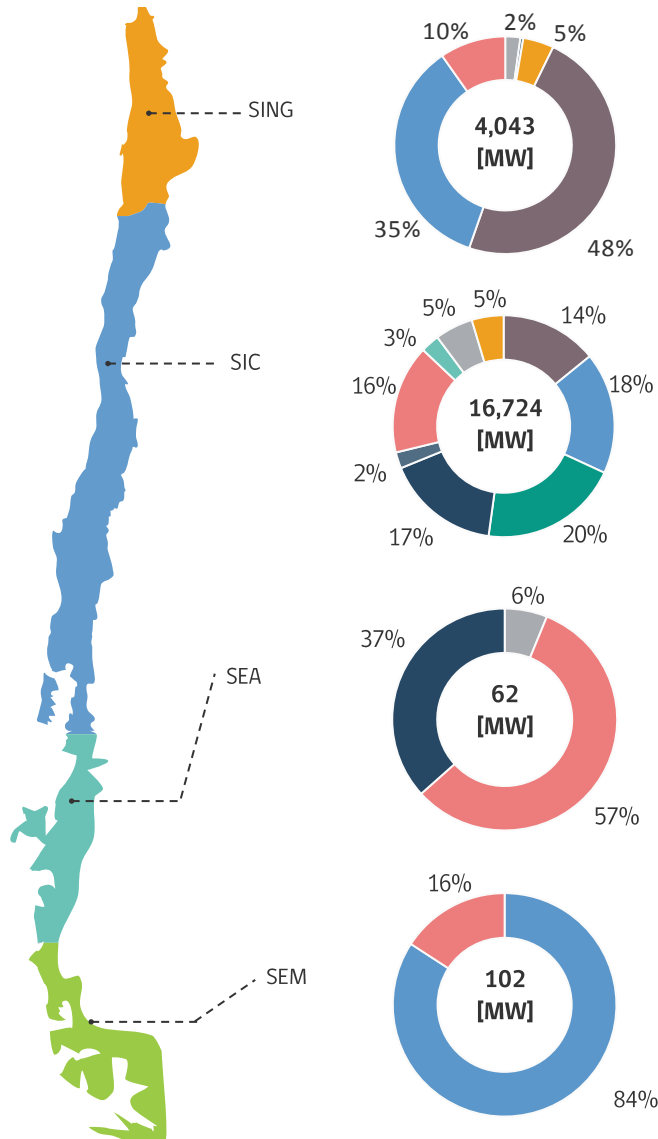
Source: CNE



2 Installed Electricity Generation Capacity

The installed electricity generation capacity as of October 2016 was (*)20,941 MW. Of that, 16,724 MW (79.9%) corresponded to the SIC and 4,043 MW (19.3%) to the SING. The remaining 0.8% was distributed among the Aysén and Magallanes electricity systems. As of October, 56.8% the country's total installed capacity is represented by thermoelectric generation, 29.5% is conventional hydroelectric and 13.7% is NCRE. For more information about NCRE projects, please go to the [Monthly NCRE Report](#).

Installed Capacity by Technology



Source: CDEC-SIC / CDEC-SING and CNE

Installed capacity by system

System	Capacity [MW]	Capacity [%]
SING	4,043	19.3%
SIC	16,724	79.9%
SEA	62	0.3%
SEM	102	0.5%

Source: CDEC-SIC / CDEC-SING and CNE



Power generation plants in testing phase

In addition to the total installed capacity, there are 41 synchronous power generation plants with their respective electricity systems that have not yet been approved for dispatch by the CDEC (in the testing phase). Of these, 34 plants are in the SIC (with a total capacity of 629.6 MW) and 7 are in the SING (with a total capacity of 989.3 MW). Thus, there is a total of 1618.9 MW in the testing phase.

* The total installed capacity also includes Los Lagos (6 MW) and Easter Island (4 MW) systems.

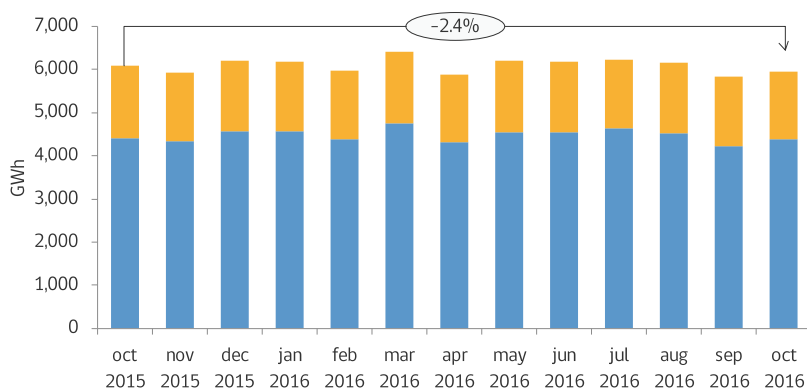
*Is not considered in this total the Natural Gas power plant, located in Salta (Argentina); connected to the SING (380 MW)



3 Electricity Generation

Power generation in the SIC during October 2016 reached a total of 4,391 GWh, which were classified as 49% thermoelectric, 32% conventional hydroelectric and 19% NCRE. In the SING, 1,557 GWh of electric power were generated, 92% from thermoelectric plants and 8% from NCRE. Together the systems reached a total of 5,948 GWh, a decrease of 1.7% over the previous month and increase -2.4% in comparison to October 2016. In resume, if we sort by generation category, we distinguish: 16.1% NCRE, 23.5% hydroelectric and 60.4% thermoelectric generation.

Evolution of gross electric power generation, SIC-SING



Source: CDEC-SIC / CDEC-SING

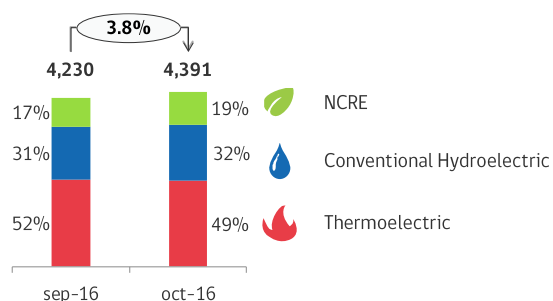
Generation variation, by system

	Energy Generation [GWh]		Monthly	Annual
● Total	5,948	▲	1.7%	▼ -2.4%
● SIC	4,391	▲	3.8%	▼ -0.4%
● SING	1,557	▼	-3.7%	▼ -7.5%

Source: CDEC-SIC / CDEC-SING

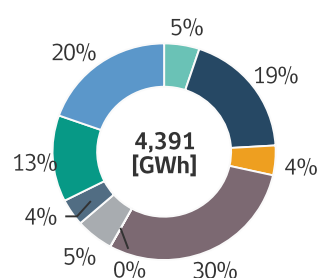
Following is a breakdown of power generation by technology in the SIC and SING.

Monthly Variation in Generation, SIC



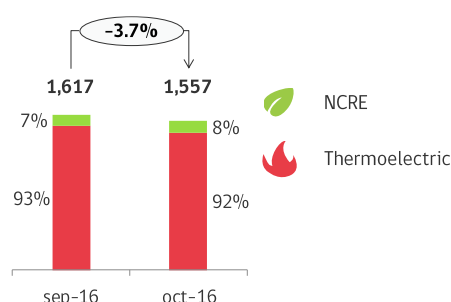
Source: CDEC-SIC

SIC generation by source



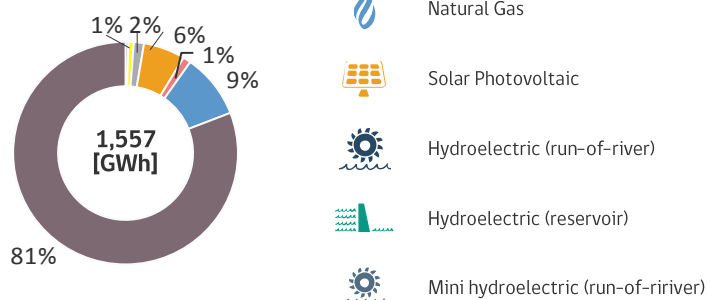
Source: CDEC-SIC

Monthly Variation in Generation, SING



Source: CDEC-SIC

SING generation by source



Source: CDEC-SIC

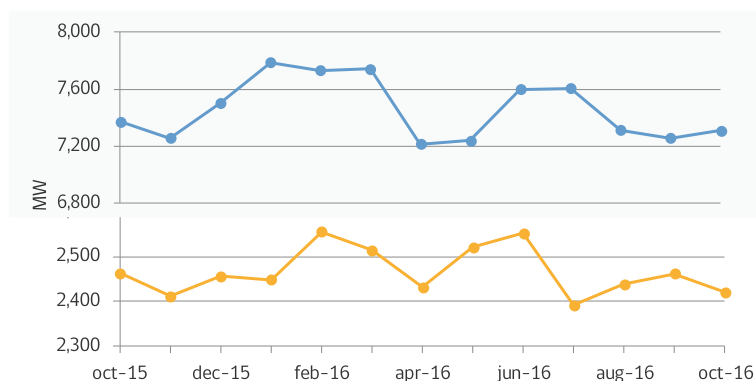
For more information about NCRE projects, please go to the [Monthly NCER Report](#).



4 Maximum Hourly Demand

In October 2016, the maximum hourly demand recorded in the SIC was 7,308 MW on October 27nd, 0.7% higher than the previous month and -0.9% lower than the same month of 2015. In the SING, the maximum hourly demand recorded on October 10th was 2,420 MW, which represented a -1.7% lower compared to the maximum hourly demand recorded in the previous month and -1.7% under the same month of 2015.

Evolution of maximum hourly demand, SIC - SING



Source: CDEC - SIC / CDEC - SING

Variation in maximum hourly demand, by system

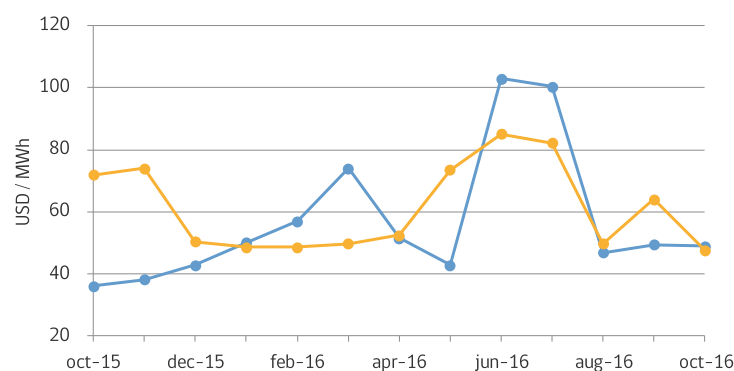
System	[MW]	Monthly	Annual
● SIC	7,308	▲ 0.7%	▼ -0.9%
● SING	2,420	▼ -1.7%	▼ -1.7%

Source: CDEC - SIC / CDEC - SING

5 Marginal Costs

The marginal cost is the variable cost of the most expensive generation unit operating at a specific point in time. In this case, the Quillota 220 kV busbar was used as the reference to obtain the marginal cost in the SIC while the Crucero 220 kV busbar was used as the reference in the SING. The value given for each system corresponds to the monthly average of hourly marginal costs. In October, the average marginal cost in the SIC was 48.8 USD/MWh, -0.9% lower the previous month and 36.2% over in comparison to October 2015. In the SING, the average marginal cost was 47.5 USD/MWh, -25.7% less than the previous month and -33.9% than the same month of 2015.

Evolution of marginal costs, SIC - SING



Source: CDEC - SIC / CDEC - SING

Variation in marginal costs, SIC - SING

System	[USD/MWh]	Monthly	Annual
● Quillota 220	48.8	▼ -0.9%	▲ 36.2%
● Crucero 220 kV	47.5	▼ -25.7%	▼ -33.9%

Source: CDEC - SIC / CDEC - SING

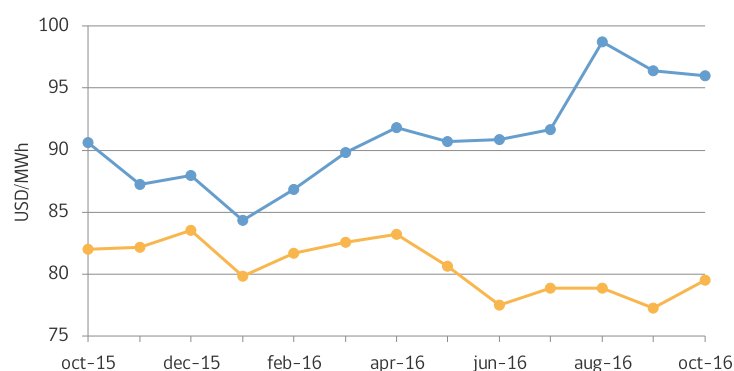


6 Average Market Price

The average market price (AMP) for each system is based on the average price of free customer contracts and long-term supply contracts held by distribution companies as applicable, reported to the National Energy Commission by the distribution companies operating in the Norte Grande Interconnected System and the Central Interconnected System. The AMP calculation takes into consideration a four-month window ending with the third month prior to the AMP publication date.

The AMP recorded in October for the SIC was 96.0 USD/MWh, -0.4% lower than the previous month and 5.9% higher than October 2015. The AMP in the SING was 79.5 USD/MWh, 2.8% more than the previous month and -3.1% less than the same month in 2015.

Evolution of market prices, SIC – SING



Source: CDEC – SIC / CDEC – SING

Variation in average market prices, by system

System	[USD/MWh]*	Monthly	Annual
SIC	96.0	-0.4%	5.9%
SING	79.5	2.8%	-3.1%

Source: CDEC – SIC / CDEC – SING

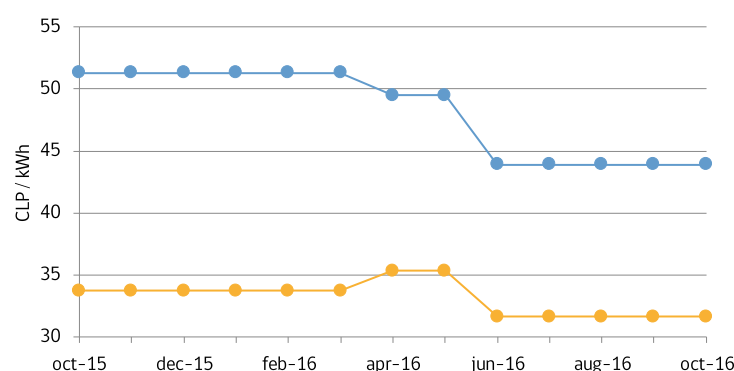
7 Short-term Node Prices

Short-term node prices are set twice each year, in May and October. These prices may be indexed monthly, depending on the conditions established in the twice-a-year decree that sets node prices for electricity supply. The prices are calculated by the National Energy Commission (CNE) which submits a technical report with the results to the Energy Ministry. The ministry then proceeds to set the prices via a decree published in the Official Bulletin.

Node Energy Price

The node energy price is the average over time of the marginal cost of energy in the electricity system operating at the minimum, updated operation and rationing cost. The node energy price in the SIC in October was 43.9 CLP/kWh, -14.5% below the same month of 2015. In the SING, the node energy price in October was 31.6 CLP/kWh, -6.2% below the same month of 2015.

Evolution of node energy prices, SIC – SING



Source: CNE

Variation in node energy prices, by system

System	CLP/kWh	Monthly	Annual
PNE SIC	43.9	0.0%	-14.5%
PNE SING	31.6	0.0%	-6.2%

Source: CNE

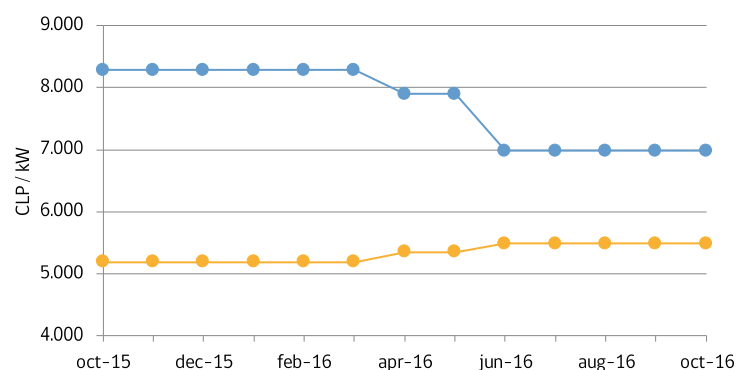
* Real value at the publish date, according to the CPI (consumer price index) of second previous month at the indicated date and the observed dollar of the previous month of the publish report date.



Node Power Price

The node power price is the annual marginal cost of increasing the installed capacity of the electricity system taking into consideration the most economic generation plants, required to supply additional capacity during the annual maximum hourly demand of the electricity system, increased by a percentage equal to the theoretical capacity reserve margin of the system. The node power price in the SIC in October was 6,978 CLP/kW, -15.8% decrease over the same month of 2015. In the SING, the node power price was 5,485 CLP/kW, 5.8% increase over the same month of 2015.

Evolution of node power price, SIC - SING



Source: CNE

Variation in node power price

System	CLP/kW	Monthly	Annual
PNP SIC	6,978	0.0%	-15.8%
PNP SING	5,485	0.0%	5.8%

Source: CNE

8 Node Price in Medium-size Systems

Below we present the node energy price and node power price in medium-size systems for October del 2016. These node prices are applied to energy supply at the withdrawal busbars indicated in the following tables:

Variation in node energy price, medium-size systems

Busbar	[USD/MWh]	Index	Annual
Pta Arenas	51	0.0%	-19.4%
Tres Puentes	51	0.0%	-19.4%
Pto Natales	85	0.0%	-9.9%
Porvenir	78	0.0%	-10.8%
Pto Williams	268	0.0%	-9.5%
Aysén 23	82	0.0%	-9.4%
Chacab23	82	0.0%	-9.4%
Mañi23	83	0.0%	-9.4%
Ñire33	83	0.0%	-9.4%
Tehuel23	83	0.0%	-9.4%
Palena	88	0.0%	-0.1%
G.Carrera	103	0.0%	-13.8%
Cochamó	161	0.0%	-16.3%
Hornopirén	152	0.0%	-8.8%

Source: CNE

Variation in node power price, medium-size systems

Busbar	[USD/MW-mth]	Index	Annual
Pta Arenas	15,557	0.0%	-0.9%
Tres Puentes	15,557	0.0%	-0.9%
Pto Natales	8,765	0.0%	-0.2%
Porvenir	11,082	0.0%	0.8%
Pto Williams	21,050	0.0%	1.3%
Aysén 23	11,481	0.0%	-0.7%
Chacab23	11,481	0.0%	-0.7%
Mañi23	11,481	0.0%	-0.7%
Ñire33	11,481	0.0%	-0.7%
Tehuel23	11,481	0.0%	-0.7%
Palena	16,282	0.0%	-0.1%
G.Carrera	22,360	0.0%	1.2%
Cochamó	22,052	0.0%	1.3%
Hornopirén	13,908	0.0%	-0.5%

Source: CNE

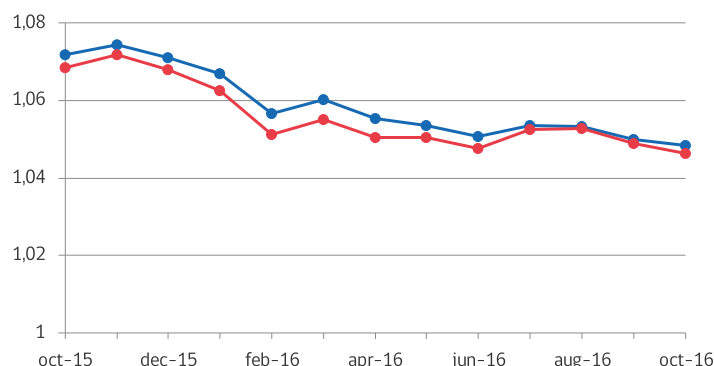


9 Evolution of Variable Distribution Cost Indexes

The distribution added value (DAV)* is set every four years by the Energy Ministry, based on a technical report prepared by the CNE, and corresponds to the average cost of investment, administration, maintenance and operation of electricity distribution networks calculated for an efficient model company operating in Chile. The DAV has a fixed component and a variable component, both of which were established by Article 182 of the General Electrical Services Law and are indexed monthly. Below we provide the evolution of the indexator of the variable component both for high and low voltage for October del 2016.

For more information about this, please go to the [Decreto N°1T/2012 Proceso de Fijación de Tarifas de Distribución 2012-2016](#).

Evolution of Indexes



Source: CNE

Variation in Indexes

System	Index	Monthly	Annual
CDAT	1.048	▼ -0.1%	▼ -2.2%
CDBT	1.046	▼ -0.3%	▼ -2.1%

Source: CNE

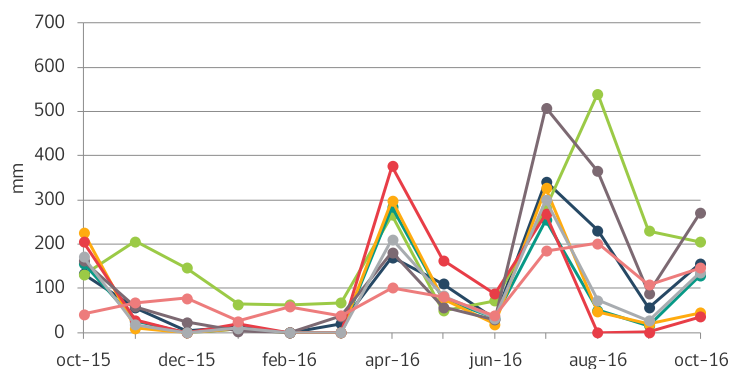
10 Hydrological Statistics

Because of the hydro-thermal nature of the Central Interconnected System, which features large hydroelectric (reservoir) plants with for regulation in different periods of time and thermal plants (as well as other technologies), the use of reservoir water must be optimized in order to minimize the total cost of supplying the system. For this reason, we provide information below from monitoring and recording the important variables associated with hydrology, such as rainfall, and the operational status of infrastructure of the hydroelectric plants in relation to the respective reservoir levels and volumes.

Rainfall Statistics

The monthly rainfall statistics published by CDEC-SIC and updated as of October 2016 are shown below for the main measurement locations.

Evolution of Annual Rainfall



Source: CDEC-SIC

Variation in Annual Rainfall

Reservoir	[mm]	Monthly	Annual
Abanico	157	▲ >100%	▲ 18%
Canutillar	206	▼ -10%	▲ 57%
Cipreses	130	▲ >100%	▼ -17%
Colbún	45	▲ >100%	▼ -80%
Otros (**)	36	▲ >100%	▼ -82%
Pangue	272	▲ >100%	▲ 68%
Pehuenche	136	▲ >100%	▼ -21%
Pilmaiquén	147	▲ 36%	▲ >100%
Overall total	1.127	▲ >100%	▼ -8%

(*) The relative weight in a type BT1a account with a monthly consumption of 150kWh is 26.97% in the SIC and SING 22.95%.

(**) Other: Sauzal, Cypress, Molles, Rapel.

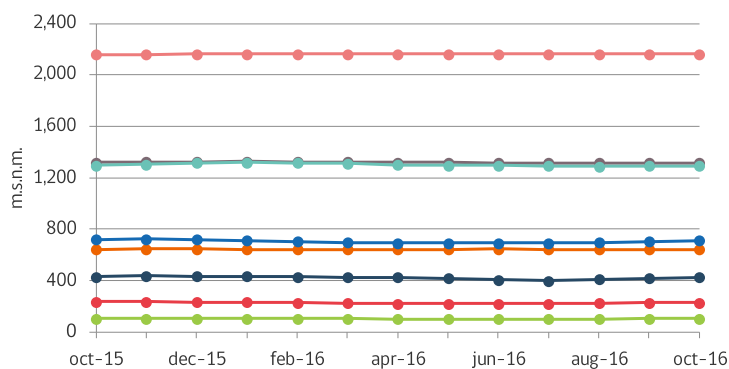
n/a : Not available



Reservoir, Lake and Lagoon Levels

According to information submitted by the CDEC-SIC, in October the final levels were found for the following reservoirs, lakes and lagoons:

Evolution of Reservoir Levels



Source: CDEC-SIC

Variation in Reservoir Levels

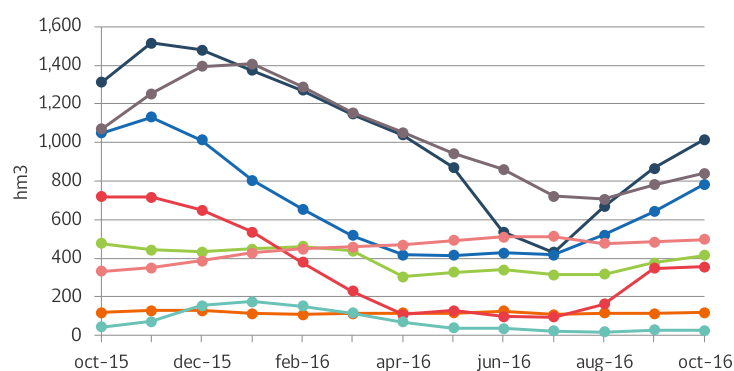
Reservoir	[m.s.n.m.]	Monthly	Annual
Embalse Colbún	424	▲ 1.1%	▼ -1.8%
Embalse El Melado	644	▲ 0.1%	▼ -0.1%
Embalse Ralco	711	▲ 0.9%	▼ -1.4%
Embalse Rapel	104	▲ 0.6%	▼ -0.8%
Lago Chapo	228	▲ 0.1%	▼ -3.3%
Lago Laja	1,317	▲ 0.1%	▼ -0.3%
Laguna El Maule	2,163	▲ 0.0%	▲ 0.2%
Laguna La Invernada	1,291	▼ -0.1%	▼ -0.4%

Source: CDEC-SIC

Reservoir, Lake and Lagoon Volumes

Based on levels reported by the CDEC-SIC for volumes of water stored in the largest reservoirs, lakes and lagoons, considering the characteristics of each one as of October 2016.

Evolution of Reservoir Volume



Source: CDEC-SIC

Variation in Reservoir Volume

Reservoir	[hm³]	Monthly	Annual
Embalse Colbún	867	▲ 17.3%	▼ -22.4%
Embalse El Melado	114	▲ 2.7%	▼ -1.7%
Embalse Ralco	642	▲ 22.0%	▼ -25.4%
Embalse Rapel	376	▲ 10.5%	▼ -12.8%
Lago Chapo	347	▲ 2.7%	▼ -50.4%
Lago Laja	781	▲ 7.5%	▼ -21.5%
Laguna El Maule	485	▲ 2.7%	▲ 49.7%
Laguna La Invernada	28	▼ -13.7%	▼ -44.1%

Source: CDEC-SIC

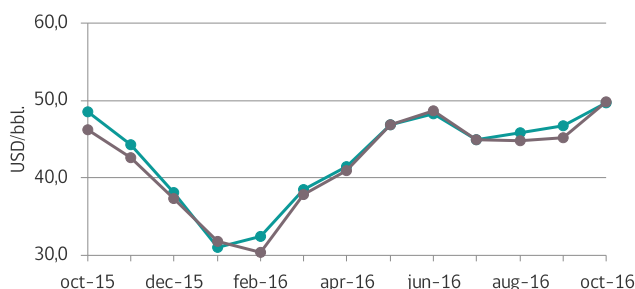


OIL AND GAS SECTOR

1 International Fuel Market Prices

The following information details the moving year evolution of the West Texas Intermediate (WTI) crude oil price index, which is used as a reference in the U.S. market, along with the BRENT oil price index which reflects oil prices for European markets. In October 2016 WTI oil prices was 49.9 USD/bbl., 10.4% increase from the previous month and 8.0% decrease from the same month of 2015. Meanwhile, the average BRENT oil prices was 49.7 USD/bbl, 6.5% higher than previous month and 2.5% lower from the same month of 2015.

Evolution of BRENT and WTI Oil Prices



Source: CNE, based on data from Argus Media Inc.

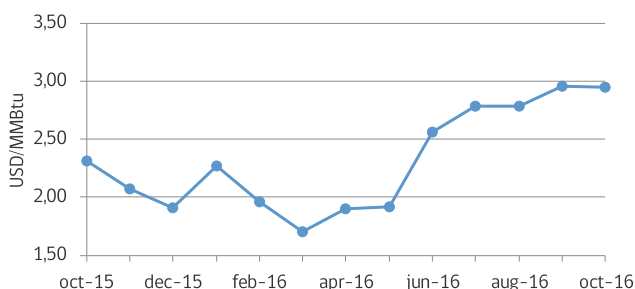
Crude Oil Variation (USD/bbl.)

Index	USD/bbl.	Monthly	Annual
BRENT DTD	49.7	6.5%	2.5%
WTI	49.9	10.4%	8.0%

Source: CNE, based on data from Argus Media Inc.

The following information details the evolution of the Henry Hub (Louisiana) price index, which serves as a reference for liquefied natural gas (LNG) imports to Chile. In October 2016, Henry Hub averaged 2.95 USD/MMBtu, -0.6% decrease from previous month and 27.3% increase from the same month of 2015.

Evolution of Natural Gas Price (Henry)



Source: CNE, based on data from the Daily Gas Price Index, NGI Intelligence

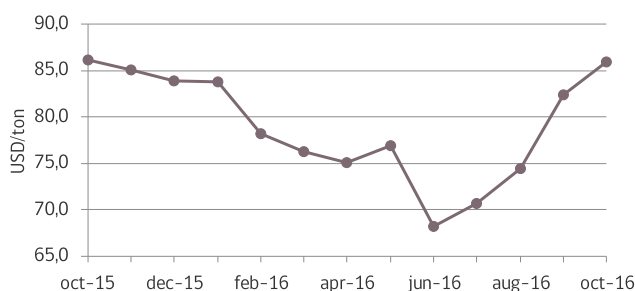
Natural Gas Variation (Henry Hub)

Index	USD/MMBtu	Monthly	Annual
HENRY HUB SPOT	2.95	-0.6%	27.3%

Source: CNE, based on data from the Daily Gas Price Index, NGI Intelligence

The following information details the evolution of the price of EQ 7000 steam coal kCal/kg which in October 2016 averaged a price of 86.0 USD/ton, representing 4.3% increase over the previous month and -0.3% decrease over the same month of 2015.

Evolution of EQ 7000 Steam Coal kCal/kg



Source: CNE, based on data from Platts Coal Trader International

Variation in EQ 7000 Steam Coal kCal/kg

Index	USD/ton	Monthly	Annual
THERMAL COAL EQ. 7.000 kCal/kg	86.0	4.3%	-0.3%

Source: CNE, based on data from Platts Coal Trader International

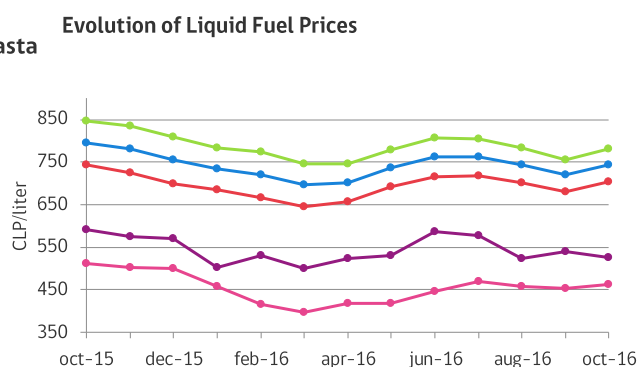


2 Domestic Liquid Fuel Prices

The following information details the evolution of different types of petroleum-derived liquid fuels sold or commercialized at gas stations (93-, 95-, and 97-octane unleaded gas, diesel, household kerosene and diesel oil) during the last 12 months, along with the average monthly price in last month for the cities of Antofagasta, Concepción, Puerto Montt and the Santiago Metropolitan Region.

The information presented is prepared by the National Energy Commission which, as part of its legal functions and powers, developed the Online Information System of Gas Station Fuel Prices, www.bencinaenlinea.cl

Antofagasta



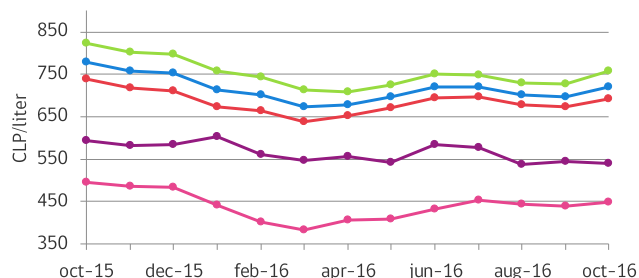
Source: CNE — Online Information System of Gas Station Fuel Prices

Variation of Liquid Fuel Prices

Fuel Type	CLP/liter	Monthly	Annual
Gasoline 93 SP	705	▲ 3.5%	▼ -5.3%
Gasoline 95 SP	744	▲ 3.4%	▼ -6.6%
Gasoline 97 SP	782	▲ 3.4%	▼ -7.7%
Kerosene	525	▼ -2.8%	▼ -11.2%
Diesel	462	▲ 2.0%	▼ -9.9%

Source: CNE — Online Information System of Gas Station Fuel Prices

Santiago Metropolitan

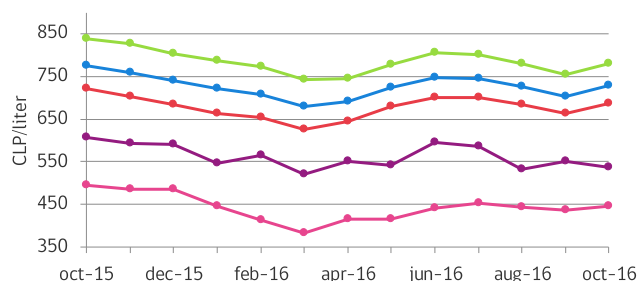


Source: CNE — Online Information System of Gas Station Fuel Prices

Fuel Type	CLP/liter	Monthly	Annual
Gasoline 93 SP	692	▲ 2.9%	▼ -6.3%
Gasoline 95 SP	721	▲ 3.4%	▼ -7.3%
Gasoline 97 SP	757	▲ 4.0%	▼ -7.9%
Kerosene	539	▼ -0.7%	▼ -9.2%
Diesel	448	▲ 1.8%	▼ -9.5%

Source: CNE — Online Information System of Gas Station Fuel Prices

Valparaíso



Source: CNE — Online Information System of Gas Station Fuel Prices

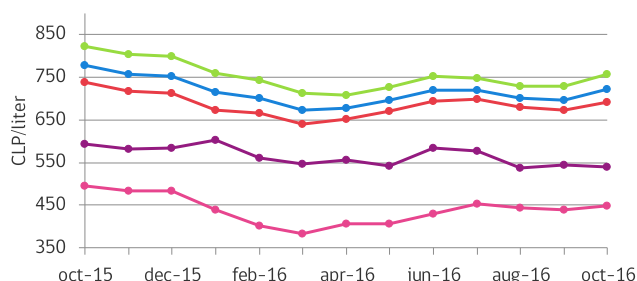
Fuel Type	CLP/liter	Monthly	Annual
Gasoline 93 SP	686	▲ 3.6%	▼ -5.1%
Gasoline 95 SP	728	▲ 3.5%	▼ -6.2%
Gasoline 97 SP	779	▲ 3.4%	▼ -7.0%
Kerosene	536	▼ -2.6%	▼ -11.6%
Diesel	446	▲ 2.1%	▼ -9.9%

Source: CNE — Online Information System of Gas Station Fuel Prices



Evolution of Liquid Fuel Prices

Concepción



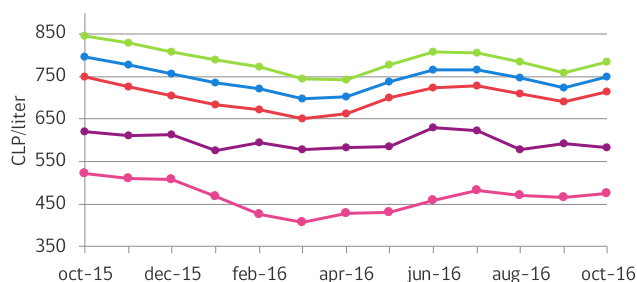
Source: CNE — Online Information System of Gas Station Fuel Prices

Variation of Liquid Fuel Prices

Fuel Type	CLP/liter	Monthly	Annual
Gasoline 93 SP	699	▲ 3.3%	▼ -5.0%
Gasoline 95 SP	736	▲ 3.3%	▼ -6.7%
Gasoline 97 SP	773	▲ 3.2%	▼ -7.0%
Kerosene	539	▼ -3.1%	▼ -7.3%
Diesel	465	▲ 2.5%	▼ -10.8%

Source: CNE — Online Information System of Gas Station Fuel Prices

Puerto Montt



Source: CNE — Online Information System of Gas Station Fuel Prices

Fuel Type	CLP/liter	Monthly	Annual
Gasoline 93 SP	714	▲ 3.5%	▼ -4.7%
Gasoline 95 SP	749	▲ 3.5%	▼ -6.0%
Gasoline 97 SP	784	▲ 3.5%	▼ -7.1%
Kerosene	583	▼ -1.7%	▼ -6.2%
Diesel	475	▲ 1.9%	▼ -8.9%

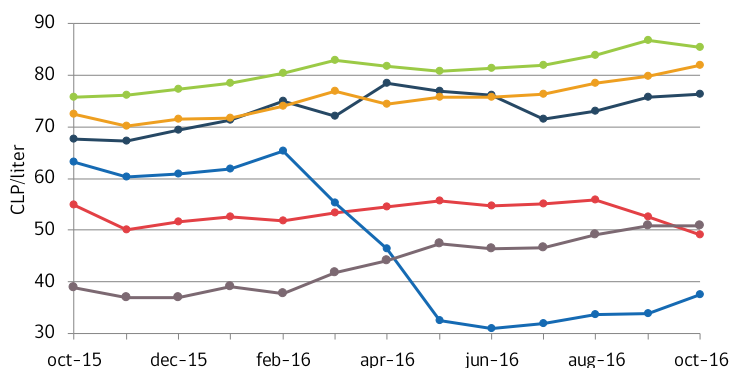
Source: CNE — Online Information System of Gas Station Fuel Prices

3 Fuel Gross Margins

The retail sales price of fuels is structured as follows: sales price at the refinery, sales margin and taxes (VAT and specific tax). The following information shows the evolution of the sales margin for 93-octane gas and diesel in the 5th, 6th, 7th, 8th, 12th and Santiago Metropolitan regions.

93-Octane Gasoline

Evolution of Gross Sales Margin



Source: CNE

Variation in Gross Sales Margin

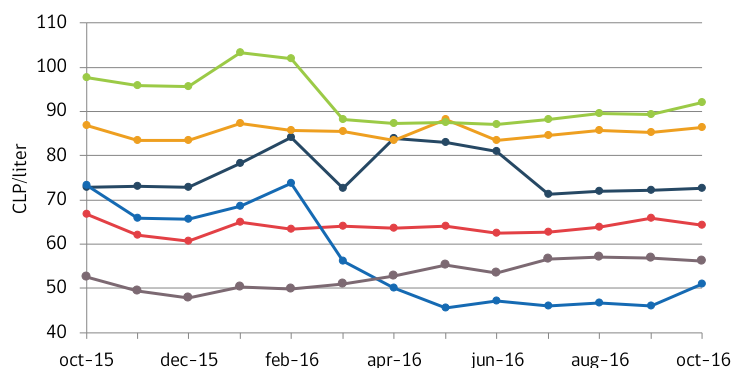
93-Octane Gas	CLP/liter	Monthly	Annual
5th Region	76	▲ 0.7%	▲ 12.8%
6th Region	82	▲ 2.7%	▲ 13.1%
7th Region	38	▲ 11.0%	▼ -40.7%
8th Region	85	▼ -1.5%	▲ 12.7%
Santiago Metropolitana	49	▼ -6.5%	▼ -10.6%
12th Region	51	▼ -0.2%	▲ 30.5%

Source: CNE



Diesel

Evolution of Gross Sales Margin



Source: CNE

Variation in Gross Sales Margin

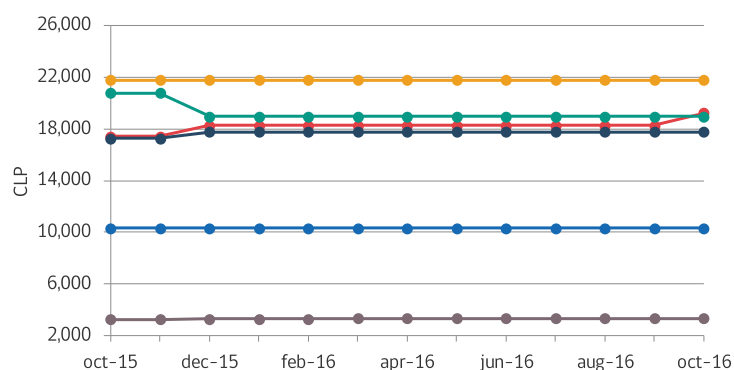
Diesel Oil	CLP/liter	Monthly	Annual
5th Region	73	0.6%	-0.1%
6th Region	86	1.3%	-0.6%
7th Region	51	11.0%	-30.5%
8th Region	92	3.1%	-5.7%
Santiago Metropolitana	64	-2.5%	-3.5%
12th Region	56	-1.0%	6.9%

Source: CNE

4 Domestic Prices of Network Gas Supplied through Concessions

The following information shows the price based on the energy equivalence of natural gas, city gas or propane air, whichever is applicable, distributed to the end consumer as network gas under concession equivalent to 15-kg cylinders of liquified petroleum gas. This price also includes fixed costs and meter rental, charged by the network gas distribution companies when applicable.

Evolution of Network Gas Prices



Source: CNE — Online Gas Price System

Variation in Network Gas Prices

Company (Region)	CLP	Monthly	Annual
Lipigas (2th)	10.312	0.0%	0.0%
Gasvalpo (5th)	19.234	5.2%	10.4%
Metrogas (Metropolitana)	17.787	0.0%	3.0%
Gassur (8th)	18.979	0.0%	-8.7%
Intergas (8th)	21.792	0.0%	0.0%
Gasco Magallanes (9th)	3.307	0.0%	2.7%

Source: CNE — Online Gas Price System

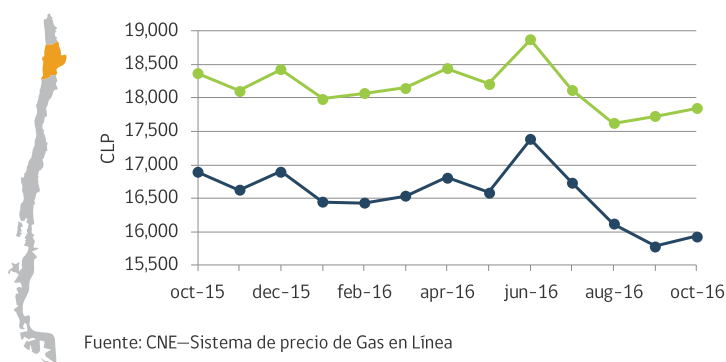


5 Domestic Prices of Bottled Liquefied Petroleum Gas

Bottled LPG is liquefied gas fuel, i.e., propane and butane and their blends (with a maximum 30% of butane). The fuel is compressed for bottling in cylinders of varying sizes that are sold to end users for use in heaters, stoves and water heaters/boilers. The cylinders on the local market have a capacity of 2 kg, 5 kg, 11 kg, 15 kg and 45 kg. They are also sold according to quality; one is sold as normal or regular and the other as catalytic, a category required by some heating appliances that only use a fuel with a low content of olefins, diolefins and sulfur. The information below shows the evolution of the average price of bottled LPG in 15-kg cylinders for the cities of Antofagasta, Concepción, Puerto Montt and the Santiago Metropolitan Region.

Evolution of Bottled LPG Prices

Antofagasta

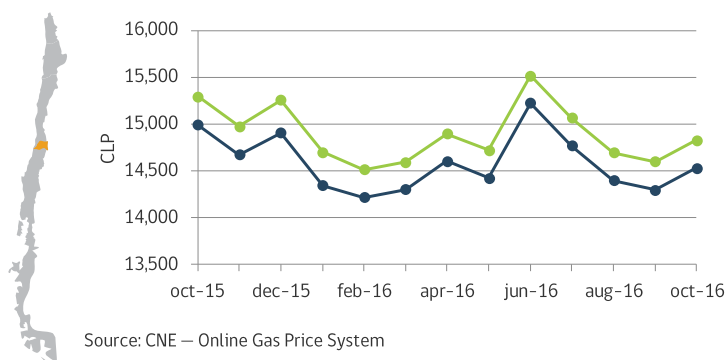


Variation in Bottled LPG Prices

Type	CLP	Monthly	Yearly
Catalytic	17,850	▲ 0.7%	▼ -2.8%
Regular	15,933	▲ 1.0%	▼ -5.7%

Fuente: CNE—Sistema de precio de Gas en Línea

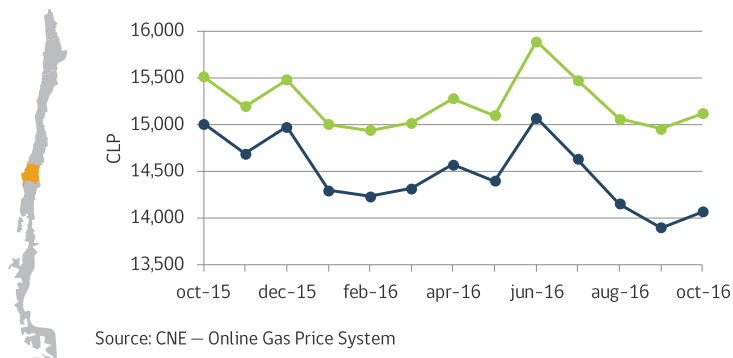
Santiago Metropolitan



Type	CLP	Monthly	Yearly
Catalytic	14,832	▲ 1.6%	▼ -3.1%
Regular	14,534	▲ 1.6%	▼ -3.1%

Source: CNE — Online Gas Price System

Concepción



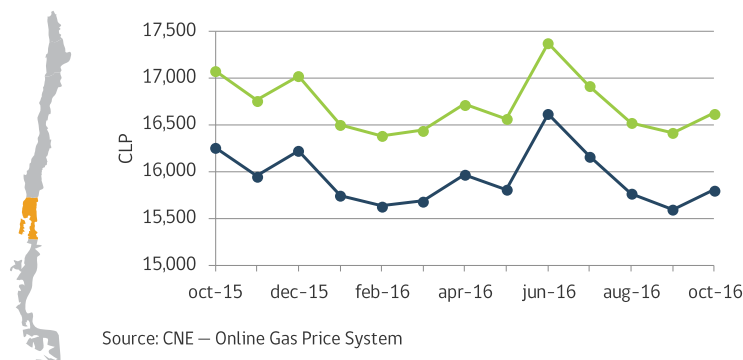
Type	CLP	Monthly	Yearly
Catalytic	15,123	▲ 1.1%	▼ -2.5%
Regular	14,067	▲ 1.2%	▼ -6.3%

Source: CNE — Online Gas Price System



Evolution of Bottled LPG Prices

Puerto Montt



Variation in Bottled LPG Prices

Type	CLP	Monthly	Yearly
Catalytic	16,623	1.3%	-2.7%
Regular	15,803	1.3%	-2.8%

Source: CNE — Online Gas Price System

6 Fuel imports and exports

Information on imports and exports of primary and secondary fuels corresponds to September 2016 given that the official information source has a two-month time lag. The information on imports mainly applies to coal, crude oil, diesel and natural gas, equivalent to more than 82.7% of total national imports (in tons).

The total variation of imports registered a decrease of -12.3% over the previous month and increase of 6.8% compared to September, 2015. Meanwhile, the total change in exports recorded a decrease of more than double compared to the previous month. Meanwhile, the main fuel exported during the month of September was #N/A, which represented about 62.1% of total exports in tons.

Imports of the main primary fuels during the month of September were: coal from Colombia, United States, Australia and Canada; crude oil from Brazil and Ecuador; diesel from the United States and Japan; and liquefied natural gas bought from Trinidad and Tobago, Qatar and United States.

In the other hand, during September, the exports of diesel and gasoline recorded as country of destination Bolivia and Argentina; and the main fuel exported was #N/A, mainly sent to Argentina.

Here are the details for each of the fuels with percentage changes and countries of origin / destination.

Variation in Imports During the Period

Fuel	[Thous-Tons]	Monthly	Annual
Coal	935	0.0%	2.0%
Crude Oil	513	-45.7%	-30.3%
Diesel Oil	547	71.9%	93.4%
Natural Gas	180	-49.3%	2.1%
Gasoline	72	91.7%	87.3%
LPG	98	-5.7%	14.0%
Household Kerosene	68.7	19.2%	>100%
Overall total	2,414	-12.3%	6.8%

Source: Aduana by COMEX (www.comexplusccs.cl)

Variation in Exports During the Period

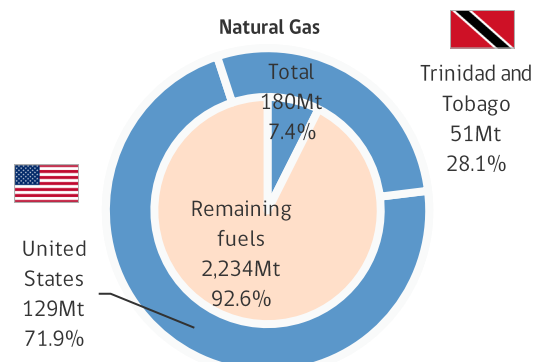
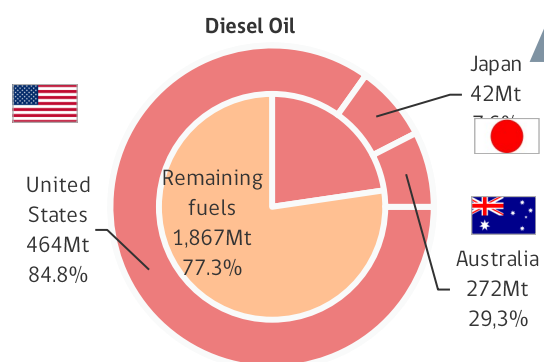
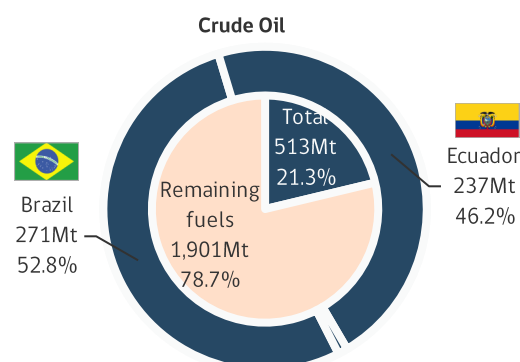
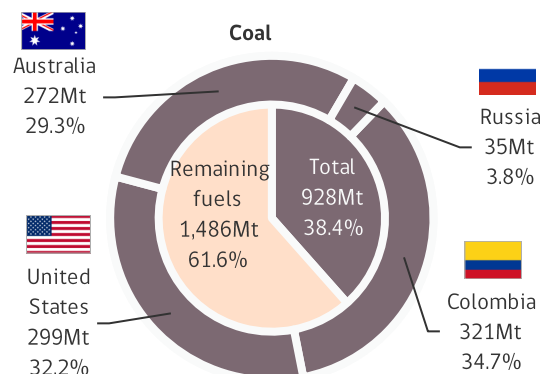
Fuel	[Thous-Tons]	Monthly	Annual
Coal	13	>100%	>100%
Diesel Oil	0	(**)	(*)
Fuel Oil	0	(**)	(*)
Natural Gas	0	(*)	(*) (**)
GLP	0	(**)	(**)
IFO	21	>100%	-10%
Overall total	34	-85%	0%

Source: Aduana by COMEX (www.comexplusccs.cl)

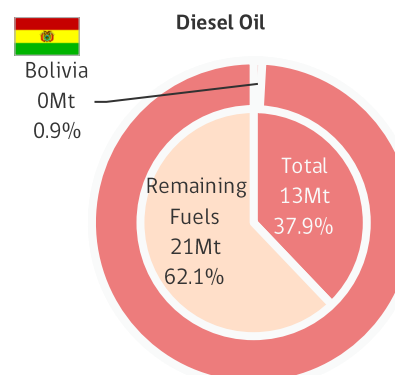
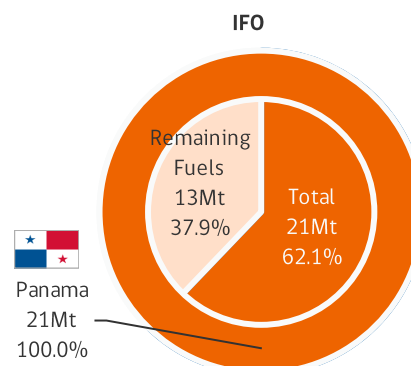
(*) No transactions recorded during the period under review
 (**) Not recorded during the reference month transactions



Imports by Country of Origin



Exports by Country of Origin



Source: Customs, provided by Comex Service, Santiago Chamber of Commerce.

Mt: Thousands of tons.

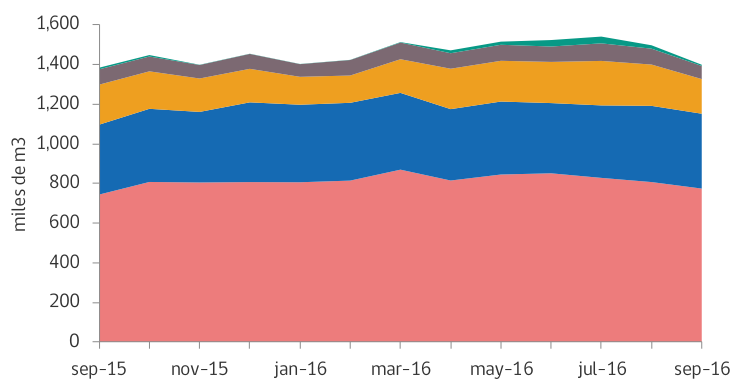
Others: Difference between the total of importations or exportations and the hydrocarbon analyzed in each chart.



7 Fuel Sales

The following information details the evolution and the variation in the sales of the principal oil-based fuels. The information available is presented with a one-month time lag. The fuels analyzed are: domestic kerosene, fuel oils, liquefied gas, diesel oil and unleaded 93-, 95- and 97-octane gas.

Fuel Sales Evolution, by Type



Source: CNE, based on ENAP data

Fuel Sales Variation, by Type

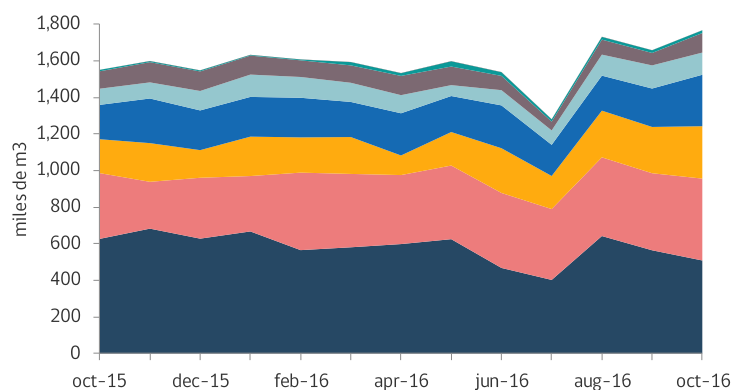
Type	[Thous - m³]	Monthly	Annual
Household kerosene	6	▼ -65.2%	▼ -27.7%
Fuel Oils	66	▼ -17.3%	▼ -14.3%
Liquefied Gas	175	▼ -16.1%	▼ -13.4%
Gasoline	378	▼ -1.8%	▲ 7.1%
Diesel Oil	774	▼ -4.1%	▲ 4.1%
Overall total	1,399	▼ -6.6%	▲ 1.1%

Source: CNE, based on ENAP data

8 Fuel Inventory

The following information presents monthly fuel inventory levels (aviation fuel, household kerosene, fuel oils, aviation kerosene, automotive gas, liquefied gas, diesel oil and crude oil) in thousands of m³ for the entire country. This value corresponds to the last business day of the respective month.

Fuel Inventory Evolution, by Type



Source: CNE

Fuel Inventory Evolution, by Type

Type	[Thous - m³]	Monthly	Annual
Aviation gas	1	▼ -8.4%	▲ 88.7%
Household K	15	▲ 2.1%	▲ 90.9%
Fuel Oils	107	▲ 56.8%	▲ 12.1%
Kerosene Av.	121	▼ -4.0%	▲ 37.3%
Automotive gas	281	▲ 33.9%	▲ 49.7%
Liquefied gas	286	▲ 13.2%	▲ 54.5%
Diesel oil	448	▲ 6.3%	▲ 24.6%
Crude oil	509	▼ -9.9%	▼ -18.8%
Overall total	1,768	▲ 6.6%	▲ 13.9%

Source: CNE



ENERGY PROJECTS UNDERGOING ENVIRONMENTAL EVALUATION

1 Projects Submitted for Environmental Evaluation

In October 2016, 5 energy projects were submitted to the Environmental Impact Evaluation System (SEIA), representing an investment of USD 429 million. Of these, 2 projects are for electric power generation, 1 project is for electrical transmission¹.

Detail of energy projects submitted for environmental evaluation

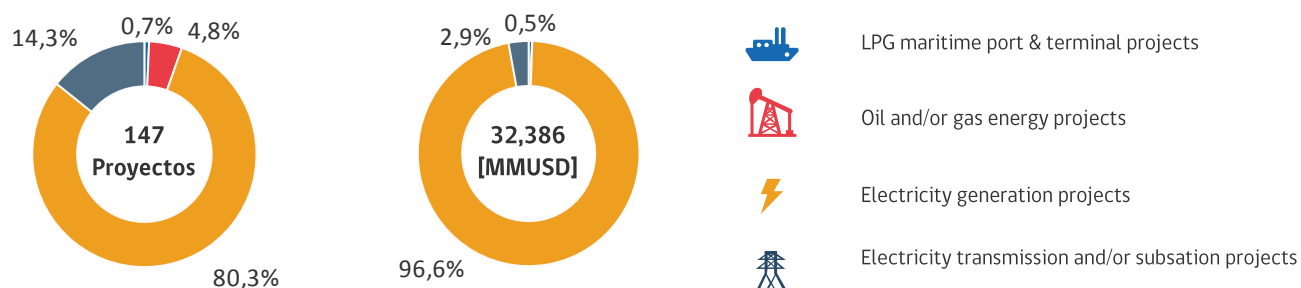
Project Type	Project Owner	Project Name	Presentation Date	Investment [MMUSD]	WEB
Generation	Proyectos Energéticos Nueva Bilbao 1SpA	Planta de generación eléctrica y térmica a partir de biomasa forestal	20-oct-2016	12,0	Link
Generation	ENGIE Energía Chile S.A.	Central a Gas Natural Las Arcillas	03-oct-2016	400,0	Link
Substation	Sistema de Transmisión del Sur S.A.	Proyecto Llollehue	19-oct-2016	15,0	Link
Oil and/or gas energy projects	Empresa Nacional del Petróleo – Magallanes	Fracturación Hidráulica de Pozo Cahuil ZG-1	07-oct-2016	1,0	Link
Oil and/or gas energy projects	GeoPark Fell SpA	Estimulación hidráulica pozos Ache 3 y Ache 4	14-oct-2016	1,0	Link

Source: SEIA

2 Energy Projects Currently Being Evaluated

In October 2016, **147** energy projects awaiting approval of their environmental qualification resolutions (RCA). Of these, **80%** are projects related to electric power generation, and the remaining are mixed projects. Together they represent a total investment of **32,386 MMUSD**.

Distribution of Projects and their Investment [millions of USD]



Source: SEIA



3 Projects with Approved Environmental Qualification Resolution

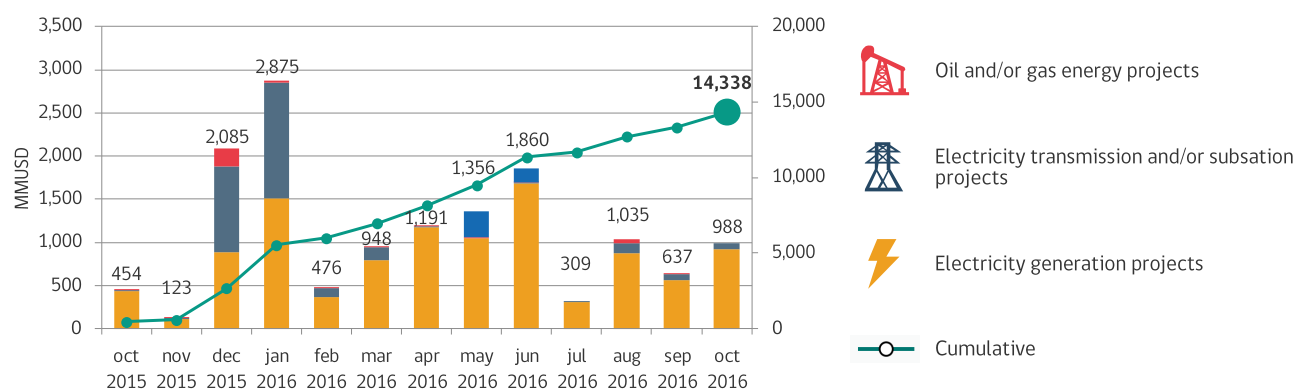
In October 2016, the environmental qualification resolutions (RCA) of 8 energy projects were approved. Of these, 7 projects are for electric power generation with total capacity of 462 MW and 1 projects are for electricity transmission¹ and 0 project is for oil and gas. Together they represent a total investment of USD 538 million.

Presentation Date	Project Type	Region	Project Owner	Investment [MMUSD]	Web
03-oct-2016	Generation	VI	EL QUEULE SPA	11,0	Link
04-oct-2016	Generation	IV	PRIME ENERGIA SPA	50,0	Link
04-oct-2016	Generation	III	ACCIONA ENERGÍA CHILE SpA	283,0	Link
07-oct-2016	Generation	V	GR Guayacan SpA	11,0	Link
07-oct-2016	Generation	V	GR Lingue SpA	10,0	Link
24-oct-2016	Generation	III	Parque Solar Fotovoltaico Domeyko Spa	90,0	Link
28-oct-2016	Generation	VI	Hidroeléctrica La Higuera S.A.	12,0	Link
14-oct-2016	High-voltage electricity transmission line	II	E-CL S.A.	70,50	Link

Source: SEIA

In line with the above table, the evolution is presented for the last mobile year of investment associated to energy projects have received a favorable RCA. The total investment to date totaled USD 14,338 million. In particular, energy power generation projects have a total investment of USD 10,655 million (74.3%), equivalent to 5,483 MW approved.

Investment evolution—Approved projects with RCA in the last 12 months



Source: SEIA

¹ The high-voltage electricity transmission line and substation projects are included in the electricity transmission projects.



SECTORIAL REGULATIONS

1 Proposed Legislations in Process

Bulletin Number	Subject of the Proposed Legislation	Initiative and Urgency	Current Status	Bill Submittal Date	WEB
9890-08	Amends Decree-Law No. 323 of 1931 of the Ministry of Interior and other laws.	Extreme Urgency	Second Constitutional Procedure (Senate). Approved in general discussion. Delivered bulletin with indications on 02/09/2016.	29/01/2015	Link

2 Sectorial Regulations Published in the Official Bulletin

Decree No. 128, dated September 27th, 2016, which approves regulation for pumping power plants whit out hydrological variation, was published in the Official Bulletin on October 12th, 2016. [Link](#)

Exempt Resolution No. 17, dated September 30th, 2016, from the Ministry of Energy, which sets up the Strategic Environmental Evaluation Procedure for the 2050 Energy Policy for Aysén region, published on the official bulletin on October 13th, 2016. [Link](#)

Exempt Resolution No. 18, dated October 14th, 2016, from the Ministry of Energy, were is launched the subscription process for the citizen participation into the Long-Term Energetic Planning Process under Law No. 20,936 and establishes its terms and conditions was published on October 19th, 2016. [Link](#)

Exempt Resolution No. 567, dated October 7th, 2016, from the Electricity and Fuels Superintendence, which sets up an Organism and Laboratories Monitoring Unit was published on October 25th, 2016. [Link](#)

Exempt Resolution No. 713, dated October 19th, 2016, from the National Energy Commission, were is attached the Technical Normative with the Security and Service Quality Requirements, was published on October 25th, 2016. [Link](#)



3 Sectorial Regulations Not Published in the Official Bulletin

Exempt resolution No. 717, dated October 19th, 2016, sets for all the legal and administrative effects the appointment of the first Independent Coordinator from the National Electricity System, carried out by the Special Nomination Committee, according to the memorandum. [Link](#)

Exempt resolution No. 724, dated October 24th, 2016, defines a new methodology for the estimation of the short-term price for household kerosene, according to article no. 2 of Law No. 19,030, 1991, which creates the Fuel Prices Stabilization Fund.

Exempt resolution No. 731, dated October 25th, 2016, which reports the parameters contained in the tariffs fares formulas, applicable to supplies subject to those prices fixation.

Exempt resolution No. 733, dated October 26th, 2016, meeting process for the conformation of the Civil Society Consultant Council of the National Energy Commission. [Link](#)

Exempt resolution No. 734, dated October 26th, 2016, which modifies the Exempt Resolution No. 668, and set the special procedure for the correct implementation of the ad-hoc process in defining the mandatory execution transmission zone installations, to which refers the 13th transitory article of Law No. 20,936. [Link](#)

Exempt resolution No. 736, dated October 27th, 2016, which declares and updates the power plants and the transmission projects under construction. [Link](#)

4 Expert Panel Rulings

During the period , the Panel of Experts did not issue any ruling.

Comisión Nacional de Energía

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