



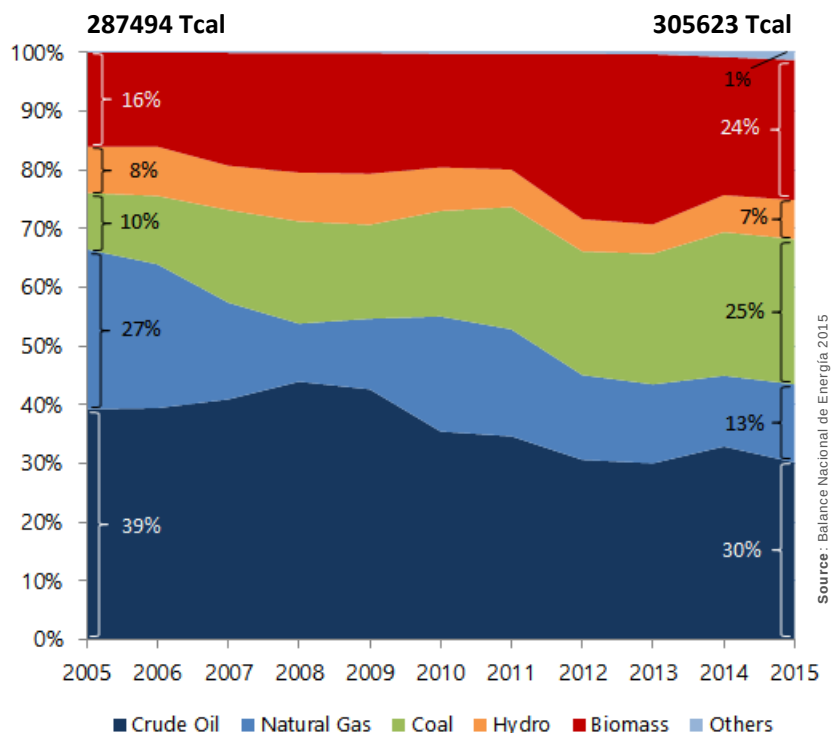
Chile's Update

OIL AND GAS SECURITY

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Oil and Gas Supply and Demand Situation

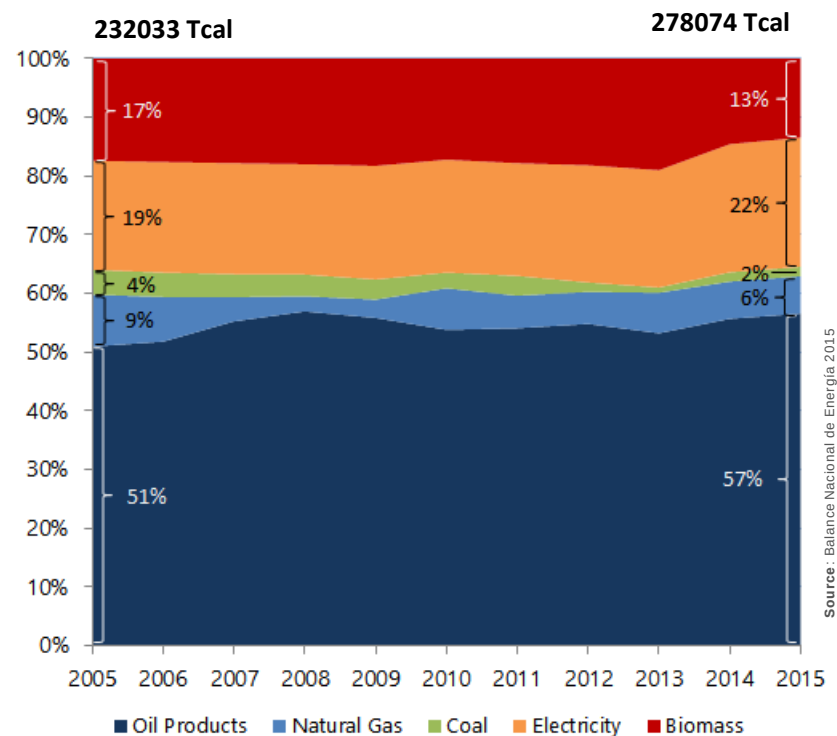
Primary Supply, 2005 - 2015



Energy Sources	Average Annual Growth Rate
Crude Oil	-2%
Natural Gas	-2%
Coal	11%
Hydro	0%
Biomass	7%
Others	118%

Others: Wind Energy, Solar Energy and Biogas.

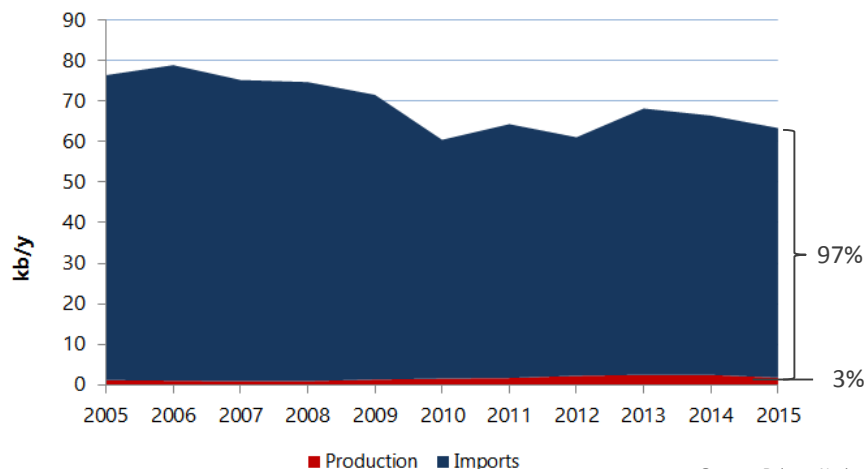
Final Energy Demand, 2005 - 2015



Energy Sources	Average Annual Growth Rate
Oil Products	3%
Natural Gas	6%
Coal	-3%
Electricity	4%
Biomass	0%

Oil and Gas Supply and Demand Situation

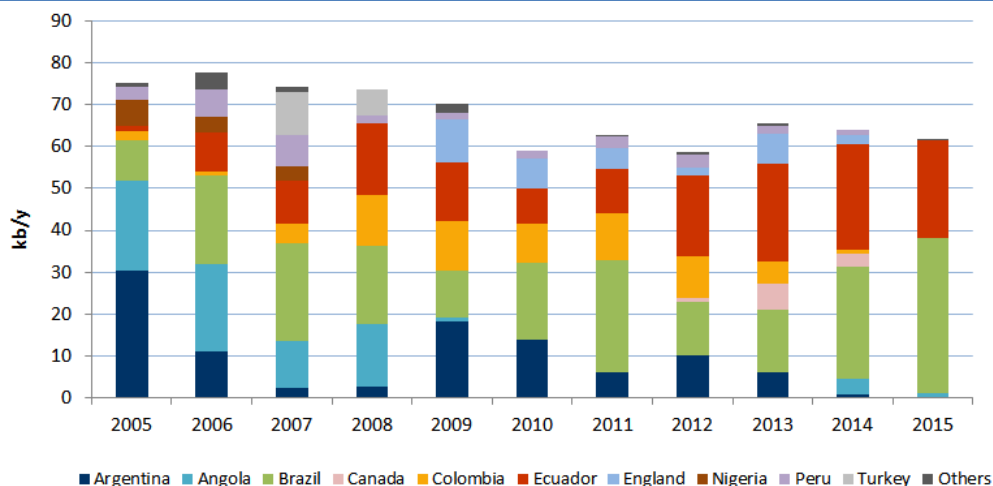
Crude Oil Production and Imports, 2005 - 2015



Source: Balance Nacional de Energía 2015

- Despite the existence of domestic production, the country is in essence a net importer.
- Chile does not export crude oil.
- Import levels and origins are governed basically by price.

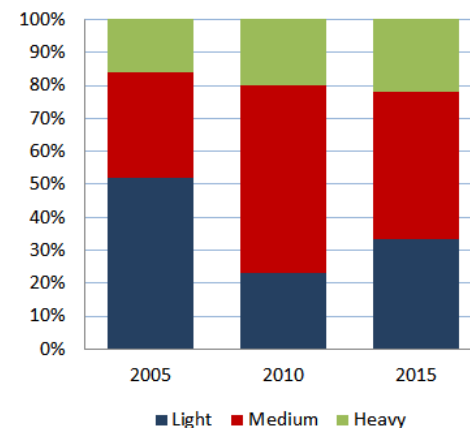
Crude Oil Imports by Origin



Source: Cámara de Comercio de Santiago.

Others: Australia, Bolivia, Malaysia, Thailand and Gabon.

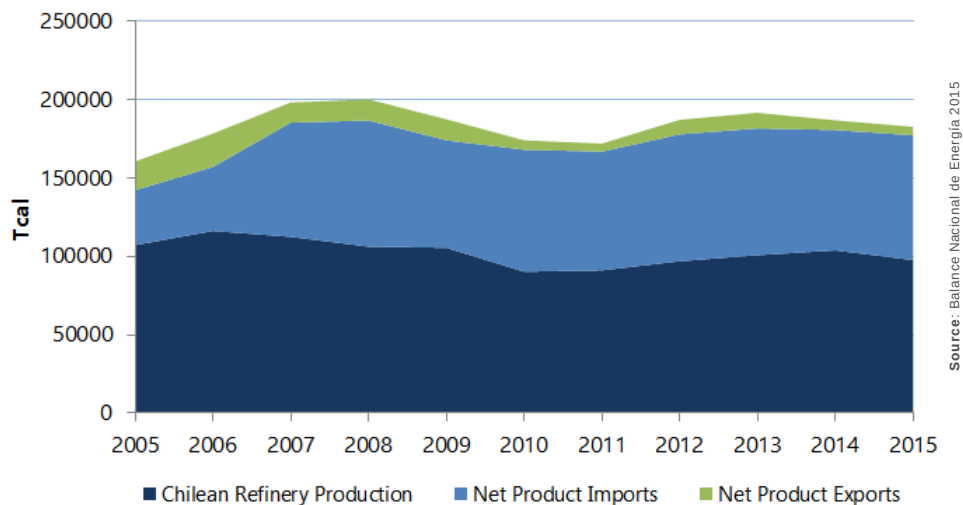
Types of Crude Oil Imported



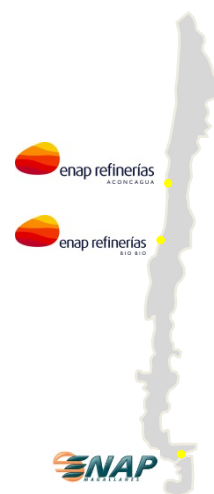
Source: Cámara de Comercio de Santiago.

Oil and Gas Supply and Demand Situation

Refinery Production, 2005 - 2015

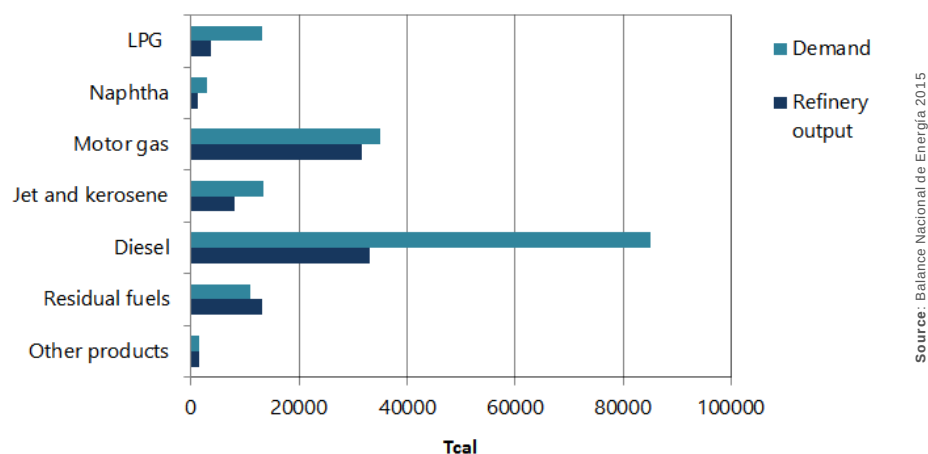


Refinery Capacity

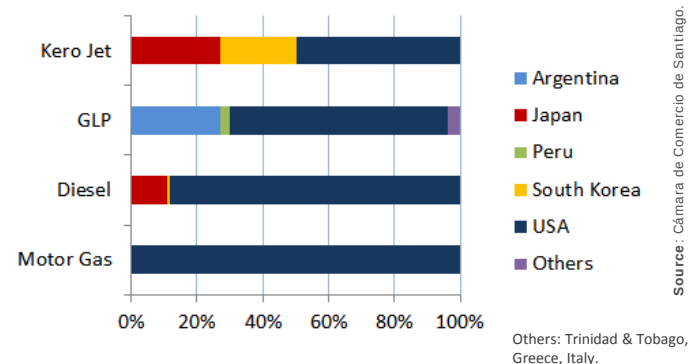


Refinery	Processing Capacity (kb/d)		
	2000	2008	2015
Aconcagua	88	104	104
Bío Bío	101	116	116
Gregorio	13	18	18

Refining Output vs. Demand, 2015



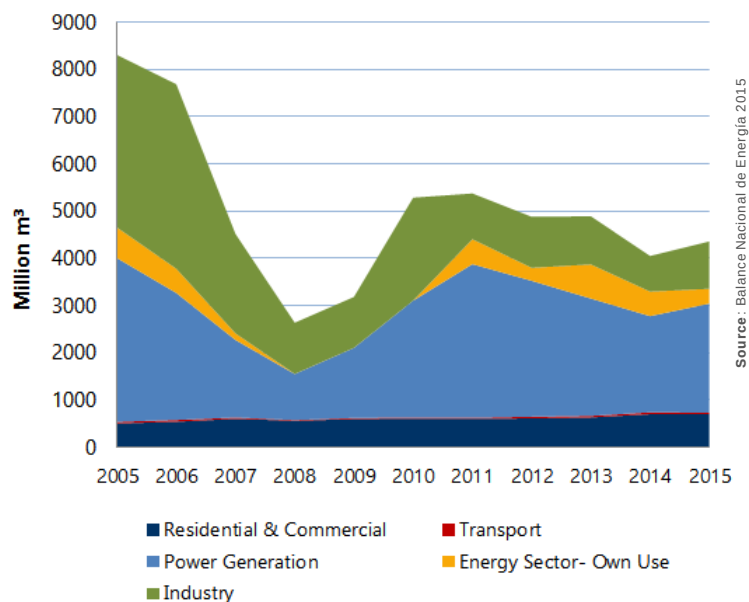
Oil Products Imports by Origin, 2015



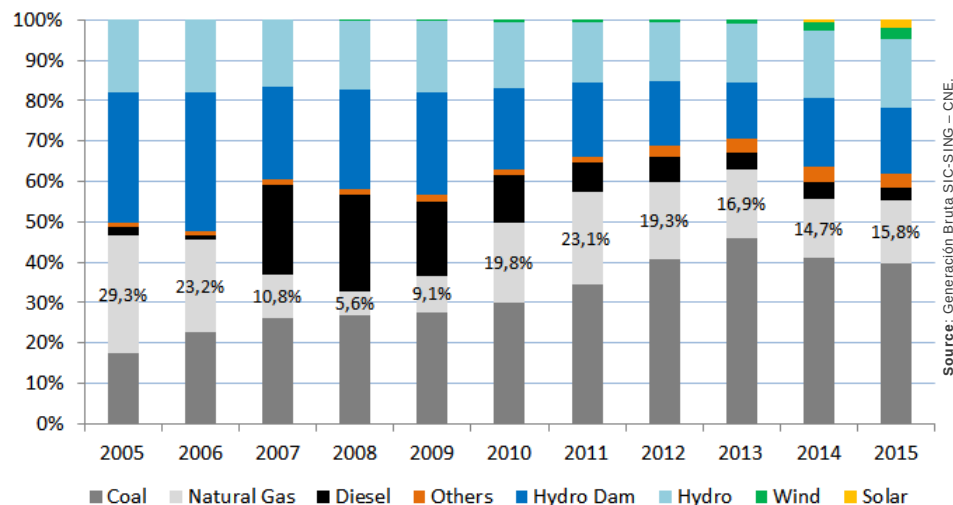
- In 2015, Chile only exported **fuel oil**, which went to Panama

Oil and Gas Supply and Demand Situation

Natural Gas Demand by Sector, 2005 - 2015



Share of Natural Gas in Power Generation Mix, 2005 - 2015



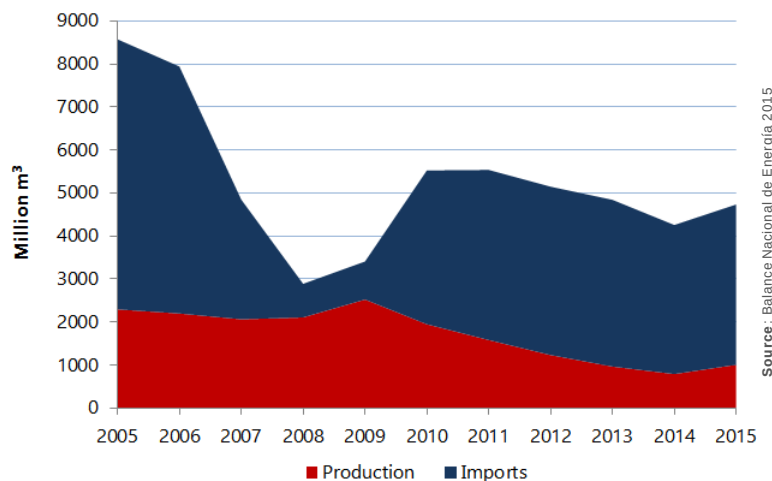
Others: Includes Petcoke, Cogeneration, Biomass

	Electric generation [GWh]										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Natural Gas	14857	12446	6057	3184	5190	11619	14425	12737	11543	10319	11389
Total	50788	53733	56171	56688	57034	58669	62354	65980	68483	70342	72145

- During 2007-2008 Chile experienced extreme drought, and the almost complete interruption of natural gas supply from Argentina (imports continued for residential and commercial sector)
- 2009: Quintero LNG terminal commissioning.
- 2010: Mejillones LNG terminal commissioning.

Oil and Gas Supply and Demand Situation

Natural Gas Production and Imports, 2005 - 2015



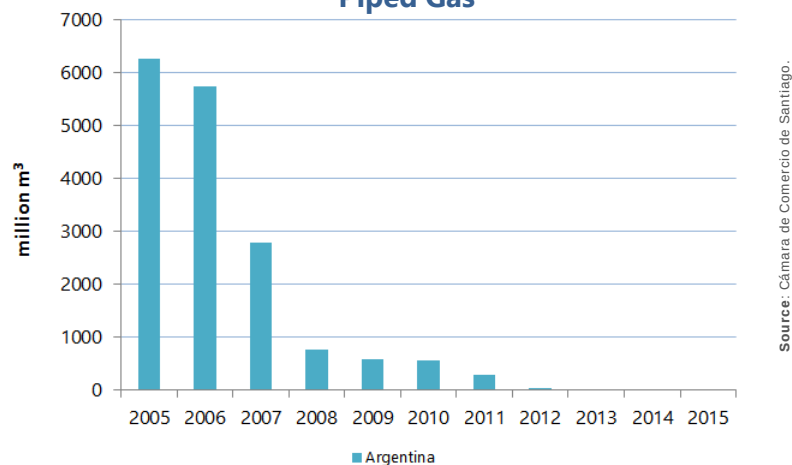
- The domestic production of natural gas is only consumed in the Magallanes Region, the southernmost region of Chile.

EXPORTS:

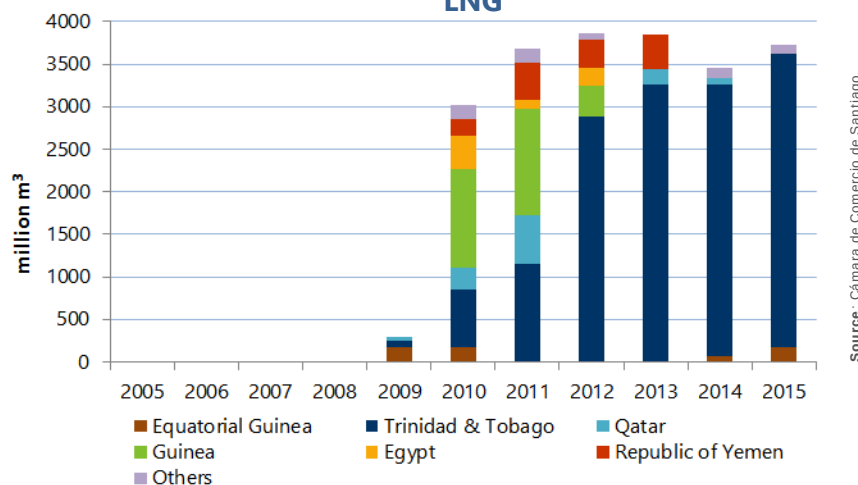
- In 2016, **373 million m³** of natural gas (8% of the LNG imported in 2016) were **exported to Argentina** via gas pipelines. This was the first time that Chile exported natural gas.
- An average of 3 million m³ per day is programmed for the period June-August 2017.

Natural Gas Imports by Origin

Piped Gas



LNG



Oil and Gas Supply and Demand Situation



Transnational Gas Pipeline	Capacity [million m ³ /d]	Length [km]	Operation Status for Gas Imports/Exports
Norandino	7.8	1056	Operational in 2016 solely for exports to Argentina
GasAndes	10.8	541	Operational as at 2017 exclusively for exports to Argentina
Gas Pacífico	6	674	Sporadic operation for minimum quantities imported from Argentina

- To date there are no transnational pipeline projects.

	Terminal	Regasification Capacity [million m ³ /d]	Date of Operation
Existing	Mejillones LNG	5.5	July 2009
	Quintero LNG	15	June 2010
Proposed	LNG Floating Maritime Terminal	10	2019
	Andes LNG	10	2020
	LNG Penco-Lirquén	15	2019
	Talcahuano LNG	8.5	2019

Pemuco and the “Virtual Pipeline”

- Pemuco is a medium sized regasification plant (0.6 million m³/d of gas) located near Concepción.
- LNG supplies are transported by truck from Quintero to Pemuco.

Oil and Gas Security Policy

Oil Stockpiling

Product	Storage* [million m ³]	Days of Stocks 2015
Crude Oil	538	20
Motor Gas	184	16
Kerosene	111	45
Diesel	350	14
Fuel Oil	111	39
LPG	196	36

*Average January-December 2015.

Indicators to Gauge Supply Security

- Supply/Demand Monitoring by **weekly reports** on projections:
 - Oil Products: Imports, refinery production, stocks and demand.
 - Gas Imported: Imports, regasification, stocks and demand.
 - Gas Production: Production, demand and line-pack.
- Supply Monitoring of Gas & Oil Production by **monthly reports**.
- The stock level is monitored to accomplish the following:
 - Oil products: 25 days
 - Gas: 10 days

- Oil industry participants currently have the obligation to hold stocks.
- Article 7 of Decree with Force of Law N° 1 of 1978 of the Ministry of Mining states the following:

“Every producer or importer of liquid, petroleum-based fuels is required to maintain an average stock of each product which is equal to **25 days of average sales** during the previous six months or average imports for the same period of time, if it is for own consumption.”
- Chile’s acknowledges that the current 25-day stockholding obligation **needs to be updated**.
- In the future, under a scenario of low demand for liquid fuels, it may be possible to reduce the stocks requirements that the country needs.

Oil and Gas Security Policy

Oil & Gas Supply Security Framework: National Energy Policy for 2050

The National Energy Policy is sustained by four pillars:



Guidelines set forth in the National Energy Policy:

Develop national, regional and municipal plans for managing risks and emergencies affecting the energy sector that are aligned with other sectorial and national plans.

Increase the security of supply, storage, transport and distributions of fuels.

Promote research into and exploration and exploitation of Chile's hydrocarbon resources.

Oil and Gas Security Policy Gaps

CHILE

Strengthen regional oil and gas security

It is in Chile's interest to maintain regional collaboration with the APEC member economies, with the aim of contributing to keep a bridge of cooperation in technical and emergency response matters. This collaboration will allow economies to provide public value to emergency management in the different phases of the risk cycle, with relevance in the preventive phase. Chile's experience could greatly contribute to strengthening APEC's regional work in this area, as well as to the exchange of best practices among individual economies.



Chile's Update

OIL AND GAS SECURITY

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