

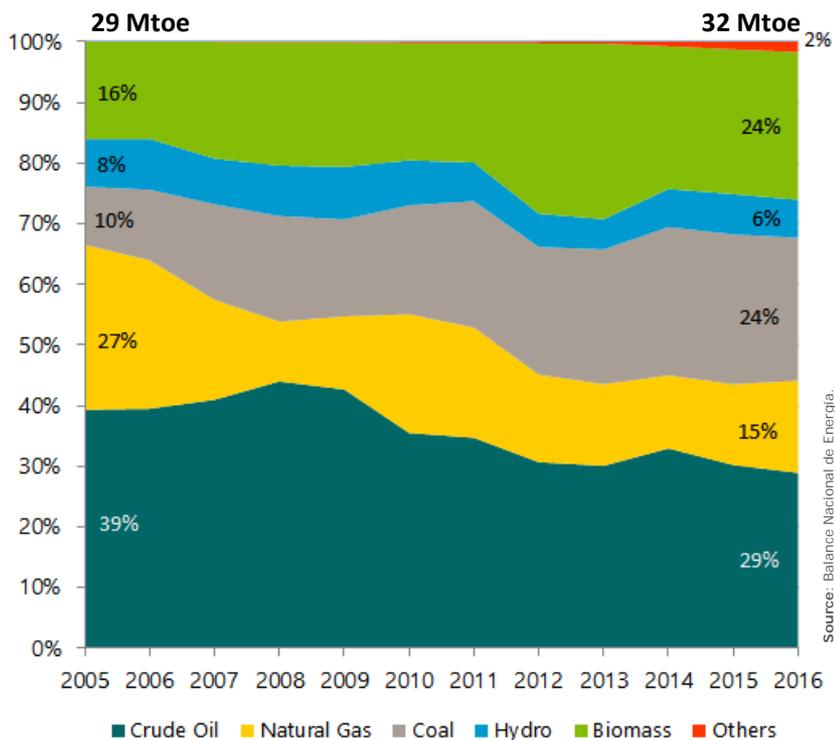


Update on OIL AND GAS SECURITY Chile

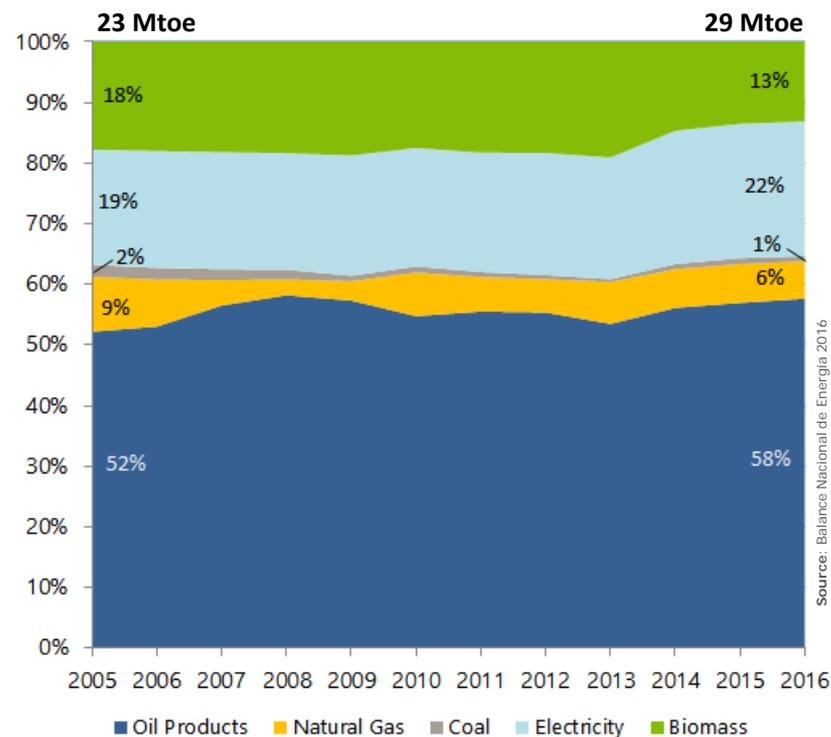
María Valenzuela
Engineer of Energy Security and Market Division
Ministry of Energy / Government of Chile

Oil and Gas Supply and Demand Situation

Primary Energy Supply, 2005 - 2016



Final Energy Demand, 2005 - 2016



Others: Wind Energy, Solar Energy and Biogas.

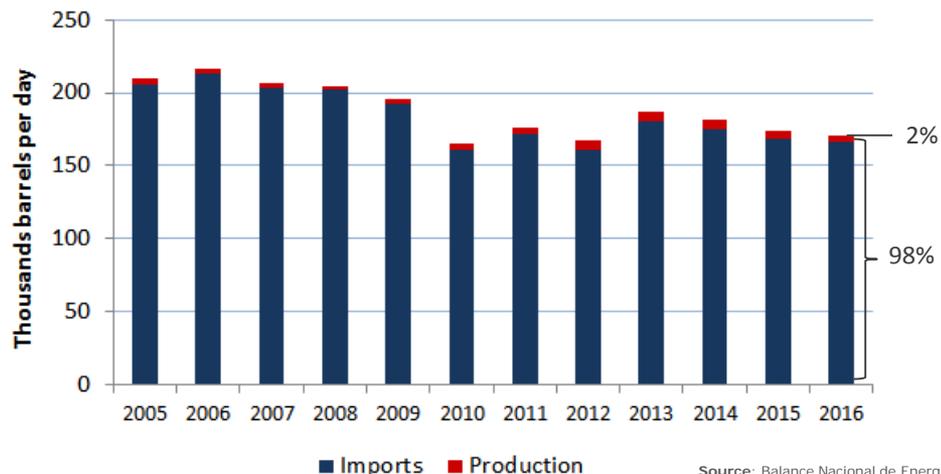
	AAGR
Crude Oil	-2%
Natural Gas	0%
Coal	10%
Hydro	-1%
Biomass	6%
Others	108%

	AAGR
Oil Products	3%
Natural Gas	6%
Coal	-2%
Electricity	4%
Biomass	0%

AAGR: Average Annual Growth Rate

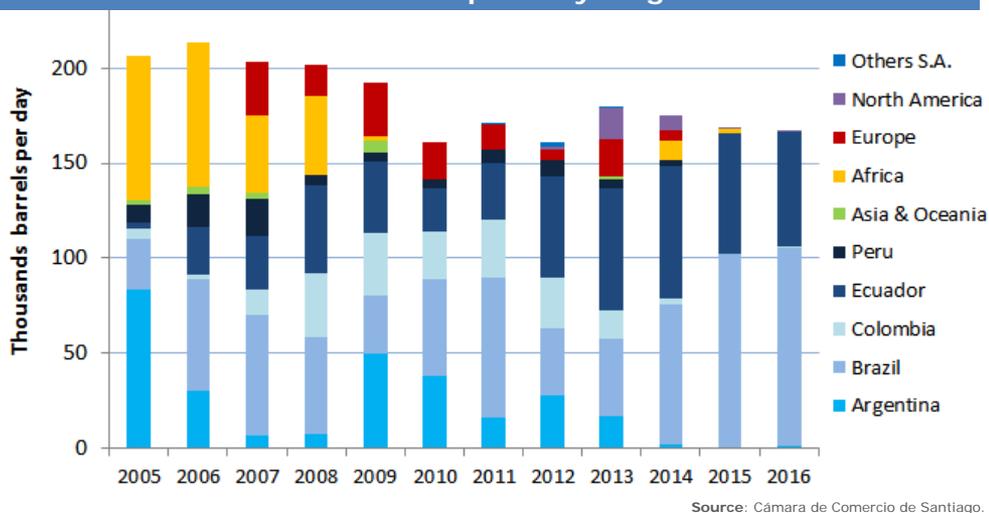
Oil and Gas Supply and Demand Situation

Crude Oil Production and Imports, 2005 - 2016

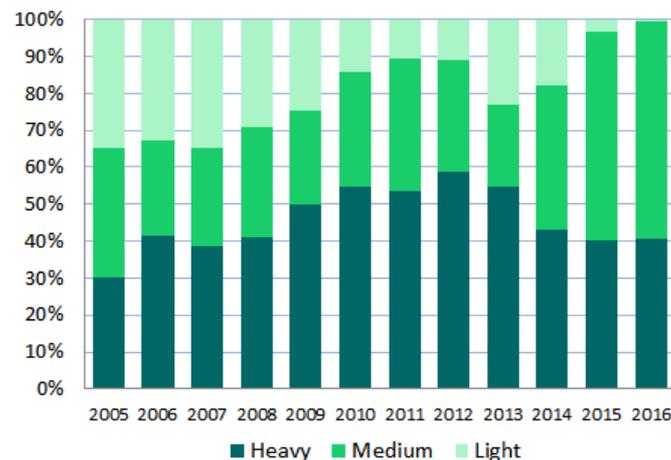


- Despite the existence of domestic production, the country is in essence a net importer.
- Chile does not export crude oil.
- The total share of South American countries in crude oil imports has grown from 62% in 2005 to 98% in 2016.

Crude Oil Imports by Origin



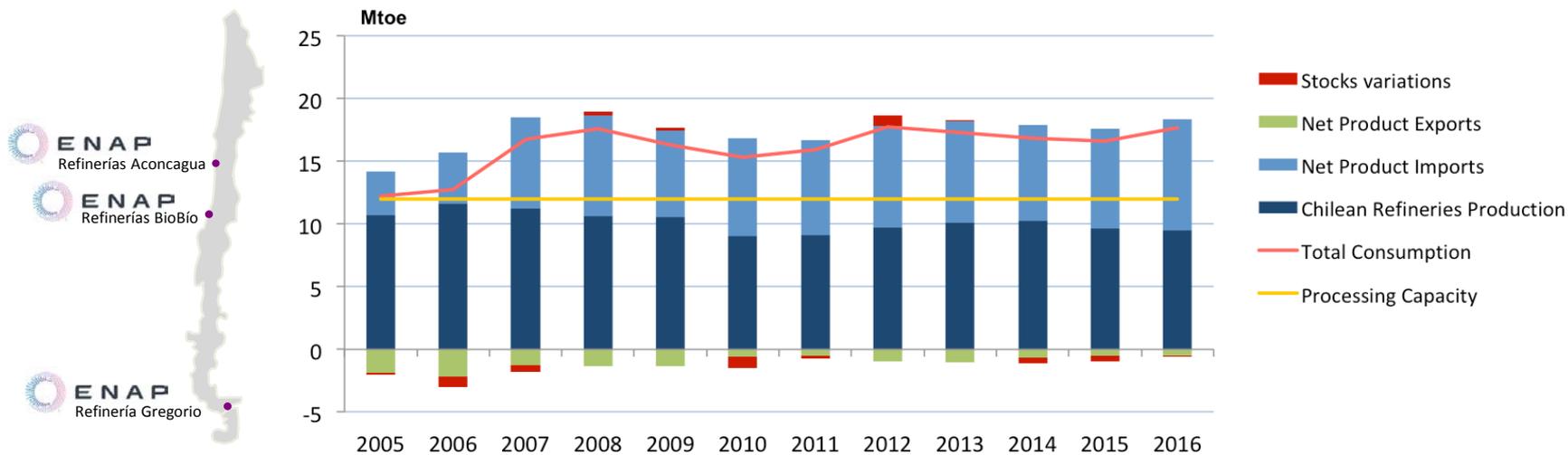
Types of Crude Oil Imported



Others South America: Bolivia and Trinidad & Tobago.

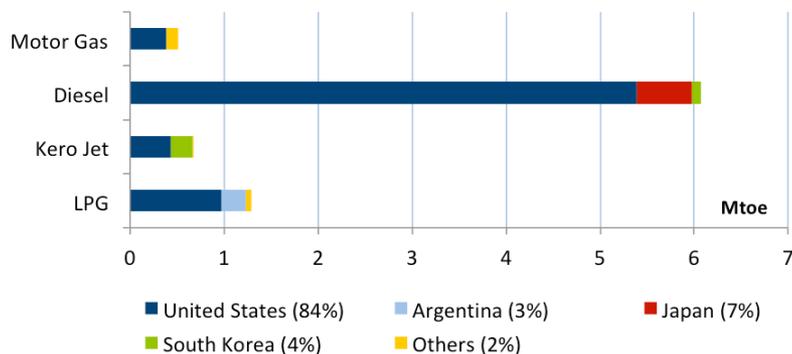
Oil and Gas Supply and Demand Situation

Refinery Production, 2005 - 2016



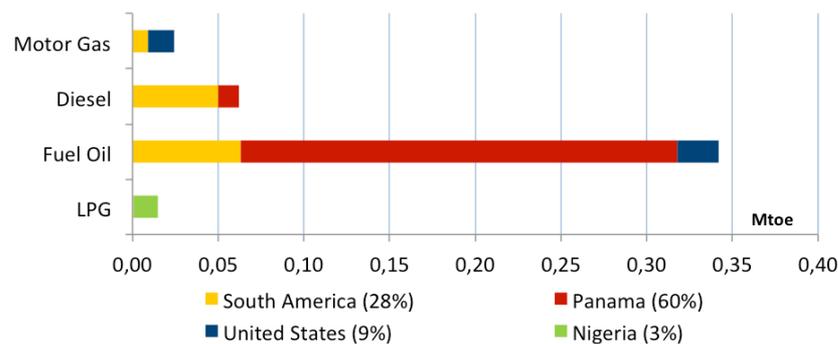
Source: Balance Nacional de Energia

Oil Products Imports by Origin, 2016



Source: Cámara de Comercio de Santiago.

Oil Products Exports by Destination, 2016

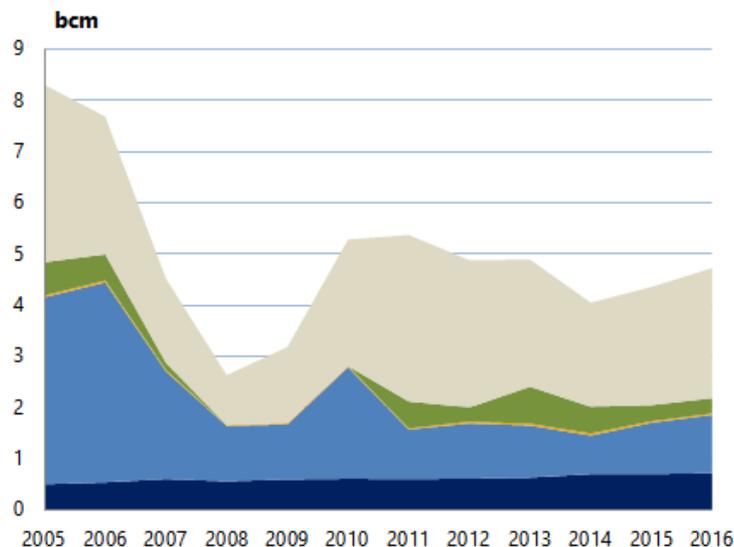


Source: Cámara de Comercio de Santiago.

Others: Peru, Norway, Germany, Netherlands and Spain.

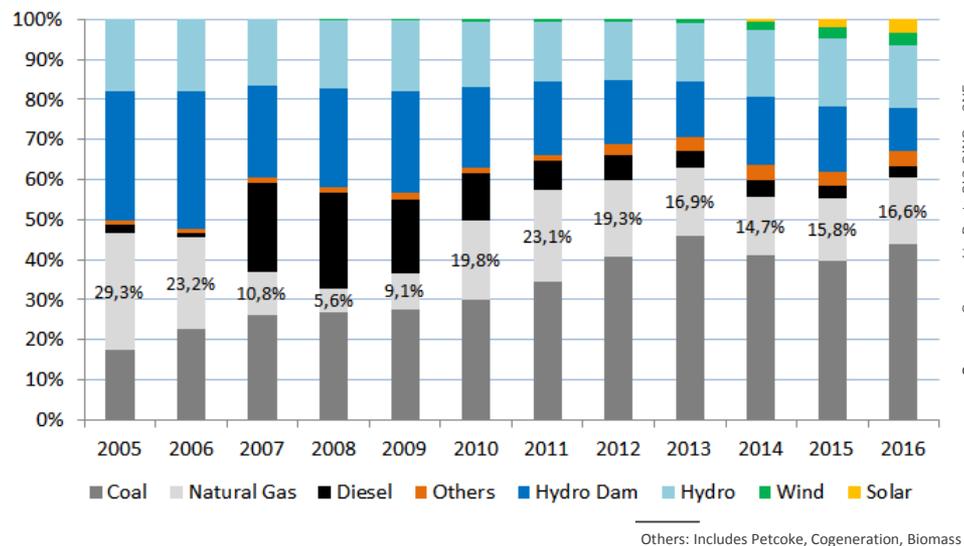
Oil and Gas Supply and Demand Situation

Natural Gas Demand by Sector, 2005 - 2015



- Residential & Commercial
- Industry
- Transport
- Energy Sector- Own Use
- Power Generation

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

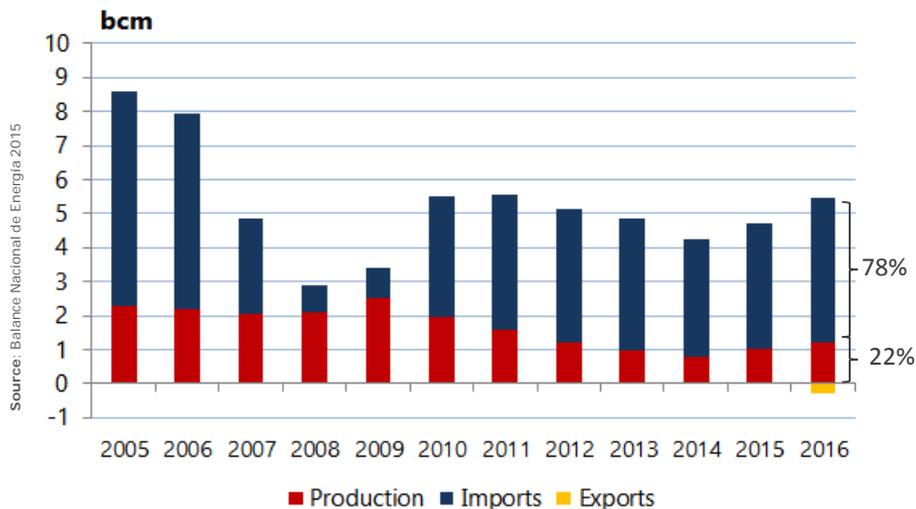


	Electric generation [GWh]											
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Natural Gas	14857	12446	6057	3184	5190	11619	14425	12737	11543	10319	11389	12287
Total	50788	53733	56171	56688	57034	58669	62354	65980	68483	70342	72145	73855

- 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)
- As a result of that situation, power generators switched to diesel. Then the electric system set to coal and recently to renewable energy, whereas industry switched to oil.
- As a countermeasure, two onshore liquefied natural gas (LNG) regasification terminals were developed in a public-private partnership and since 2010 has Chile depended on imported LNG for its gas supply.

Oil and Gas Supply and Demand Situation

Natural Gas Production and Imports, 2005 - 2015

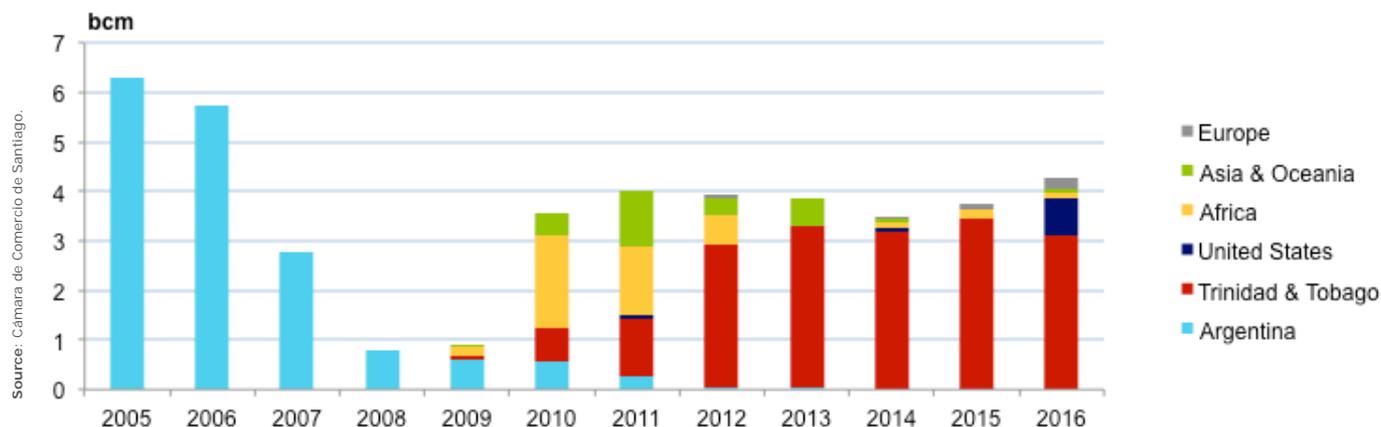


- Domestic natural gas is produced in the Magallanes Region, the southernmost region of Chile, and is also used to meet local electricity and heating demand.

EXPORTS:

- In 2016, 7% of the imported LNG was **exported to Argentina** via gas pipelines. This was the first time that Chile exported natural gas.

Natural Gas Imports by Origin



SOURCES

- Piped Gas:**
 - Argentina
- LNG:**
 - Other countries

Oil and Gas Supply and Demand Situation



Source: Energy Policies Beyond IEA countries – Chile 2018 review.

Transnational Gas Pipeline	Capacity [mcm/d]	Length [km]	Operation Status for Gas Imports/Exports
Norandino	7.8	1056	Operational since 2016 solely for exports to Argentina
GasAndes	10.8	541	Operational as at 2017 exclusively for exports to Argentina
Gas Pacífico	6.0	674	Sporadic operation for minimum quantities imported from Argentina and for the last swap
Cóndor-Posesión	2.0	9	Sporadic operation for imports from Argentina
Cóndor-Posesión 2	2.5	9	Sporadic operation for imports from Argentina

- To date there are no transnational pipeline projects.

Status	Terminal	Regasification Capacity [mcm/d]	Date of Operation
Existent	Mejillones LNG	5.5	July 2009
	Quintero LNG	15	June 2010
Projected	Andes LNG	10	2020
	LNG Penco-Lirquén	15	2020 (estimated)
	Talcahuano LNG	8.5	2019

Oil and Gas Security Policy

Oil Stockpiling

Product	Storage [Thousands m ³]	Days of Stocks 2017
Crude Oil	518	19
Motor Gas	242	19
Kerosene	110	24
Diesel	404	15
Fuel Oil	71	23
LPG	242	38

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.
- 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**.

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.



Thank you

**Update on OIL AND GAS SECURITY
Chile**

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