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OVERVIEW OF THE CHILEAN NATURAL GAS INDUSTRY

25th APRIL 2019

BACKGROUND

ABOUT US //
NATURAL GAS ASSOCIATION CHILE

We are a trade association that was formed in 2002, **to foster the development of the natural gas industry** in Chile, promote the use of this energy resource in our country and be the link between the private sector and the authorities.

Today the Association represents **10 companies** dedicated to the importation, storage and regasification of LNG, and the transportation, marketing and distribution of natural gas.

AGN has been **a member of the IGU**, representing Chile as a Charter Member, since 2014.

www.agnchile.cl

A BRIEF HISTORY //
THE CHILEAN NG INDUSTRY

Development of national resources (Magallanes)

Argentine NG

Argentine NG Crisis

Arrival of LNG

A new era

1971
ENAP initiates distribution in Magallanes

1981
Gasco Magallanes acquired the assets of ENAP

1995
Chile and Argentina signed a Treaty to allow Gas Integration between both markets

1997-2000
NG distribuion in the central zone of the country started (Gas Andes & Gas. Pacifico Pipelies / Metrogas, GasValpo and GasSur distco's)

2004
Argentina started to reduce NG supplies

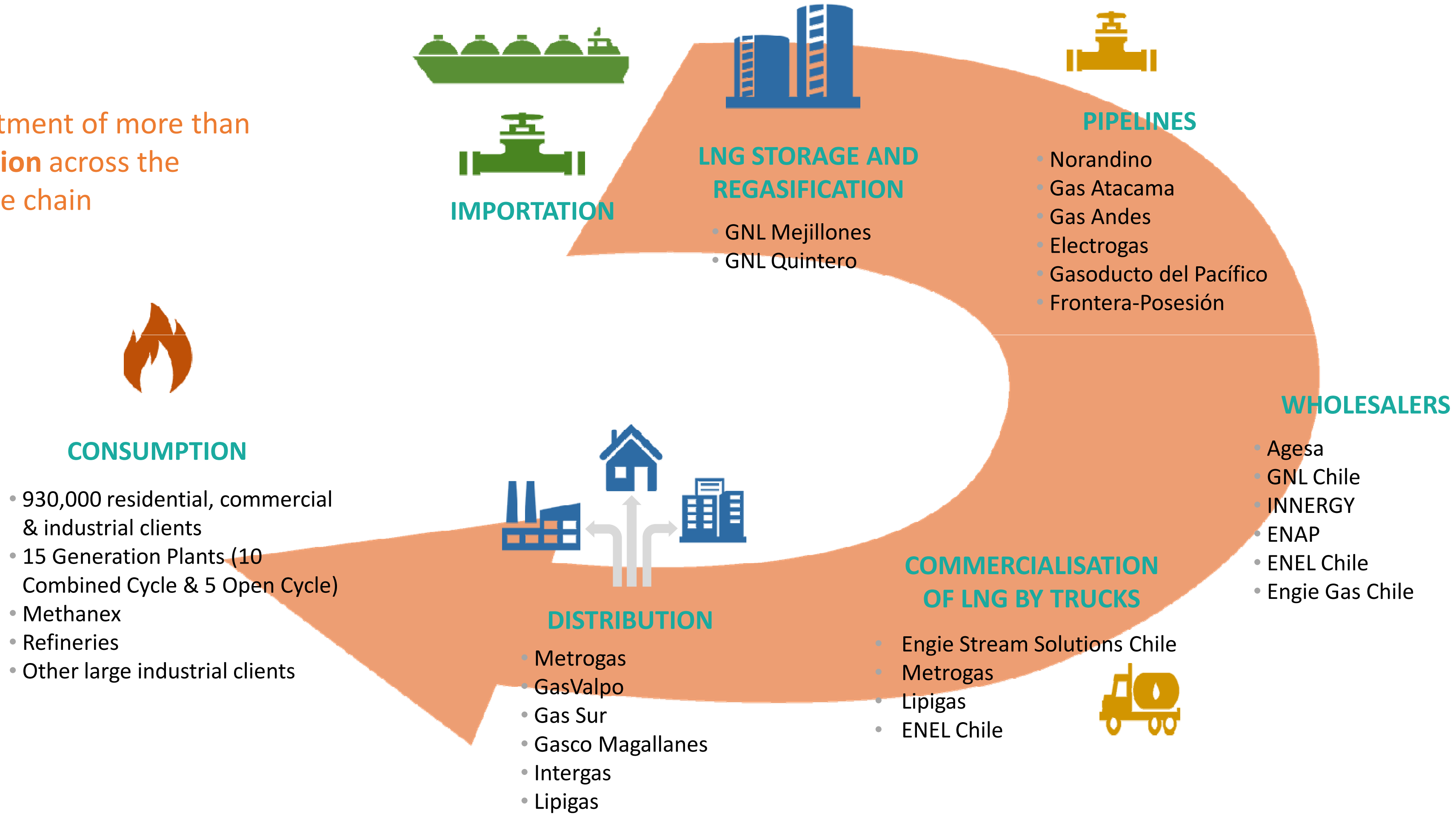
2009
Inauguration of the GNL Quintero terminal

2010
Inauguration of the GNL Mejillones terminal

2018
LNG from the world, and NG from Argentina restarts

THE NATURAL GAS INDUSTRY IN CHILE

Total investment of more than **US$ 12 billion** across the whole value chain



THE CHILEAN GAS MARKET // MAIN CHARACTERISTICS

Most of the NG consumed in Chile between 1997 and 2009 was imported from Argentina through bi-national pipelines, developed by the private sector (All the investment in the gas industry has come from the private sector).

After the 2004 energy crisis in Argentina, gas exports from that country to Chile were rapidly reduced. As a consequence, the gas demand shrank by two-thirds from 2004 to 2008.

Following the crisis, a group of public and private Chilean companies worked together to build LNG terminals to avoid dependence on Argentina.

GNL Quintero was built in the Valparaiso Region and GNL Mejillones in the Antofagasta Region. Plans exist to expand both terminals.

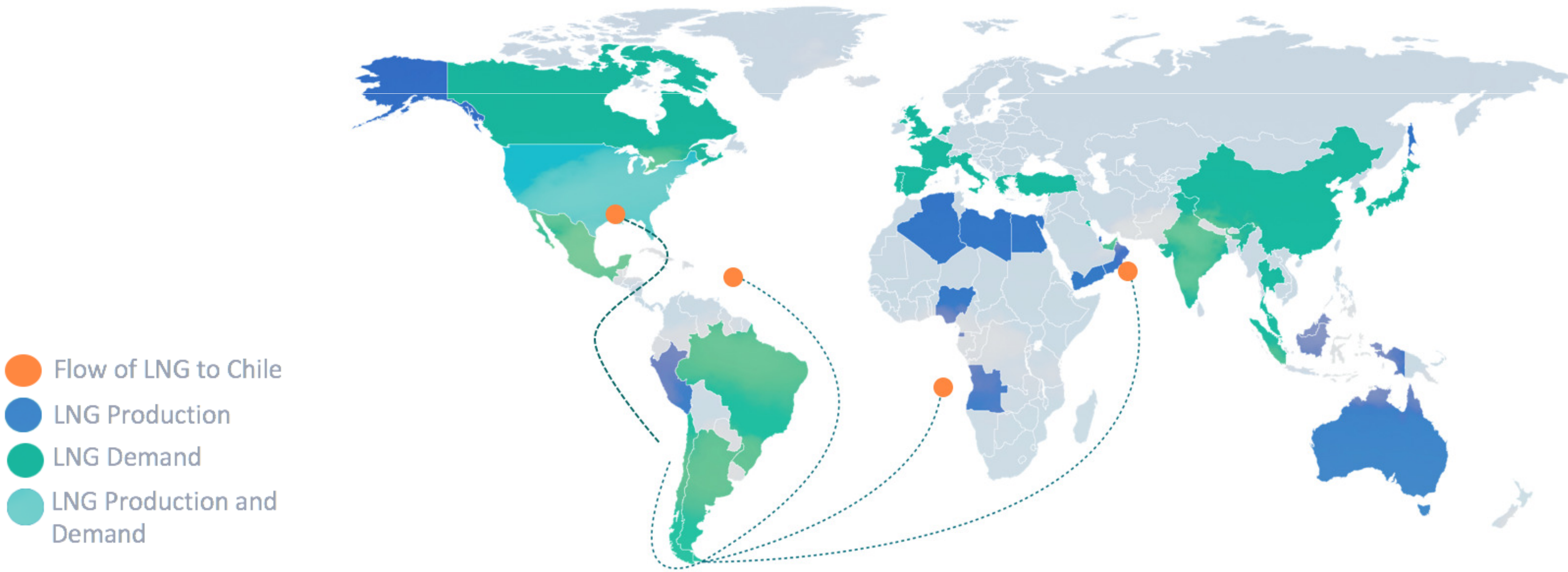
The impulse for a greater presence of natural gas in our energy matrix has been slowed in recent years , and faces a series of barriers in the different segments in which it participates.

CHILE //
IN THE GLOBAL LNG MARKET

LNG has mainly been imported from Trinidad and Tobago, although the percentage has decreased in recent years (92% in 2015 vs. 58% in 2018, of the total of imported LNG).

However, following the development of US Gulf Coast LNG exports, imports from that country have became more relevant (25% in 2018).

The rest came from Equatorial Guinea (17.4% in 2018). Some cargoes from Qatar have come in the last years.



THE "NEW" NATURAL GAS INTEGRATION WITH ARGENTINA

SINCE 2016

After several years, Chile and Argentina resume the exchange of natural gas. The countries state-owned production companies (ENAP and ENARSA), agreed to supply natural gas from Chile to Argentina during the "winter" season (May-September), and enable swap exchanges.

IN DECEMBER 2017

Chile and Argentina signed a new agreement enabling the exchange of energy (through swaps) between both countries.

IN AUGUST 2018

Argentina authorized the sale, export, import and transportation of natural gas between both countries, without the obligation to return such volumes.

So far, these operations have been limited to interruptible contracts during the "summer" season (October-April).

Last summer an average of **4,19 MMs/m3 per day** was imported.

THE "NEW" ENERGY INTERGRATION //
WITH ARGENTINA

Winter season: May to September
Summer season: October to April

Source: Enargas

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PRINCIPAL CHALLENGES AND OPPORTUNITIES IN THE CHILEAN NATURAL GAS SECTOR

A. IN THE ELECTRICITY GENERATION SECTOR

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Challenges for the flexibility of the electrical system in the face of the increasing incorporation of Variable Renewable Energies (VRE) and the phasing out of coal-fired power plants. The installed capacity of coal-fired and gas-fired power plants is very similar, however in 2018, only 27% of the installed capacity of gas-fired power plants was used, compared to the utilization of 63% of the coal-fired plants (NG 4.826 MW; Coal 5.141 MW)

If we want to move towards a decarbonisation of the energy matrix, natural gas can make a large contribution, insofar as it can take the place of coal and diesel generation, following the example of other nations that have managed to reduce their CO2 emissions and exceed their targets.

A. IN THE ELECTRICITY GENERATION SECTOR

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The reduction of CO2 emissions from combined cycles of NG compared to coal-fired plants is 50 to 60%, and 70% in the case of NOx.

It is necessary to appropriately regulate the use and remuneration of flexible services, in which gas fired power plants can contribute to the stability and reliability of the system.

B. INDUSTRIAL SECTOR

Currently only 11% of the energy used in this sector at a national level comes from NG, while in the OECD countries this figure reaches approximately 30%. Its growth in this sector faces some barriers, particularly competition from cheaper fuels that paradoxically are much worse polluters.

Natural gas can help to reduce the carbon footprint of the industrial sector and help tackle the problem of atmospheric pollution that affects much of the country.

The replacement of heavy oils and diesel on an industrial and commercial scale in the Metropolitan Region (RM) largely explains the reduction of PM 2.5 concentrations by a third in two decades. The extrapolation of this situation to other areas of the country with serious environmental contamination problems is a cost-effective option if the benefits in terms of protecting the health of the inhabitants are considered.

It is necessary to implement environmental management instruments (of a similar standard to those already in use in the RM) in other areas of the country.

C. RESIDENTIAL SECTOR

Natural gas accounts for only 12% of the energy consumption in households across the country.

Many cities in central and southern Chile are severely affected by firewood pollution, which has a profound impact on people's health and quality of life, given that the combustion of firewood is the main source of emissions of fine particulate matter (PM 2.5).

The absence of a law that regulates firewood as a fuel makes it more difficult to replace its consumption with more environmentally friendly energy sources, such as natural gas.

D. TRANSPORTATION SECTOR

The adoption of public policies that promote a greater presence of NG (as CNG or LNG) in the transportation sector would be a sign in the favour of energy diversity and show concern for the care of the environment, in addition to offering more options for the consumer. In this regard, it's essential

- To correct the tax distortion that favours the consumption of diesel in the vehicle segment (35% less tax than CNG, in energy terms).
- To stimulate the development of a new market: the use of LNG as a fuel for long haul/heavy duty land transportation (including mining trucks), and bunkers for marine transportation.
- To foster the development of bunkering LNG, in order to lead this new market in the Southern Cone.

E. WITH ARGENTINA

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The design of the regulatory framework to facilitate energy integration has been successful. Nevertheless, there is still a need for greater efficiency and a reduction in the time taken for export permits in Argentina.

The creation of a simple and effective regulation is still pending for gas shipments from Argentina to Chile in emergency situations (e.g. when an earthquake temporarily disables the operation of regasification terminals), which would establish [illegible] and simplified requirements for the authorization of [illegible] shipments in these situations.


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FINAL MESSAGES…

In Chile, one of the core concepts of the Roadmap contained in the 2050 Energy Policy is to encourage the participation of low emission fuels in the energy matrix, assigning a central role to natural gas.

At AGN we are convinced that it is possible to obtain important social and economic benefits with a greater use of natural gas, especially in the regions with increasing environmental problems. The country has a reliable supply of LNG that provides the security the system needs, and an infrastructure (including cross-border gas pipelines with Argentina) that would allow the current consumption levels of natural gas to be increased.

Air pollution is the biggest environmental risk to health. In line with the UN 2030 agenda, air quality should be an integral part of the environmental discussions taking place at COP 25.

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TIME FOR ACTION
COP25
CHILE
2019
UN CLIMATE CHANGE CONFERENCE

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