Reganosa

The role of infrastructures in Natural Gas competitiveness Mugardos LNG Terminal



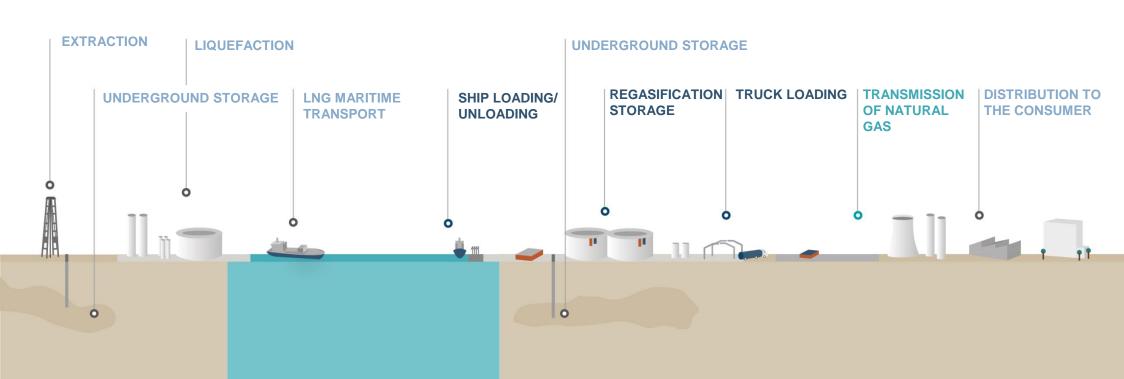
Rodrigo Díaz Ibarra **Development Manager**

► REGANOSA · DEVELOPER AND OPERATOR OF NATURAL GAS INFRASTRUCTURES









MUGARDOS LNG TERMINAL





LNG tanks

2x 150,000 m³



Send-out

3.6 bcm/year



1 jetty

from 15,000 m³ to Q-Max



REGANOSA IS CERTIFIED AS TSO (TRANSMISSION SYSTEM OPERATOR)

This certification allows the company to **plan**, **build and operate main gas pipelines** which are essential for the operation of the system and **ensure the main supply** in Europe



Reganosa's network system has **130 km** of high pressure pipelines (80 barg)

As a member of ENTSOG, Reganosa is involved in the development of the European Plan of Infrastructures of Natural Gas promoting the consolidation of the internal gas market

Also, Reganosa ensures the efficient management and coordinated operation of the European gas network





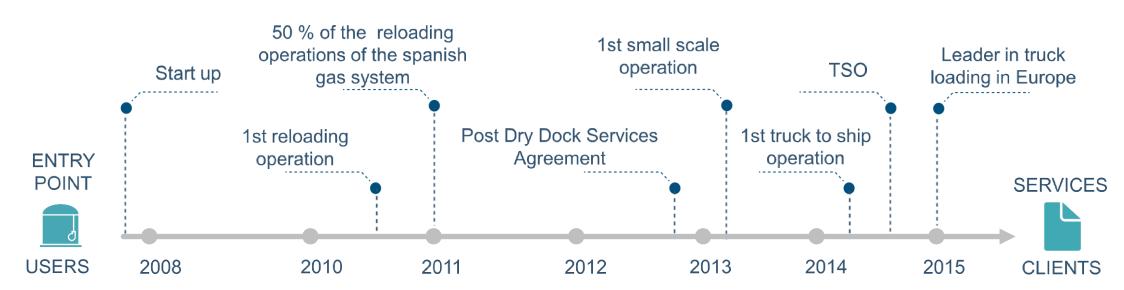


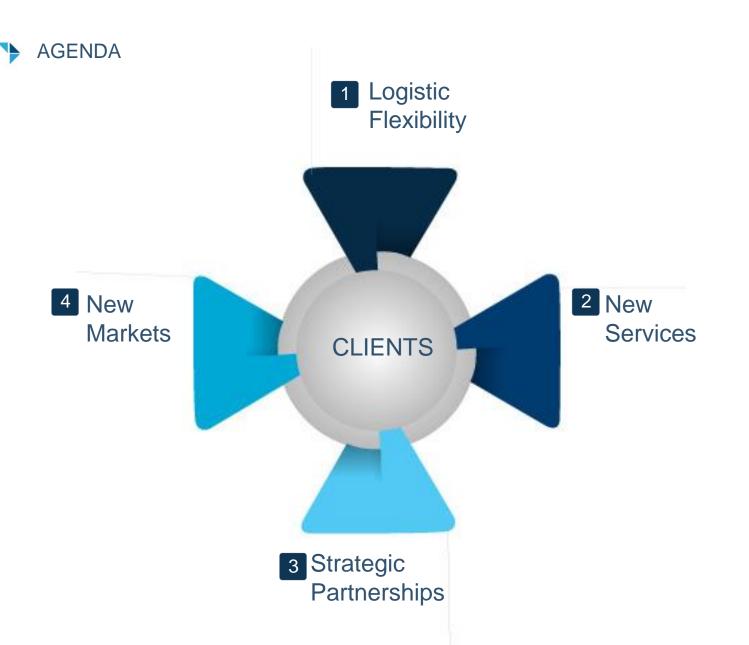
OUR ACTIVITY SINCE 2007













Safety

the priority in all our operations



Flexibility

to offer new services to our customers



Efficiency

developing new tools



MUGARDOS LNG TERMINAL · SHIP ACCESS

Navigation Report MARIN DELTARES 120,000 · 145,000 m³ (Oct 2002 · Jun 2003)



Q-Flex & Atlantic Max (Dec 2009)

Navigation Report CEDEX

Q-Flex, Night (May- Dec 2011)

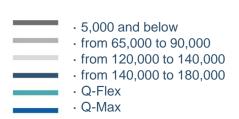
Navigation Report PROES & CEDEX

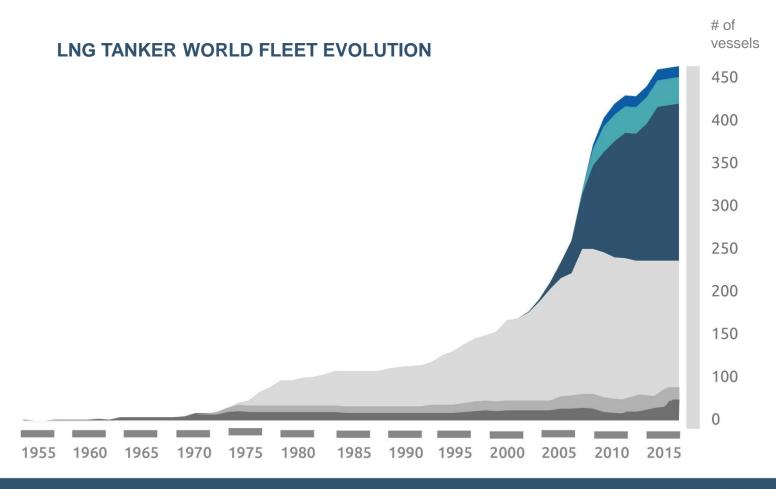
Q-Max (May- Dec 2012)



- · 394 full bridge simulations
- · 81 emergency manoeuvre simulations

Vessel size in m³ of LNG







RELOADING

- First operation in 2010
- 56 operations(37 Cool-Downs)
- 12 different destinations
 (South & Central America, Asia, Europe)

REGANOSA OPERATES WITH























LOGISTIC FLEXIBILITY

POST DRY DOCK SERVICES

- · 37 operations since 2011
- Agreement with the third shipyard in the world repairing LNG vessels to complete the repair cycle
- Promoting the development of the regulatory framework in Spain for new services







TRUCK LOADING



- •Small scale as a solution to cover the demand in those areas away from the gas network
- •Leader in Europe in 2014
- Capacity of 10,000 trucks/ year
- •LNG distribuition to industrial and household consumers



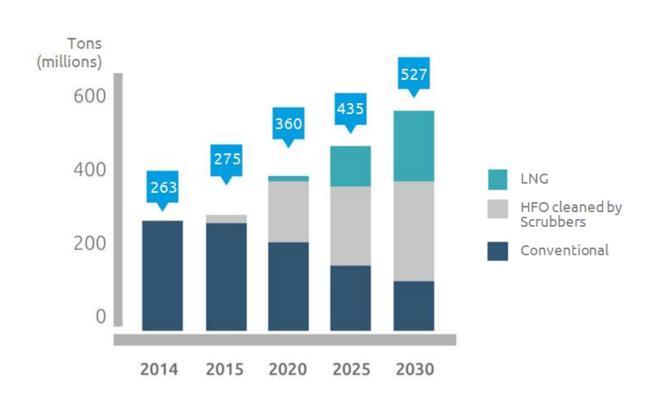
LNG as fuel

Two LNG bunkering operations through tank truck loaded in the Mugardos LNG Terminal

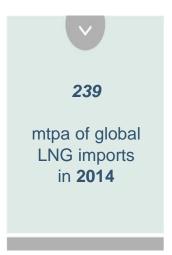


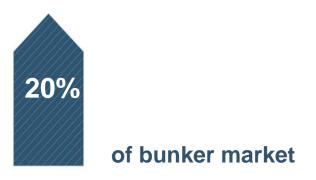
LNG AS FUEL: AN OPPORTUNITY FOR THE NATURAL GAS MARKET

THE FUTURE OF MARINE FUEL (BASE CASE SCENARIO)







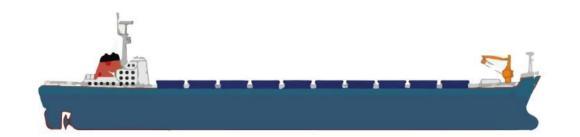


Source: own study from Boston Consulting Group "Forecasting the future of marine fuel" data And GIIGNL "The LNG Industry: 2014" data, March 2015 and April 2015



MEDIUM -SIZED CONTAINER SHIP 6,000 m³ OF LNG

21.3 % of confirmed orderbooks of LNG fuelled vessels are container ships



In 2030, **31.9%** of container ship fuel will be LNG



150 TRUCKS NEEDED





LNG FEEDER AND BUNKER VESSEL



- Required because of the characteristics of the end-user vessels
- Synergies with LNG small scale distribution
- 10,000 m³
- Navigation in North Atlantic zones
- Maximum energy efficiency
- High manoeuvrability
- Maximum transfer rate
- · State of the art LNG tank system

2014

2015

Contractual design

Conceptual design developed by Navantia

Feasibility analysis



MUGARDOS LNG TERMINAL EXTENSION





Adaptation of existing jetty

Second jetty

Third tank

INCLUDED IN THE EUROPEAN
TEN YEAR NETWORK DEVELOPMENT PLAN 2015

CONCLUSIONS

Reganosa, from an entry-point with users, to a client-focused company:

- Logistic flexibility
- New services
- Strategic partnerships
- New markets

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in ▶ /reganosa