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LNG: A Viable Alternative Transport Fuel for Heavy Goods Vehicles

GARneT Project T2011-ES-92136-S - in the field of TEN-T



Cofinanciado por la Unión Europea
Red Transeuropea de Transporte (RTE-T)

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Copenhagen, September 18th 2014

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LNG: A Viable Alternative Transport Fuel for Heavy Goods Vehicles

- 1. Who are we?**
- 2. GARneT Project**





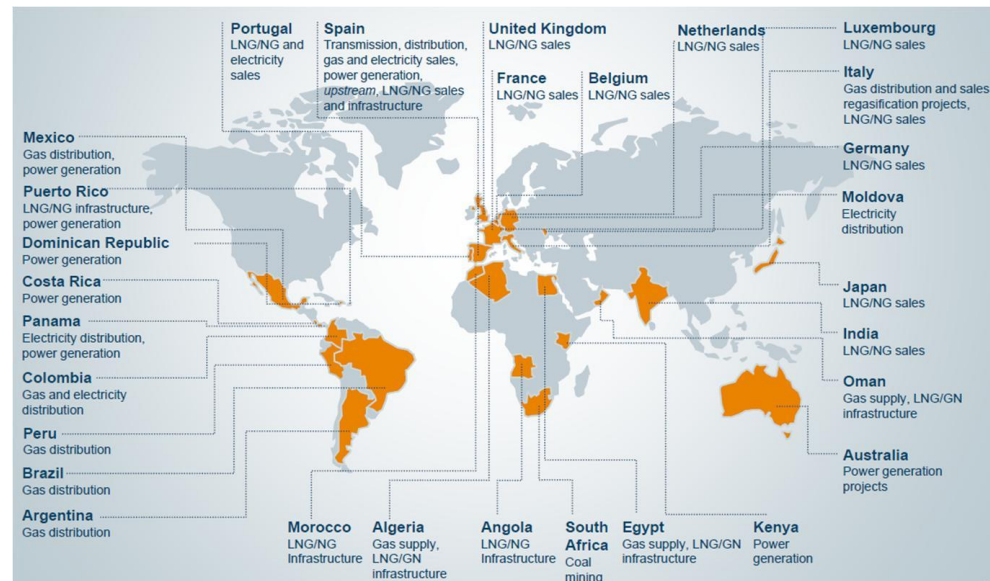
Who are we?

Who are we?

Gas Natural Fenosa is the largest gas and electricity company in Spain and in Latin America, leading the natural gas sales market in the Iberian Peninsula, and is the biggest distributor of natural gas in Latin America. Currently the company is present in over 25 countries and has around 20 million customers worldwide.



1 – Figures 31/12 /2012



- Benchmark operator in the Atlantic and Mediterranean basins with a 30bcm portfolio of LNG and natural gas supplies
- One of the biggest LNG operators in the world
- Fleet of 9 methane carriers
- Investments in 3 regasifiers and in 2 liquefaction plants



GARneT Project

GARneT Project

Outline

Partners

- Gas Natural SDG, S.A.
- Ham Criogénica S.L.

General Objective

A study to determine the required steps to integrate new state of the art developed LNG technologies with smart communication technologies through a feasible deployment plan to facilitate the introduction and future massive use of LNG as alternative transport fuel for HGVs. This study will aim to provide answers to mid and long-term strategy to overcome existing barriers in order to accelerate the deployment of this option.



Budget

- Total Project Budget: 3.87M€
- The European Commission contributes 50% of total budget, 1.936 M€ through the Ten-T annual innovation programme

Duration

- Start Date: 15th April 2012
- End Date: 31st December 2014



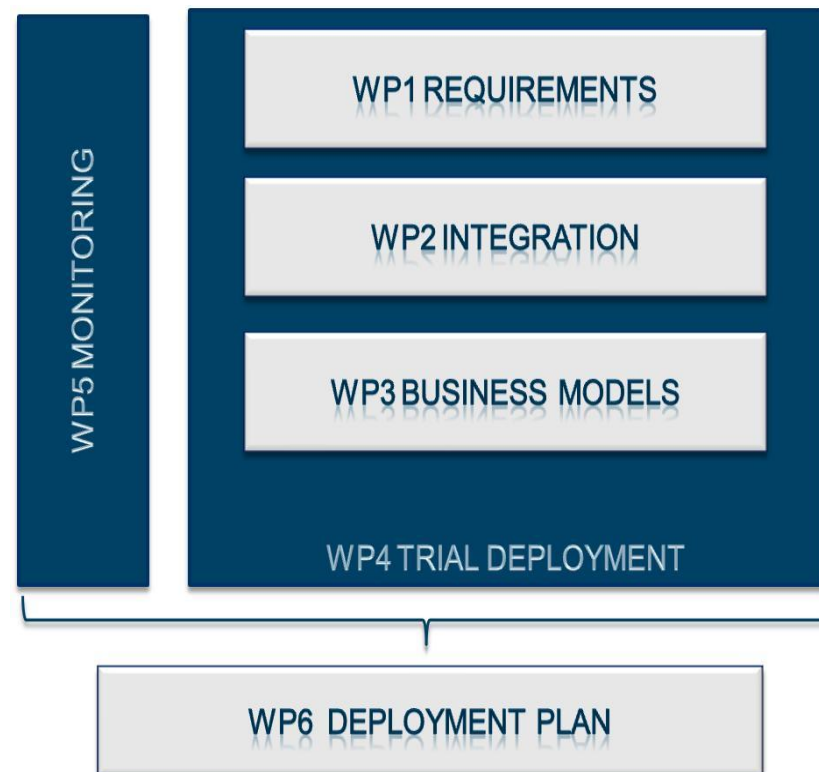
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Specific Objectives

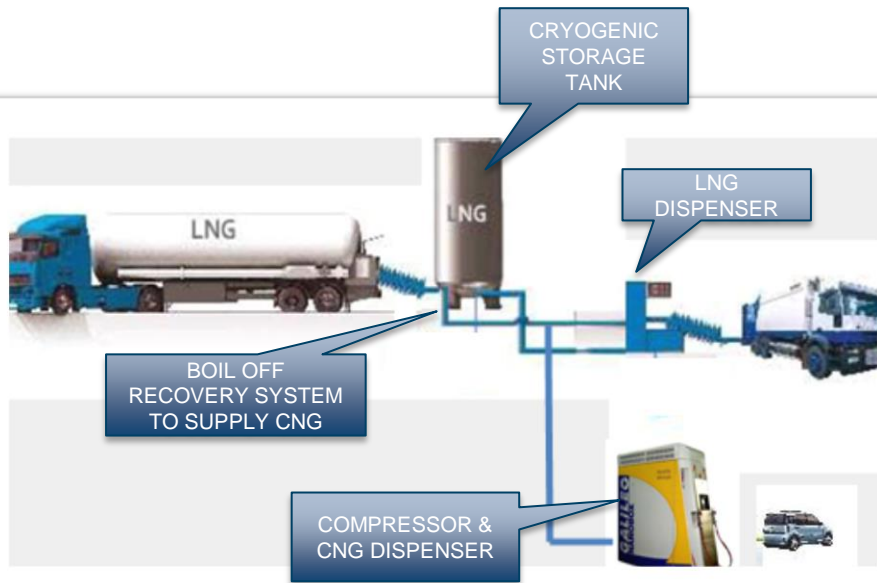
The specific objectives of the project are:

- Implement seven LNG refuelling stations trials on some of the prioritised trans-European transport network routes (four fixed and three mobile design) and undertake trials at each station.
- Evaluate the logistics of supplying LNG to the stations.
- Define business models based on the results of the trials of this project to supply LNG across Europe and deploy LNG as a transport fuel at an economic price.
- Identify requirements and their discrepancies in regulatory standards across the Member States and propose actions to achieve.

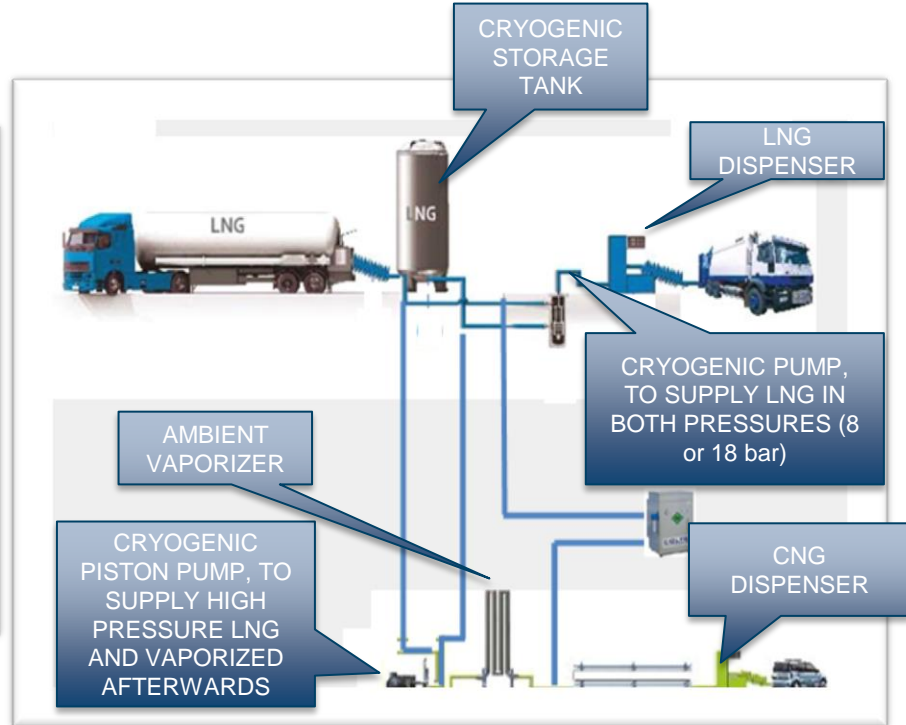


Project Overview & Activities: Planning

Type B



Type D



Currently there is no standardization for LNG refuelling stations and connectors. ISO Technical Committee 252 is working on the creation of a specific standard for the build-up and operation of LNG fuelling stations (ISO/CD 16924)

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Specific Objectives

EUROCAM

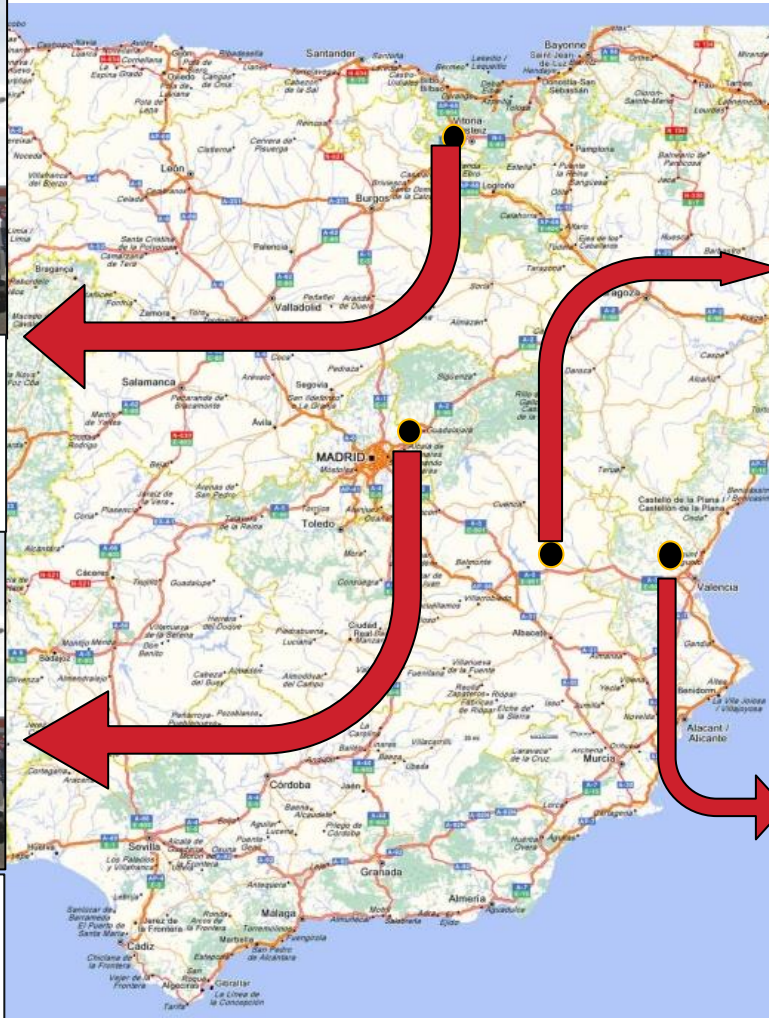


- Iruña de Oca (Álava)
- Type D
- LNG storage tank of 60 m3
- CNG & LNG dispenser
- A-1 Motorway (Madrid-Irún)

ALOVERA



- Alovera (Guadalajara)
- Type D
- LNG storage tank of 60 m3
- CNG & LNG dispenser
- A-2 Motorway corridor linking Madrid-Barcelona



MONEGAS



- Motilla de Palancar (Cuenca)
- Type B
- LNG storage tank of 60 m3
- CNG & LNG dispenser
- A-3 Motorway between Madrid-Valencia and Cuenca-Albacete

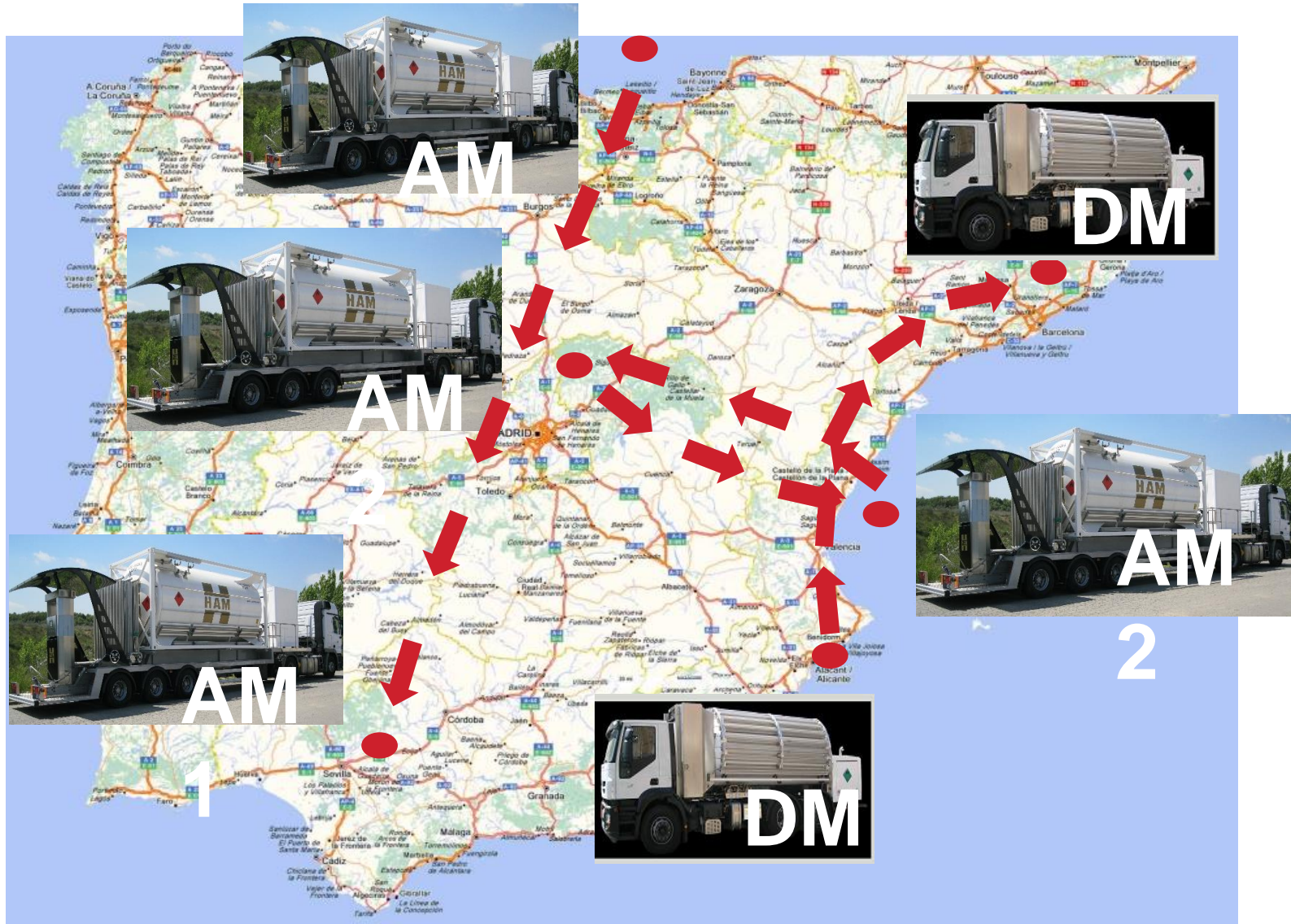
RIBARROJA

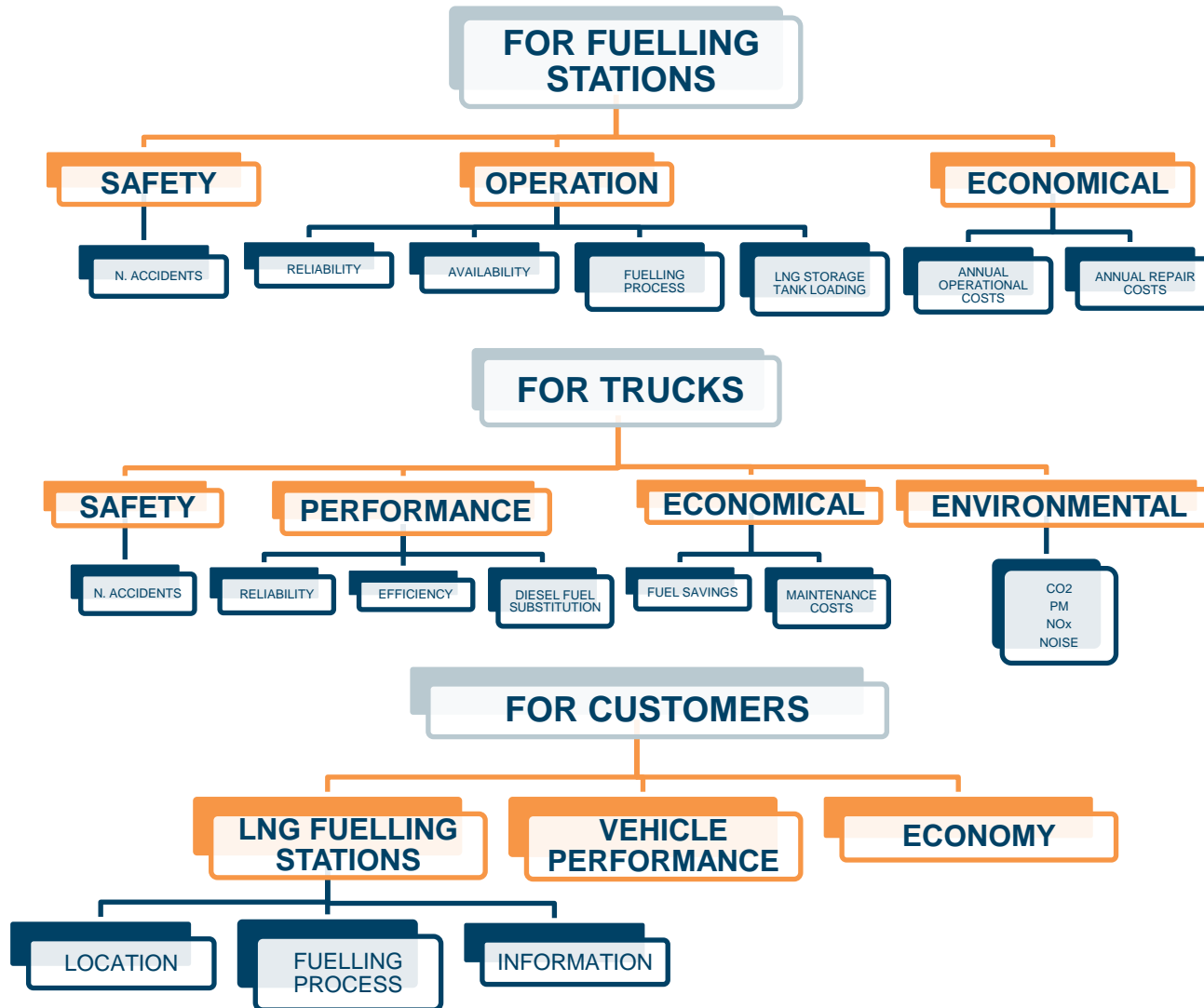


- Ribarroja del Turia (Valencia)
- Type B
- LNG storage tank of 60 m3
- CNG & LNG dispenser
- Motorways A-3 (Madrid-Valencia) and A-7 (Castellón-Tarragona-Barcelona)





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Mobile Stations









KPI's for Refuelling Stations

KPI's	Comparative	Conclusions	
Availability	99-100%		High Availability
Safety	No Registered Accidents nor Incidents		
Fuelling process	Time: 5-8:30min		
	Successful Fills 60-90%		Poorer than expected Unfamiliar with the use of LNG technology

KPI's for Trucks

KPI's	Comparative	Conclusions	
Efficiency	-7.72%		Diesel/Dual-fuelled
Diesel fuel Substitution	55.37%		
Fuel Savings	Dedicated: 22-23%		Diesel: 1.062 €/l LNG: 0.902 €/kg
	Dual-Fuel: 13-15%		

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Conclusions

- The GARnet project has advanced according to its planning, resulting in four fixed LNG refuelling stations and three mobile LNG refuelling stations being put into operation before August 2103. A monitoring trial has commenced that will run until the end of December 2014.
- We have demonstrated that these stations can be built and operated safely with a very high availability.
- The experience gained from the Garnet Project will provide a basis for optimising the design, layout, operation and maintenance of the next generation refuelling stations.
- At the end of the monitoring trial we will have good operational and economic data for the different types of LNG refuelling stations tested. For the HGVs, we are observing improvements in the CO2 emissions of the trucks and potential fuel cost savings. However, further results are required to confirm these indications and determined the reliability of the LNG fuel systems.



Muchas gracias





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