

“LNG bunkering roadmap | Dynamic & perspectives of regional supply chain”

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Revithoussa LNG terminal: Small Scale LNG initiatives



Truck loading station

Small Scale LNG jetty
(vessels from 1000m³ to 20.000m³)



LNG bunkering roadmap: basic parameters & the key role of Revithoussa



↑
Refuelling points
(small scale LNG
infrastructure)

↑
Regulatory
framework

LNG bunkering roadmap: basic parameters & the key role of Revithoussa

Accommodation of Q-max & Q-flex
up to 260.000m³

Security of fuel supply: storage
capacity up to 225.000cm³

Proximity to the core port of Piraeus
& strong geographic position to
supply satellite storage installations

Third party access regime in favor of
LNG pricing competition



"Small Scale LNG Infrastructure heavily depends on the proximity of Large Scale LNG terminals, which are the key logistical springboard for small scale LNG infrastructure."

Regional dynamic & perspectives | DESFA' contribution to regional projects & networks



MLN is a platform of systematic cooperation that brings together marine LNG actors, such as ship-owners, energy companies, classification societies, port authorities, shipyards, research institutes and others, aiming to exchange knowledge and good practices on LNG issues.



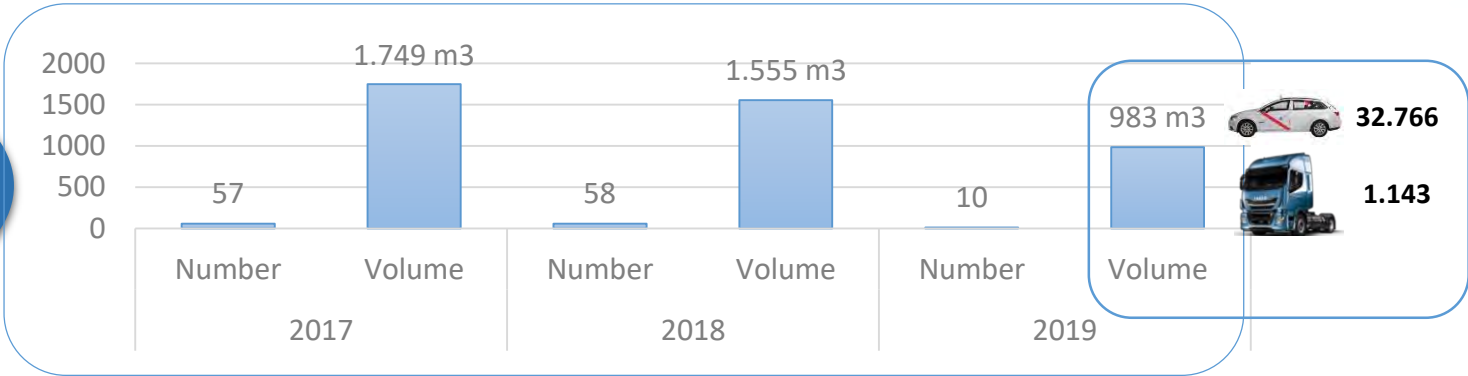
- Adoption of LNG as marine fuel
- Cyprus, Greece and Italy
- Piraeus, Patras, Igoumenitsa, Heraklion, Limassol, Venice & Revithoussa LNG terminal.

Holistic approach by addressing all necessary aspects for the deployment of LNG as marine fuel:

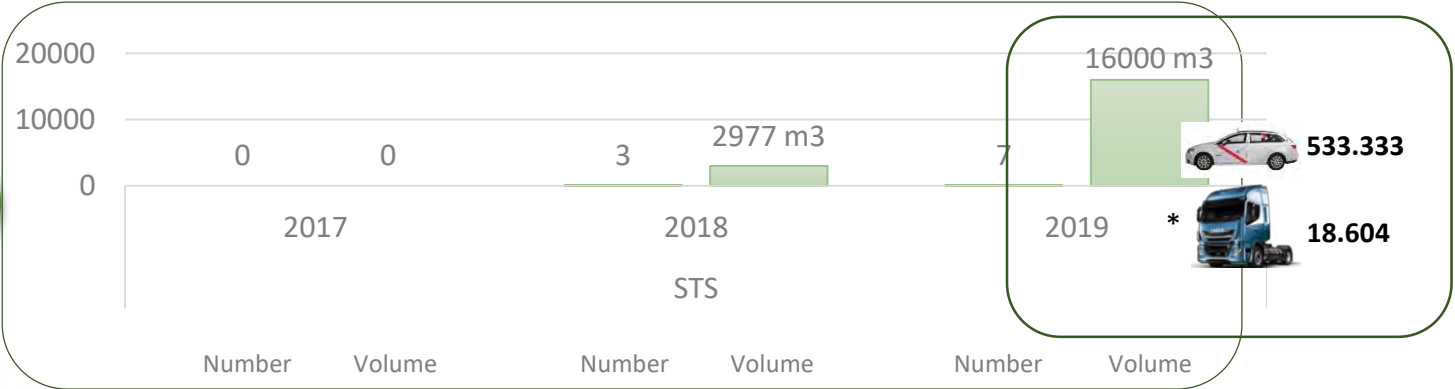
- Small scale LNG infrastructure at ports & Revithoussa
- Feeder & bunkering vessels designs
- LNG-fueled vessels designs (new construction and retrofits)
- Regulatory issues

LNG Bunkering in the Mediterranean area: The case of Spain

Bunkering Truck-to-Ship



Bunkering Ship to Ship



LNG Bunkering in Spain (May 2019)

Equivalent to
refueled vehicles

Relevant bunkering operations

First Ship-to-Ship bunkering took place at the port of Barcelona on April 26, 2019



Approximate quantity: 1.100tn → 2.400m3 of LNG

Loading time: 7 to 14h

Security measures anticipated, according to the regulations and provisions of Maritime Operations and Captancy.

- 30 m exclusion zone,
- Self-protection plan for the modified cruise terminal for LNG bunkering operations
- Boil-off management plan
- Use of 1 tugboat and pilotage service
- Entry and exit operation of totally normal passage, without any limitation outside the security zone

The Hellenic Gas Transmission System Operator (DESFA)

DESFA owns and operates the **Greek National Natural Gas System (NNGS)**, which consists of the **National Natural Gas Transmission System & the LNG Terminal on the island of Revithoussa.**



FINANCIAL PERFORMANCE



Fixed Assets: €1.569.82 BN

Total Revenues: €283.27 MN

Equity: €921.7 MN

EBITDA: €177.42 MN (+70.19% from 2016)

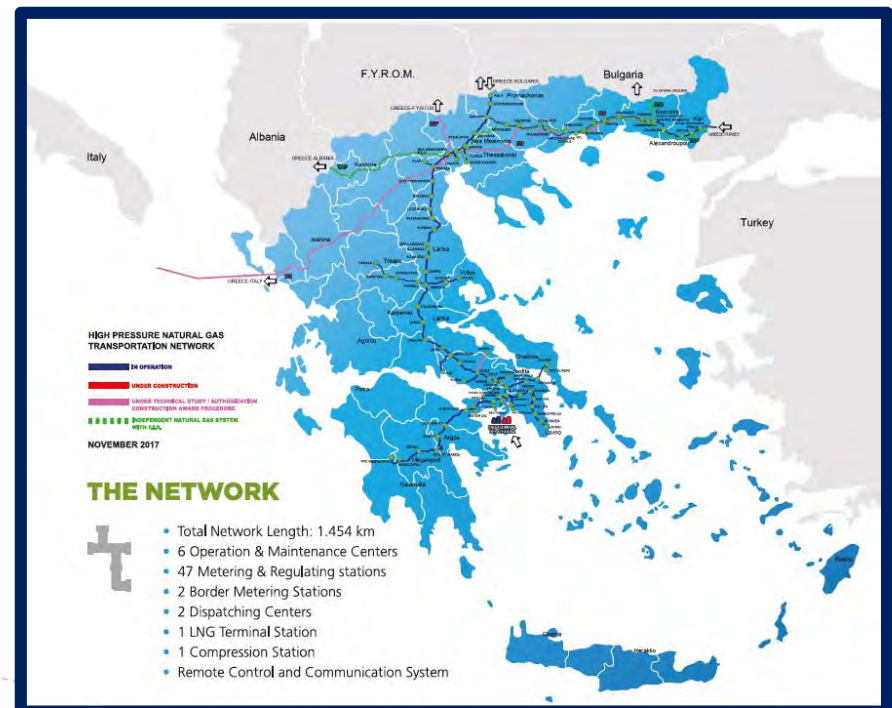
Net Profit: €85.63 MN (+149.47% from 2016)

HUMAN RESOURCES



DESFA has high qualified employees and outsourced personnel:

- Academic Education: **35%**
- Technological Education: **23%**
- School degree Education: **42%**
- Holding a Master's degree: **15%**





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