“Sustainability Question: Is LNG the answer?”
The case of Ports

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PORTS’ MISSION

Create economic and social values by working with customers and stakeholders to achieve sustainable growth.
PORTS’ VISION

Enhance safety, efficiency and sustainability.

Create value for customers by developing logistics chains, networks and clusters, in both Europe and growth markets worldwide.
STRATEGIC GOALS (1/2)

Developing space by restructuring and modernizing (environmental space and accessibility)

Adaptation of innovative techniques and methodologies

Increasing the service level for the customers (ease of doing business), among other things nautical services, targeted investment and pricing policy, and in the field of obtaining permits, procedures, enforcement and supervision.
STRATEGIC GOALS (2/2)

Invest in further improving the efficiency of maritime, inter-terminal and hinterland transport and connectivity of hinterland connections.

Developing new growth markets

Invest in overarching infrastructure (energy, transport, utilities, data) for a sustainable and competitive industrial cluster.

Play an active role in the development of data and data applications in the logistics chain.
STRATEGIC GOALS

PORT’S SUSTAINABILITY

- ECONOMIC GROWTH
- SOCIAL DEVELOPMENT
- ENVIRONMENTAL PROTECTION
- SAFETY ISSUES
- EFFICIENCY
LIQUIFIED NATURAL GAS

“attractive alternative fuel”

ADVANTAGES

- Lower emission of Particulates, Sulphur and Nitrogen Oxides and CO2
- LNG-powered engines require less maintenance
- LNG-powered engines are much quieter
- Cheaper than petroleum-based fuels
- Higher energy value than other fossil fuels

However, a general absence of bunkering infrastructure in Seaports mainly in East Med is a significant barrier currently preventing the breakthrough of the use of LNG as a Ship Fuel.
ON THE DESIGNING OF SUSTAINABLE INFRASTRUCTURE

RELATED ACTIONS

- Design & construction of berthing places for LNG carriers
- Quay wall, jetty, loading platform, breasting and mooring dolphins, catwalks.
- Revetment works
- Modification of land area
- Connection to local and national road networks

STUDIES

- Wave disturbance
- Geotechnical investigations
- Bathymetric & topographic surveys
- Economic Studies
- Traffic Impact Studies
- HAZID and HAZOP studies
- Navigational Simulations
- Environmental Social Impact Assessment
- Public Consultation
- Agencies and Authorities
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#1 Air Pollution

#2 Environmental Responsibility

#3 Sustainable infrastructure

#4 Sustainable interaction between port & city
#1 – AIR POLLUTION

Case Study: Port of Piraeus, Greece

- Boat survey has been performed
- Several LNG Bunkering scenarios have been examined
- Indicative critical points:
  - Feeder vessel – relevant infrastructure
  - LNG Bunkering duration
  - Traffic control issues
#1 – AIR POLLUTION

**Case Study: Port of Piraeus, Greece**

- Reduced air pollution in both alternatives
- Enhanced air quality
- Benefits for the public health
- Benefits for port employees and visitors - tourists
#2 – ENVIRONMENTAL RESPONSIBILITY

Case Study: Port of Heraklion, Crete

Alternative #1: Quay V

Alternative #2: Linoperamata
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#2 – ENVIRONMENTAL RESPONSIBILITY

Case Study: Port of Heraklion, Crete

A heavily exposed port in visitors tourists (cruise ships & ferries)

- Maintaining a responsible attitude towards the environment
- Enhancing the Port’s and the overall’s island’s brand identity as its main entrance point by sea
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#3 – SUSTAINABLE INFRASTRUCTURE

Case Study: Port of Limassol, Cyprus

Designing, building, and operating in ways that do not diminish the social, economic and ecological processes required to maintain human equity, diversity, and the functionality of natural systems

Port of Limassol: Spatial distribution of wave heights
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#4 – Sustainable interaction between port & city

- Cleaner air environment for the city
- Quieter environment
- Developing of neighborhood shipyards / jobs offers

Port of Piraeus, Greece
Piraeus

- 2 HAZIDS
- 2 two-day workshops
- Navigation Model
- Routes – Current & Future
- PEIS/Safety Study
- Master Plan
- Multi criteria Analysis
- Revithousa
Patras

- HAZID
- Visits and two-day workshop
- Scenario Interactions with vessels
- Routes – Current & Future
- PEIS
- Wave Studies
- Master Plan/Multi Criteria Analysis
- Infrastructure / Synergies- City of Patras

Λιμένας Πατρών (ΔΕΠΑ, ΔΕΣΦΑ, Rogan Associates)
HAZIDs

Visits and two-day workshops

Wave studies

Safety Study/ PEIS

Scenario Interactions with vessels

Routes, discussions, master plans

Multi criteria Analysis

Synergies with the Cities
Poseidon MED II aims to break the market based “chicken-and-egg Dilemma” with the holistic approach of all LNG Bunkering aspects.
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Thank you for your attention