



CYPRUS' LNG IMPORT PROJECT AND NG MARKET FORMATION



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CYPRUS LNG IMPORT PROJECT – CYPRUSGAS2EU

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CYNERGY* 1. INTRODUCTION (1/4)

Current Market Conditions

- Cyprus has an energy isolated market (no interconnected capacity)
- High Dependency on Liquid Fuels (Power Gen)
- 3 Main Conventional Power Stations Owned by EAC, Total 1478MW
- Dual fuel (LF & NG) generation capacity 830MW at VPS
- Increasing Renewable Penetration (Solar, Wind)
- NG Market Regulation under CERA
- Cyprus Law - Harmonised with EU Directive 2009/73/EC
- Derogations may apply due to Isolation & Emergent Market
- Possible monopolistic operation for early years



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CYNERGY* 1. INTRODUCTION (2/4)

DEFA's LNG Supply Options Study

- Target: NG supply by 2020, due to environmental constraints relating to emission limits
- DEFA analysed and compared all options for LNG Supply
- Optimum way forward (accounting for cost, time, flexibility) is through **floating storage and regas facilities**



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CYNERGY* 1. INTRODUCTION (3/4)
CEF Synergy – “CYnergy” Project

- Holistic Approach for NG Market development and penetration of use of NG to Energy and Transport sectors
- Total Proposal Cost ≈€7,5m – **CEF EU Co-financing ≈€4,5m (60%)**
- Implementation of CYnergy proposal is aligned with NG supply target date – by 2020
- **All CYnergy resources have been used for the successful submission of the CEF Energy Proposal for Infrastructure Development of the PCI “CyprusGas2EU” and the timely completion of the project**



CYNERGY* 1. INTRODUCTION (4/4)
DESCRIPTION OF THE PCI CYPRUSGAS2EU
“7.3.2 Removing internal bottlenecks in Cyprus to end isolation and to allow for the transmission of gas from the Eastern Mediterranean region”

Project promoter: Ministry of Energy Commerce, Industry and Tourism (MECIT), 7.3.Cluster of projects (SGC), Member States: CY, GR. Supply gas resources to EU from Levantine Basin (Cyprus and Israel) as well as from other East Med potential resources.

The 7 options for removing internal bottlenecks in Cyprus are the following:

- 1) Cyprus Gas Pipeline (from Aphrodite to Vasilikos),
- 2) Pipeline from Aphrodite to Egypt,

3) FSRU for LNG imports to Cyprus (New gas supply solution by Cygas/DEFA),

- 4) EastMed Pipeline (cross-border pipeline from Cyprus to Greece via Crete
- 5) FLNG (small scale) to Aphrodite,
- 6) LNG Storage (Mediterranean Gas Storage),
- 7) CNG

The project is included as a cross-border pipeline in the new TYNDP 2017 of ENTSOG (TRA-N-1146).


CYNERGY* 2. 2017 CEF ENERGY PROPOSAL – “CYPRUSGAS2EU” (1/8)
Proposal Preparation

- CYGAS, MECIT, MTCW and CPA with the assistance of all available CYnergy resources prioritised all work towards the completion of the CEF Energy proposal requirements (5 months window)
- The successful exemplary collaboration and coordination of all relevant stakeholders set a precedent for the future development of the Energy Sector in Cyprus
- Intergovernmental committees were established facilitating the preparation of all required studies and licensing
- Meetings in Greece with PCI Competent Authority, RAE, DESFA and DEPA were held for the crucial, to the proposal, CBA and CBCA studies preparation and approval of the Project (PCI between Greece and Cyprus)



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CYNERGY* 2. 2017 CEF ENERGY PROPOSAL – “CYPRUSGAS2EU” (2/8)
Objectives

- Introduction of NG to Cyprus initially for power generation and subsequently for other industrial, transport and urban uses
- To end energy isolation of the island of Cyprus and to lead to market integration synergies and interoperability with other Member States (e.g. Greece, Italy), as well as other regional markets
- To establish a well-functioning and fully integrated internal energy market
- To provide security of supply at a regional level
- To contribute to achieving the European Union diversification policy (Mediterranean Gas Corridor) through the development of an LNG hub in the Mediterranean
- Contribution to the reduction of GHG emissions, preparation for a low carbon economy on the island and compliance with the 2020 target (linked to the obligations of the RoC stemming from the Industrial Emissions Directive)



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 **CYNERGY* 2. 2017 CEF ENERGY PROPOSAL – “CYPRUSGAS2EU” (3/8)**

Infrastructure Description

1. Acquisition of FSRU
2. Construction of the jetty for FSRU berthing and mooring equipment
3. Construction of the jetty borne gas pipeline and Loading Arms
4. Construction of onshore gas pipeline and shore side above ground installation (AGI)
5. Construction of pipeline storage array Natural Gas buffer solution
6. Construction of onshore AGI – pressure reduction and metering station (PRMS)



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 **CYNERGY* 2. 2017 CEF ENERGY PROPOSAL – “CYPRUSGAS2EU” (4/8)**

Infrastructure General Layout

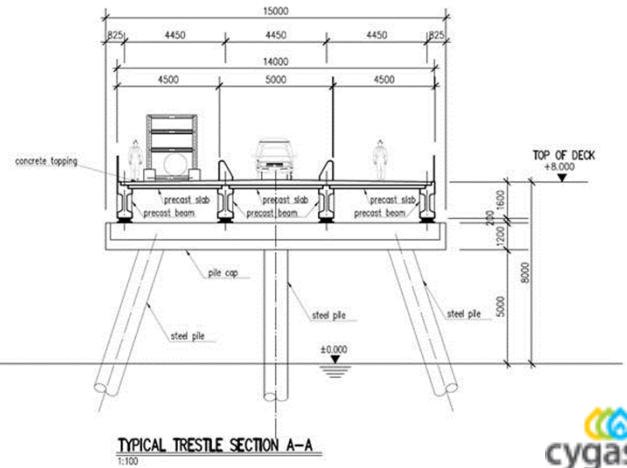


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CYNERGY 2. 2017 CEF ENERGY PROPOSAL – “CYPRUSGAS2EU” (5/8)

Infrastructure Layout (Jetty, FSRU, Jetty Borne Pipeline)

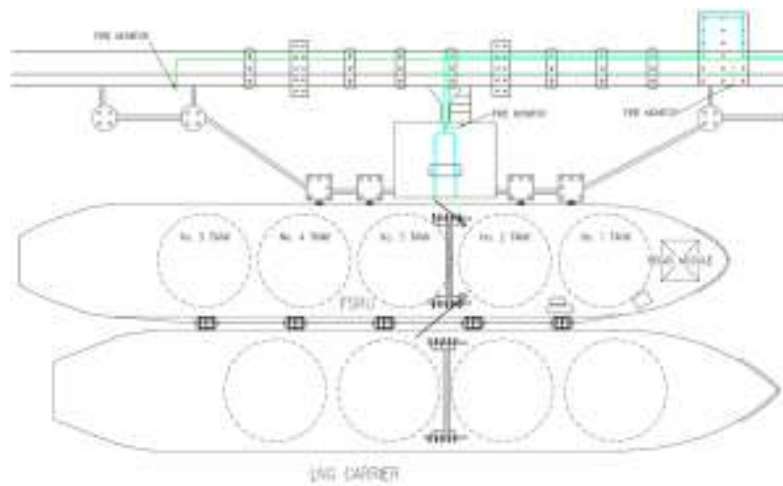


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CYNERGY 2. 2017 CEF ENERGY PROPOSAL – “CYPRUSGAS2EU” (6/8)

Infrastructure Layout (FSRU Mooring – STS Transfer Operations)



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CYNERGY* 2. 2017 CEF ENERGY PROPOSAL – “CYPRUSGAS2EU” (7/8)

Infrastructure Layout (Onshore facilities)



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CYNERGY* 2. 2017 CEF ENERGY PROPOSAL – “CYPRUSGAS2EU” (8/8)

Project Maturity – Licensing & Financing

- Successfully secured Environmental Licensing, with the relevant public consultation (ahead of CEF Energy proposal submission)
- Consultation with all Cypriot Operating Financial Institutions
 - 10 Lols have been received
- Consultation and meetings with EIB (prior to proposal submission)
 - Lol has been provided to include with submission
 - An NDA has been signed aiming to cover all future deliberations and data exchanges re financing of the Project
- CPA provided a license for works in the marine area of the Vassilikos Bay
- GoC Decision for Electricity Authority of Cyprus (EAC) participation in the infrastructure SPV, up to 30%
 - EAC provided a Lol



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CYNERGY* 3. EU (INEA) DECISION (1/1)

Extracts from the Decision (40% ≈ €101,255,320):

- “The proposed Action aims at introducing Natural Gas to Cyprus in order to end the current energy isolation, drive the establishment of the internal market for gas and improve the environmental and carbon footprint of the electricity production in the country.”
- “The action's maturity is excellent and the implementation can start promptly.”
- “It is also expected to have particularly high benefits at national level in terms of sustainability of electricity generation.”
- “The implementation plan is sound and well-structured...”
- “The overall co-funding rate should not exceed 40%.”
- “The proposal is recommended for funding...”

CYNERGY* 4. OTHER NG PROJECTS (1/4)

NG Pipeline Network:

- €10m. Grant EU Co-Financed under EEPR
- DEFA appointed GNFe for Engineering Consultancy Services for the NG Pipeline Network Development in 2010
- Feasibility Study completed in 2012
 - Revised in 2016-2017



CYNERGY* 4. OTHER NG PROJECTS (2/4)

NG Pipeline Network:

- Phase A' - Power Gen
- Route Selection

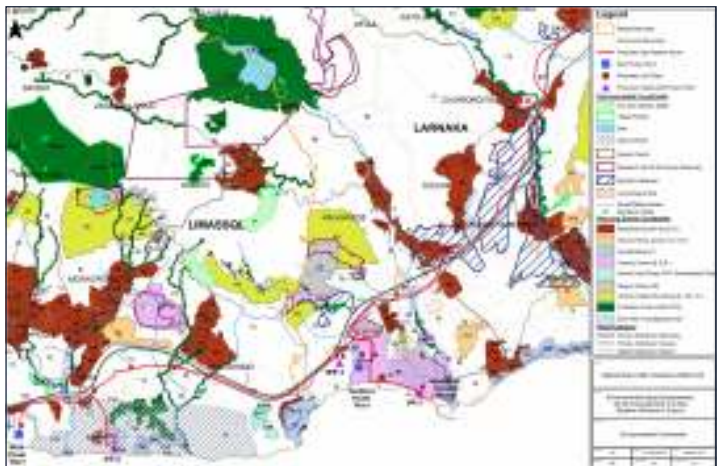


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CYNERGY* 4. OTHER NG PROJECTS (3/4)

NG Pipeline Network:

- Route: Selected trying to minimise impact and avoiding all environmental/social/other constraints
- Indicative example: follows highway passing through town planning zones (avoiding housing/touristic zones, etc.)



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CYNERGY® 4. OTHER NG PROJECTS (4/4)
Other Projects Under Consideration and Study:

- LNG Bunkering
 - The new LNG facilities will be able to accommodate demand
- NG to Industrial and Urban Sectors
 - Under CYnergy Project Scope
- NG for Road Transport
 - Under CYnergy Project Scope
- LNG & NG to Remote Locations
 - Under CYnergy Project Scope


CYNERGY® 5. WAY FORWARD
Tasks Towards 2020 – First Gas

- LNG and NG Facilities, Tender to be announced by ~end June 2018
- Financial Close and Award of Infrastructure Tender by Q4 2018
- LNG Procurement Process for Mid-term Supply Agreement, to be initiated Q2-Q3 2018
- LNG MSAs Negotiations for Spot Market Cargos, to be initiated Q2-Q3 2018
- Open Season Process for the determination of demand by all users, committed quantities of NG and spatial allocation of users, to be initiated in 2018
- FEED for the Pipeline Network (following completion of Open Season and generation expansion plan study of EAC). Some preparatory work for the land acquisition process will start imminently
- Continuous work under CYnergy Project to facilitate the development of all possible NG demand sectors (completion early 2020)
- Continuous work by MECIT-CERA-CyGas for finalisation of Legal and Regulatory Framework



Thank You! Questions?

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BOD CHAIRMAN

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