

Funding Opportunities & Schemes Financing Port Electrification

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Connecting Europe Facility

**Cold Ironing in Port of Koper and
Shipping Electrification in the Eastern Mediterranean**
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The General Framework: the Challenges

- Port infrastructure
- Port connection to electrical grid or own sources
- (Smart grid integration in ports)
- Exploit synergies between energy and transport
- Further exploit renewable energy sources for clean energy and for *additional* electricity requirements
- **Funding or financing the investments**



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The Available Instruments

- **National Development Programmes**
 - More market focused but still including the element of research/innovation
 - Bureaucracy/Administrative
 - Limited budget
- **H2020**
 - Large consortia
 - Research focused (TRL mainly 2-7)
 - Not really for *actual* applications, only pilots/demonstration
 - Academia/industry/end user collaboration
 - Does not usually fund major hardware items



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The Available Instruments

- EASME/COSME, SME Funding
- EIB
 - Green Shipping Scheme
 - Green Shipping Programme
 - SME Financing (EIAH)
- EFSI (Juncker Plan)
- Connecting Europe Facility
 - MoS
 - Innovation etc.
 - Energy (PCI)



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The Connecting Europe Facility (CEF)

New Technologies and Innovation

- Decarbonisation of transport, energy efficiency.
- Projects should be deployed on the core network corridors.
- **Co-Funding rate: up to 20%, 30%, 50%**

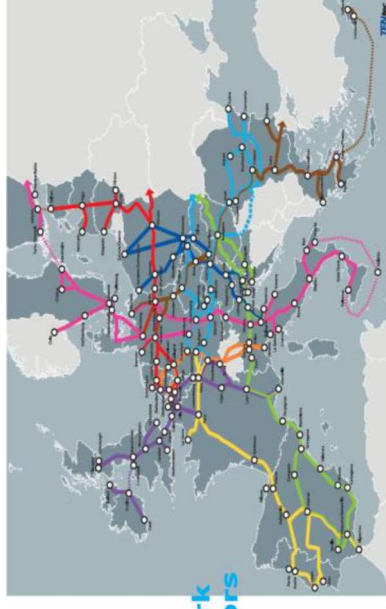
Motorways of the Sea (MoS)

- Alternative fuels infrastructure (e.g. Scrubbers only for shortsea outside SECA).
- New maritime links.
- **Co-Funding rate: up to 20%, 30%**

Urban Nodes of the Core Network

- Nodes of 9 Core Network Corridors.
- Directive 2014/94/EU on the deployment of alternative fuels infrastructure.
- Works , studies and/or deployments of pilot actions.
- **Co-Funding rate: up to 20%, 30%, 50%**

The 9 Core Network Corridors



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The Blending Call

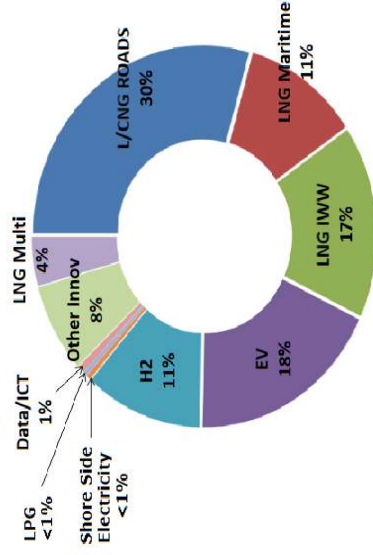
Innovation and New Technologies

- Only works for the roll-out of the innovative solution, e.g. along and entire corridor.
- Combination of grant and loan.
- More flexibility on eligible costs funding.
- At least a significant part of a Core Network Corridor.
- **Budget: EUR 490 million** (General Envelope).
- **Co-Funding rate: 20%** of the eligible costs.

Motorways of the Sea (MoS)

- **Development of MoS Links:** at least 1 Core Port, 1 Comprehensive Port and 1 Maritime operator on the link concerned.
- **Only WORKS ELIGIBLE** - Studies & Pilot Actions not supported under the blending call.
- **Budget: EUR 40 million** (General Envelope)
- **Co-Funding rate: 30%** for infrastructure works and facilities.

Already financed in TEN-T and CEF



Inland Waterways and Inland Ports

- Access and connections (connections to waterways, access to inland ports and connections between inland ports).
- Basic infrastructure.
- Fixed infrastructure to supply alternative energy.
- Waterside terminals infrastructure
- **Maximum EU contribution rates: 20%** for inland ports & **20%** for inland waterways.



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The 2018 Blending Call

- €1.35 billions of funding available
- Maximizes the leverage of private involvement
- Open to all EU Member States.
- At least one EU Member State for decarbonisation of all transport modes along the TEN-T Core Network Corridors and nodes.

Indicative Call Timeline for 2nd Cut Off

Call opening:
8 February 2017

Evaluation:
April 2018 to July 2018

**Signature of
grant
agreements:**
September 2018

**Deadline for
Submission:**
12 April 2018

**European Commission
Decision on selected
projects:**
May 2018



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Challenges

- Long preparation phase (need to start as early as possible)
- Long pre-evaluation phase
- Long “evaluation” phase
- Requirements (e.g. EIA)
- Separate CBA evaluation (now adjusted)
- Business Plan
- Long deployment phase (problem? risk of speculation?)



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Challenges (Mos)

- Two ports, Dedicated line
- 50% for Ports (not bankable???)
- 50% for Vessels (bankable) (only environmental incremental cost, 5 years *after* end of Action)
- Long agreement phase, disparate investments
- CBA
- 30%
- Wider benefit vs pure Mos



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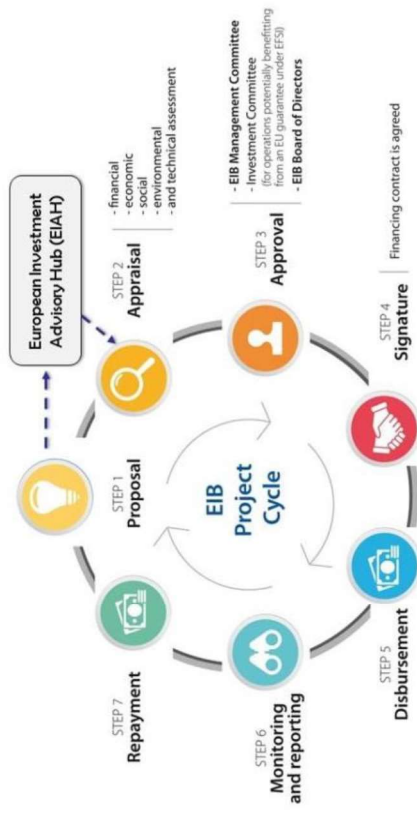


Financing: the European Fund for Strategic Investments (EFSI)

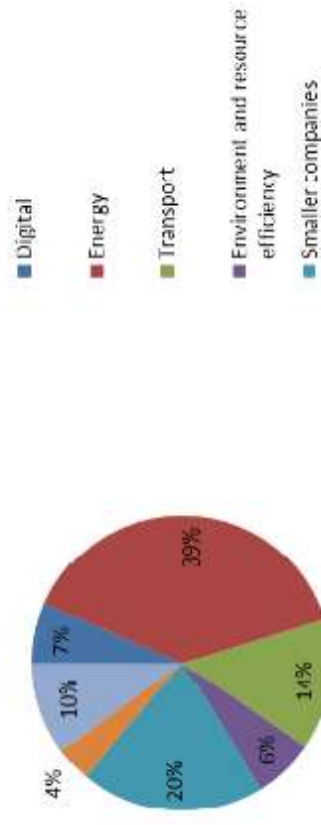
- Additional investment of at least EUR 315 billion over a three year period.
- Supports bankable projects.
- No geographical or sectoral allocation.
- Provides risk financing instruments via EIB (no grants).
- EUR 500 billion in additional investments by 2020.

EFSI Transport, as of 30 December 2017

98 transport projects approved
Signed Loans of EUR 9,8 billion within EU



EFSI IIW Related Investment (EUR 99.0bn)

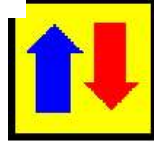
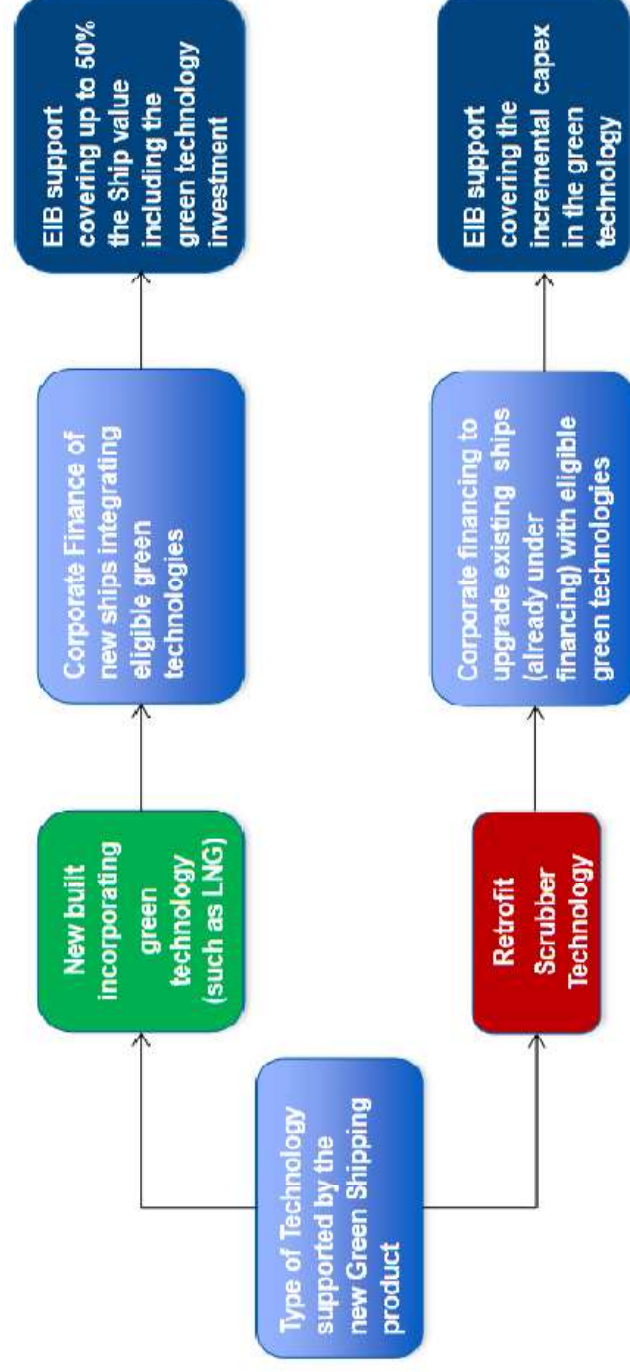


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The Green Shipping Financing Tool (GSFT)/EIB

- The GSFT instrument would allow financing of new investments and conversion of existing fleets (*ships only*)



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Innovative Financing Schemes and Tools

- Different funding models are used in ports' construction and upgrading projects all around the world:
 - Self-Funding Model,
 - Private Equity Funds (PEFs)
 - Private Public Partnership (PPP)
 - Blockchain and Initial Coin Offering Funding (?!?).



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COST & FINANCIAL SCHEME OF EXISTING COLD IRONING INSTALLATIONS			
PORT	ORGANISATIONS INVOLVED	CONTRIBUTION PER ORGANISATION	ADDITIONAL INFORMATION
Port of Antwerp	Total	€ 1.1 million	
	Flemish government	€ 400,000	
	Antwerp Port Authority	€ 96,000	
Port of Rotterdam	Total	€ 5.4 million	
	Port of Rotterdam Municipality of Rotterdam		
	Dutch Ministry of Infrastructure and the Environment	€ 2.7 million	2 Berths
	Stena Line	€ 2.7 million	4 Ferries

Europe

Innovative Financing Schemes and Tools

Public Sector/Self-Fund Model

- Port Authorities self-fund the upgrade of their infrastructure and superstructure, opted due to lack of external investors, with respect to port improvement and maintain competitive advantage.
- Indicative examples are the ports in Florida, Georgia and Texas follow self-funding infrastructure projects or the Port of London Authority acts as a self funding public trust.

Private Equity Funds (PEFs)

- PEFs usually focus on low risk infrastructure assets and may acquire port operators either by the transfer of property rights, port regulatory functions, or long-term concessions relating to terminal leases/operations only.



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Innovative Financing Schemes and Tools

Port Investment Fund – The model of Spain

- Port Accessibility Fund (PAF) is a financial instrument created in 2014, encouraging Port Authorities to invest in their road and highway accesses, enhance the competitiveness of port facilities and improve their sustainability.
- The regulations of the Fund establish mandatory and voluntary contributions of State Ports and Port Authorities based on their annual net benefits of past years.
- These contributions have the character of loans remunerated at a variable interest rate for 20 years with a 3-year grace period.
- PAF requested from the EIB a loan of € 105 millions expected to trigger 425 millions of investments.



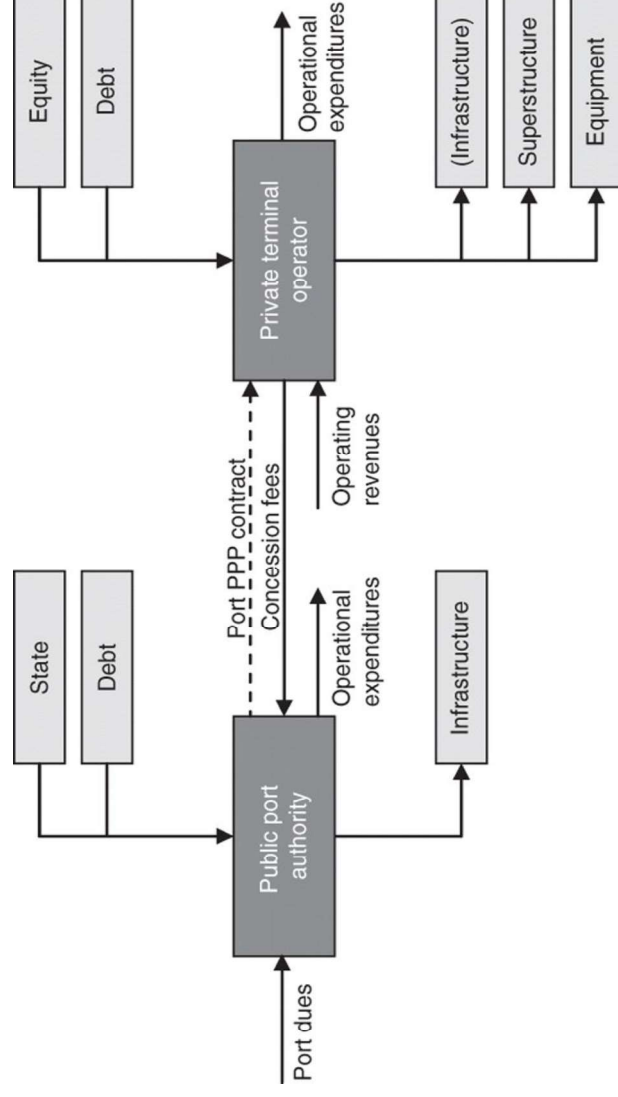
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Innovative Financing Schemes and Tools

Private Public Partnership (PPP)

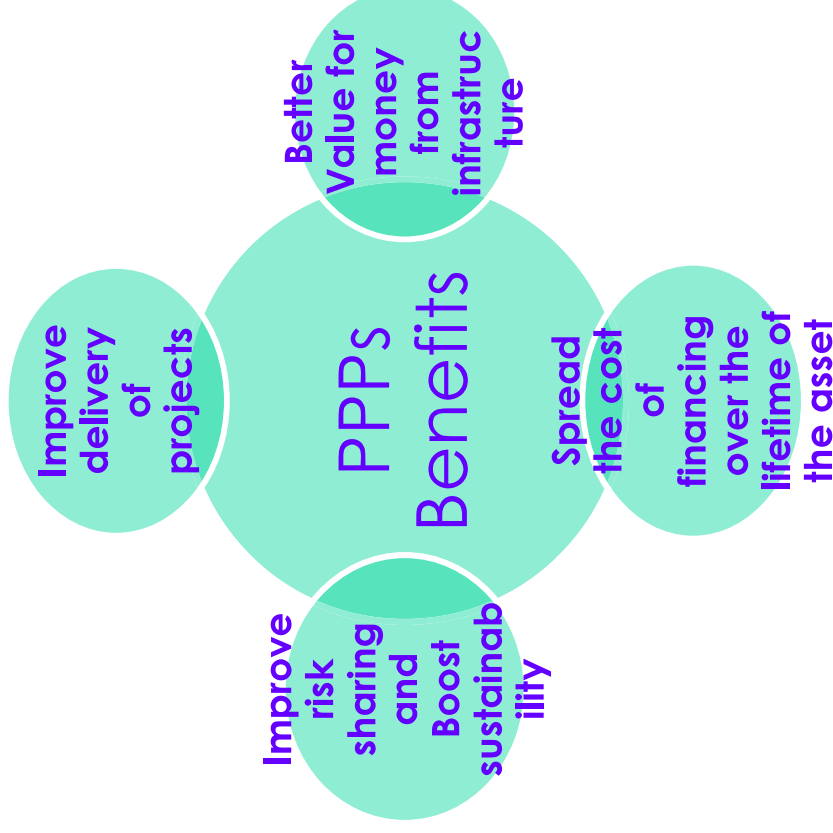
- The PPP model is very complex for any Port PPP to fit the specific objectives, local circumstances and national legislation.
- A PPP can range from a 100% private investment as in a build-operate-transfer (BOT) scheme to a regular concession agreement with varying public investment contribution.



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Public Private Partnerships (PPP)

- Common practice for financing transport projects.
- Public party bears assets ownership.
- Procurement method for large infrastructure projects.
- Improve the quality of expenditure and ensure effective use of EU funds.
- EU funds make PPP projects more affordable for the procuring authority and/or user and improve the bankability of PPP projects.

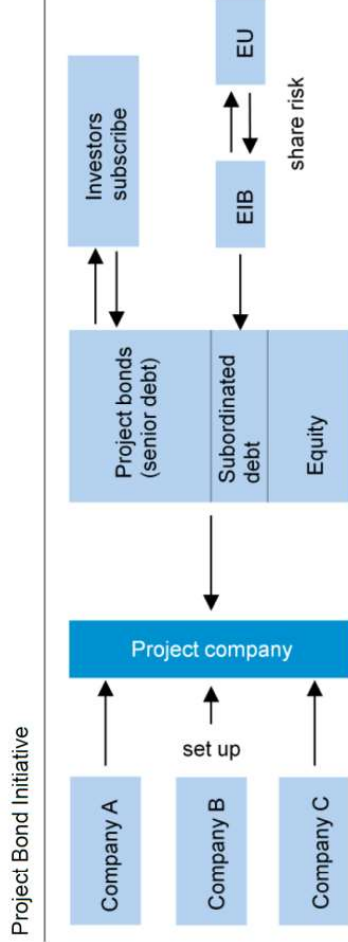
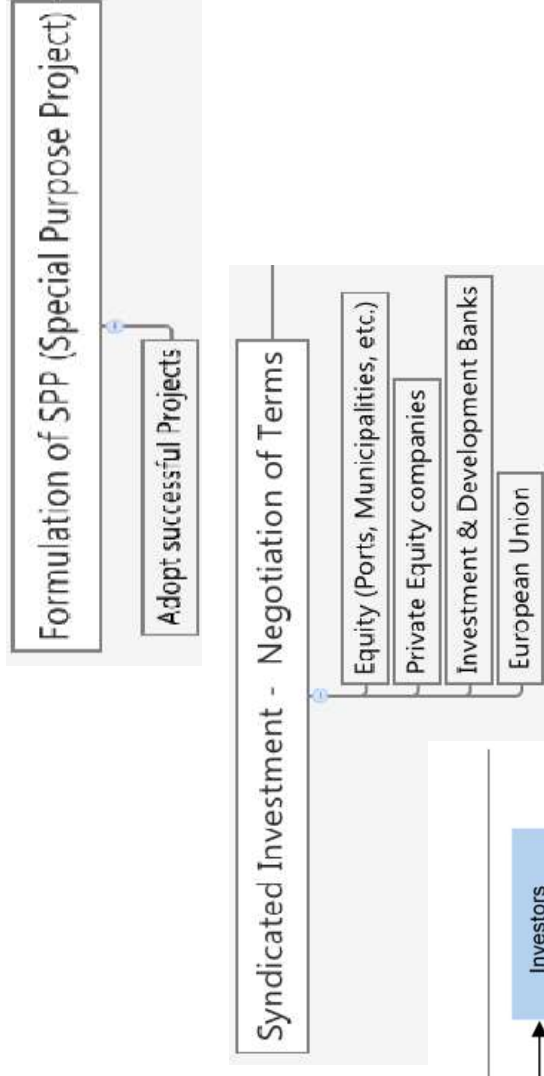


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Innovative/Alternative Financing

- Project Bond Initiative
- Innovative Financing
- Crowd Funding / AIF
- Blending Equity, Funding, Private and Public Financing
- Form EEIG's
- Involve Smaller Investors



Sources: European Commission, EIB, DB Research schematic interpretation



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Innovative Financing Schemes and Tools

Blockchain and ICO Funding

- Blockchain Technology is one of the most important technology trends in the sector of business and society.
- No single person controls all the data. Transactions can be fully automated. Money can be tracked and attached to a specific purpose. Funds cannot be siphoned off. Middlemen are cut out.
- Reduces costs and complexity, shared trusted processes, allows for a greater visibility of public spending



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Innovative Financing Schemes and Tools

Blockchain and ICO Funding

- This technology enables the existence of a digital currency and Initial Coin Offering (ICO), which is crowdfunding through the partial sell of its tokens (for example BitCoins) in exchange for money.
- It works like stocks, you own them, you can trade them on exchange, their value rise or fall but you don't necessarily own shares of the company. As of May of 2017, over \$380M has been invested into ICOs.
- ICO, can be beneficial for companies that seek alternative ways to be funded, but how Port Owners and Operators can exploit it to trigger further investment for Cold Ironing?



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Innovative Financing Schemes and Tools

Cases of Financing Infrastructure Projects

- A number of Renewable Energy Companies have gone on to raise significant amounts of money through ICOs (SunContract and PowerLedger have reported approximately 24 million euros in funding).
- The ICO energy tokens are access tokens which provide a right for priority in buying cheaper green energy and raise money for the project using a donation-based model.
- Within the ICO platform it is visible if the companies are actually buying 100-percent-renewable energy, where they're buying and using the energy and how much of that is actually renewable. Thus, the transparency issue is being solved.



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Innovative Financing Schemes and Tools

Financial Roadshow

- Private meetings across different cities with members of the ELEMED consortium presenting the project to potential investors.
- This non-deal roadshow took the form of where the proposed funding and financing schemes and tools were presented and is ongoing. Further discussions were conducted on risk mitigation features.
- During the ELEMED conference (Athens, 27th February 2018), key aspects of the project progress will be presented to top experts and stakeholders from marine and energy sectors, port authorities etc. including project financing of Cold Ironing.



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Financing Cold Ironing in the Port of Killini

- The port of Killini participates in the ELEMED project funded by EU.
- The port of Killini services passenger ferries and RoPax vessels and will be the first port in Eastern Mediterranean with cold-ironing infrastructure
- The port of Killini will demonstrate the pilot action of the Cold Ironing installation.
- NTUA identified appropriate financial instruments and funding models and proposed optimal solution for the Port of Killini.



GENERAL ASSUMPTIONS	
Ships Connected	1
Calls per year	300
Hours in Berth [h/day]	12
Power Demand [kW]	350
Electricity Price from National Grid (€/kWh)	0,05
Electricity Tax (€/kWh)	0,03
Electricity Price Charged (€/kWh)	0,12
Capital Interest	3%
Estimation period (years)	15
FINANCIAL RESULTS	
Cost of Investment	310.000,00 €
Annual Cost of Electricity for Terminal	100.800,00 €
Annual Income from Selling Shore Power	151.200,00 €
Annual Profit	50.400,00 €
Total Net Profit (15 years)	601.671,93 €
NPV	291.671,93 €
IRR	13,97 %
Payback Period	7 years

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Financing Cold Ironing in the Port of Killini

- Cold Ironing at Killini port is a very attractive case of investment that could be used as an example in creating other CI facilities in ports.
- According to the Greek legislation and Tender's Documents, the 31,9% of the budget is Equity Capitals, the 63,9% E.U. Funds and 4,2% is funded by the Greek National Funding Program.



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KILLINI PORT FINANCIAL SCHEME	
Equity Capitals	99.000,00 €
Connecting Europe Facility funding	198.000,00 €
Greek National Funding Program	13.000,00 €
TOTAL INVESTMENT	310.000,00 €

Info:

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Thank You!

