MED ATLANTIC ECOBONUS

ADDRESSING EXTERNALITIES IN MED ATLANTIC ECOBONUS

PRESENTATION AT RORO SECA WORKSHOP
June 6th 2017
# MED ATLANTIC ECOBONUS (2014-EU-TM-0544-S)

**Project**: MED ATLANTIC ECOBONUS (2014-EU-TM-0544-S)

**Call**: CEF 2014

**Priority**: Motorways of the Sea

**Member States**: SPAIN, ITALY, PORTUGAL, FRANCE

**Beneficiaries**
- Puertos del Estado (ES)
- Ministero delle Infrastrutture e dei Transporti (IT)
- Instituto da Mobilidade e dos Transportes (PT)
- Ministère de l’Environnement, de l’Energie et de la Mer (FR)

**Implementing bodies**
- Rete Autostrade Mediterranee S.p.A.
- Rina Services S.p.A.

**Coordinator**: Puertos del Estado (ES)

**Schedule**
- Start date: July 2015
- End date: November 2018

**Budget**: 1,543,838 € (Funded 50%)

**Contact**: Puertos del Estado, ES [agongora@puertos.es](mailto:agongora@puertos.es)
OBJECTIVES

• The Project aims at analyzing the viability of a new coordinated incentive scheme to demand for Motorways of the Sea delivering clear positive impacts to the environment and society. It stems from the cooperation of the Ministries of Transport of Spain, France, Italy and Portugal.

• It is conceived as a feasibility study contributing to the development of EU transport policy with no preconceived results, but building upon previous experience and current framework and initiatives.

• The initial scope is the Atlantic and Mediterranean markets. However, the study will be structured considering the potential transferability of the scheme to other EU regions and modes.

• The viability of the scheme will be analyzed considering its different elements (technical, legal, financial, technological, etc.) and the consensus reached with stakeholders. The findings and recommendations will be supported by an impact assessment.
Rationale

- Current intra-European fret transport mode distribution illustrates the predominance of road, despite its impacts. *Could we add a pie for that (modal shares)?*

- **External costs** are not reflected in market prices of freight transport and hence they are *not taken into account* in transport decisions of transport companies and shippers.

- Rail, IWW, and MoS would reach higher shares if such external costs were to be *internalized* in the transport price across all modes.
Rationale

- According to a CE DELFT report, heavy freight vehicles taxes and tolls do not even cover their infrastructure use cost.
- Internalization of external cost was the goal of the Eurovignette Directive (1999/62/EC) that is facing great implementation difficulties. Revised or new policies/approaches are needed.
- Incentivizing “green modes” with an Ecobonus would mirror the policy of road charging following the “user pays” and “polluter pays” principles.

![External costs of heavy goods vehicles](chart1.png)

![How much of the external costs of trucks are being covered?](chart2.png)

(30) Complying with the low sulphur limits for marine fuels, particularly in SOx Emission Control Areas, can result in a significant increase in the price of such fuels, at least in the short term, and can have a negative effect on the competitiveness of short sea shipping in comparison with other transport modes, as well as on the competitiveness of the industries in the countries bordering SOx Emission Control Areas. Suitable solutions are necessary in order to reduce compliance costs for the affected industries, such as allowing for alternative, more cost-effective methods of compliance than fuel-based compliance and providing support, where necessary. The Commission should, based, inter alia, on reports from Member States, closely monitor the impacts of the shipping sector's compliance with the new fuel quality standards, particularly with regard to possible modal shift from sea to land-based transport and should, if appropriate, propose proper measures to counteract such a trend.

(31) Limiting modal shift from sea to land-based transport is important given that an increasing share of goods being transported by road would in many cases run counter to the Union's climate change objectives and increase congestion.

(32) The costs of the new requirements to reduce sulphur dioxide emissions could result in modal shift from sea to land-based transport and could have negative effects on the competitiveness of the industries. The Commission should make full use of instruments such as Marco Polo and the trans-European transport network to provide targeted assistance so as to minimise the risk of modal shift. Member States may consider it necessary to provide support to operators affected by this Directive in accordance with the applicable State aid rules.
**PROJECT MAIN ACTIVITIES**

- The project starts with a **DIAGNOSIS**, reviewing existing information about previous incentive schemes to promote modal shift in Europe.

- These findings will provide the input to the scheme **FORMULATION**. Learnings from previous experiences as well as current situation, European strategy and transport policy will be taken into account.

- A proposal for a new incentive scheme would then be exposed to all stakeholders to build the necessary **CONSENSUS** leading to possible implementation.

- An **IMPACT ASSESSMENT** will be elaborated, using the reference budget stemming from the formulation and consensus.

- In case of positive assessment, and stakeholders acceptance, a roadmap for implementation will be elaborated as an **ACTION PLAN**.

- Results of the project will be broadly communicated through **DISSEMINATION** event/materials.
• Marco Polo has turned into TEN-t (from modal shift to greener shipping)
• However, modal shift is still anchored in the EU transport policy and in the scope of several programs at national level
• The incentive foreseen shall demonstrate positive environmental effects (reducing negative externalities) and be applied in a non-discriminatory way
• Deadweight needs to be addressed
• External costs calculation is extremely variable depending on the methodology

\[
\Delta (\text{external cost}) \text{ when shifting road to sea} \\
\text{€/tkm}
\]

<table>
<thead>
<tr>
<th></th>
<th>Friends of earth</th>
<th>Marco Polo I</th>
<th>Marco Polo II (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δ (external cost)</td>
<td>0.063</td>
<td>0.026</td>
<td>0.003</td>
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*Marco Polo II*
SCHEME FORMULATION

- It has to be clearly based on environmental achievements
- Addressing greening of transport to meet TEN-T Objectives
- Built upon transferable principles and agreed/common tools

SCHEME DEFINITION

- Eligibility Criteria
- Incentive Calculation (based on environmental behavior)
- Market & Modal Choice Model
- CBA (aggregated impact)
- Impact Modal Shift

BUDGET (availability and split)
Three technical pillars are at the core of the scheme formulation:

- To ensure transferability at EU level these three pillars need a common and accepted approach, based on European standards.
- This is particularly a challenge with External Cost valuation.
- A potential consensus, should be based on relevant, previous and current experiences, projects, initiatives, expert criteria, etc.
TOWARDS A EU EXTERNAL COST CALCULATOR

- Multiple reports, supported by multiple projects but not a single source for an EU approved and up-to-date external calculator available to support transport policies.
- The Joint Research Center, a scientific body of the Commission, has developed reports and tools in the past, but has no assignment to maintain and refine these tools.

- Marco Polo calculator (2013)
- External Costs of Transport in Europe (2011)
- HEATCO project
- GRACE project
- CAFE CBA project
- UNITE project
- RECORDIT project
- StratMOS project
- NTM CorridorCalc project
- Supergreen project
- RoRo SECA project
- EcoTransIT calculator
- Clean Shipping Index
External Cost monetization

<table>
<thead>
<tr>
<th></th>
<th>CO$_2$eq</th>
<th>SOx</th>
<th>NOx</th>
<th>PM</th>
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<tbody>
<tr>
<td>Road</td>
<td>34</td>
<td>11.300</td>
<td>11.700</td>
<td>29.400</td>
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<tr>
<td>Mediterranean</td>
<td>34</td>
<td>6.700</td>
<td>1.850</td>
<td>18.500</td>
</tr>
<tr>
<td>Baltic</td>
<td>34</td>
<td>5.250</td>
<td>4.700</td>
<td>13.800</td>
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<tr>
<td>Atlantic</td>
<td>34</td>
<td>2.900</td>
<td>2.250</td>
<td>5.550</td>
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<table>
<thead>
<tr>
<th></th>
<th>Noise</th>
<th>Accidents</th>
<th>Congestion</th>
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<tbody>
<tr>
<td>Road average</td>
<td>2,06</td>
<td>6,03</td>
<td>45,28</td>
</tr>
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</table>
Calculation components

- Cargo origin and destination centroids
- Maritime distance (nm) between EU ports
- Alternative road distance (km)
- Road type: urban, rural, motorway, etc.
- Countries crossed
- Bottlenecks

- Vessel speed
- Fuel consumption
- Fuel used
- Air emissions and reduction technologies
- Capacity (RORO, ROPAX, CONRO?) and occupation rate.

- Fleet size
- Fuel consumption
- EURO standard mix
Simulation tool

Barcelona Livorno
RORO 4000 LM 70% OCC. 17 kn

MARITIME DATA

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<tr>
<th>SHIP</th>
<th>Lane meters</th>
<th>4000</th>
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<tr>
<td></td>
<td>Occupancy*</td>
<td>70%</td>
</tr>
<tr>
<td></td>
<td>Pax</td>
<td>0</td>
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<tr>
<td>FUEL</td>
<td>HFO 2%</td>
<td></td>
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<tr>
<td>REDUCTION TECH.</td>
<td>NONE</td>
<td></td>
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<tr>
<td>SPEED</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>YEAR</td>
<td>2016</td>
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</table>

*Occupancy: Set 65% as default

ROAD DATA

| NUMBER OF TRUCKS | 200 |
| AVG. SPEED       | 86,00 |

Include ✓ SOCIO-ECONOMIC

Co-financed by the European Union
Connecting Europe Facility

MED ATLANTIC ECMO BONUS
Challenges

EXTERNAL COSTS

• Obtaining updated and accepted valuation/monetization studies/references
• Updating the market average EURO standard of the road fleet
• Monetization of congested bottlenecks, (e.g. Pyrenees and Alpes)
• Monitoring actual vessel emissions (MRV?)
• Calculating or validating cargo centroids
• Characterization of the “average” road itinerary
• Default occupancy rate of vessels
• Disaggregate vessel externalities by cargo units and pax
• Dealing with emission at ports and auxiliary engines
• Harmonizing this policy with future EU road charging policies beyond our scope?

ECOBONUS

• Making the scheme transferable at EU level (agreeing the comprehensive approach, key principles/criteria and main tools, in particular the externalities calculator)
• Identify the potential modal (back) shift of an environmental driven scheme
• Narrow the eligibility criteria to only address pure modal shift, avoiding deadweight and competition distortion
• Legal framework, both under TEN-T regulation to be co-founded under CEF and state aid approval regime
• Secure the funding (multiple sources)
• Implement a smooth and optimised administrative process
• Achieve the wider stakeholder consensus (industry, academic, institutional...)
• Achieve positive cost-benefit & impact results
• Make it “reusable” by other modes and markets