TOWARDS A COMMON EU APPROACH ON ECO-INCENTIVE MEASURES FOR THE DEVELOPMENT OF SUSTAINABLE FREIGHT TRANSPORT SERVICES IN THE TEN-T

Executive Summary

MED ATLANTIC

ECOBONUS

Co-financed by the Connecting Europe Facility of the European Union

Prepared by:

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GLOSSARY

CEF:	Connecting Europe Facility
EC:	European Commission
ECA:	European Court of Auditors
ETS:	Emission Trading Scheme
EU:	European Union
GHG:	Greenhouse Gas
HGV:	Heavy Goods Vehicle
IMO:	International Maritime Organization
LNG:	Liquified Natural Gas
MAE:	Med Atlantic Ecobonus
MoS:	Motorways of the Sea
MP:	Marco Polo
MS:	Member States
TEN-t:	Trans-European Transport Network

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A. SETTING THE SCENE

The Med Atlantic Ecobonus (MAE) Action is a policy study carried out by Spain, France, Portugal and Italy with the financial support of the Connecting Europe Facility (CEF) of the European Union (EU).

The study performs **two main objectives**:

- Setting out a proposal on the potential use of eco-incentive measures at EU level to develop sustainable freight transport services in the Trans-European Transport Network (TEN-t) through a common approach.

- Developing a complete *ex-ante* analysis implementing the common approach for a case-study, as an example to prove the impacts of such approach.

The study ends at proposal level and is intended to the debate. Therefore, it aims to be of use of the European Commission (EC) and the Member States (MS) to drive a formal debate towards the possible implementation of eco-incentive measures in the future, extending the scope of the existing EU funding programs in the field of sustainable freight transport services (e.g. CEF).

The main **goal of eco-incentives** is to trigger relevant decisions in the transport market that could bring the greatest socio-environmental benefits to the EU (globally) and to the MS (locally) on a market basis.

Carbon emissions, air pollution and social costs (congestion, accidents and noise) are the main socio-environmental factors and the ultimate goals of public support towards sustainable mobility, with different means of achievement (e.g. integration, optimization, modal balance, resource efficiency, technology, alternative fuels, etc.). The eco-incentive measures target these factors and allow the market to decide on the means to reduce them.

With the above scope, the eco-incentive measures seek to **complement** other existing instruments in the development framework of sustainable freight transport services, such as:

- **Regulation**, setting the minimum environmental standards for all modes of transport.
- **Charging** (negative incentives), following the *polluter pays* principle.
- **Action grants**, in the form of reimbursement of eligible costs when there is a funding gap amount (i.e. the current CEF approach).
- **State aids**, in compliance with the compatibility rules applicable in the EU market.
- **Financial instruments**.

The eco-incentive measures broaden the scope of the list above by considering a type of incentive which is proportional to the specific socio-environmental merits that are attained by the market through specific actions.

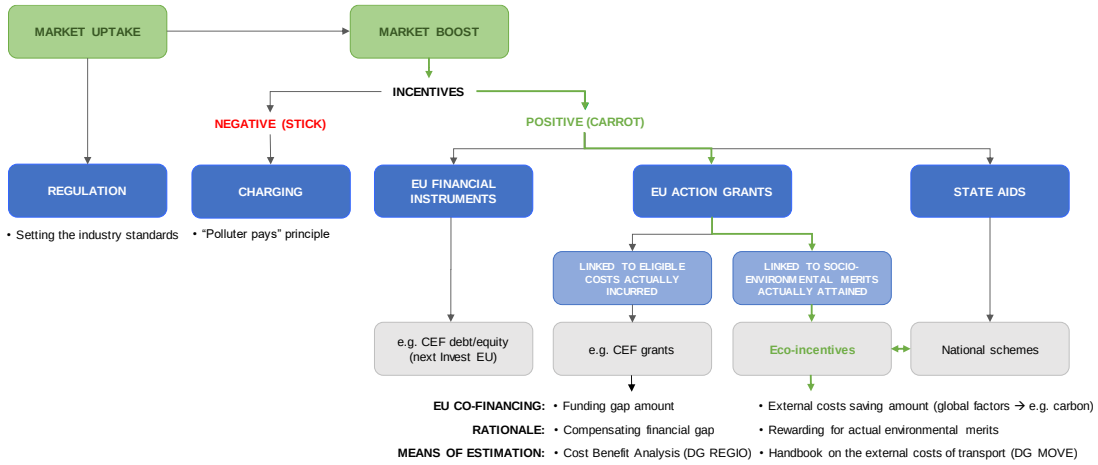

Figure 1: Sustainable freight transport services. Development framework. Setting the scene for eco-incentive measures

According to the financial rules of the EU[1], the eco-incentive measures should be conceived as a form of **action grants** not linked to costs based on the achievement of actual and demonstrated socio-environmental merits measured through relevant tools.

The fact that the eco-incentive is not linked to the cost of the action but is proportional to a socio-environmental merit would stimulate and give more flexibility for the market to decide upon those actions which could contribute most to achieve the greatest socio-environmental merit possible. Then the EC and the MS would still have the possibility to limit the type of actions that can be considered as eligible for eco-incentive measures, but with more flexibility than they do currently (i.e. not necessarily restricted to specific requirements set out in sector-specific rules). In doing so, the eco-incentive measures ultimate target is to speed up transition towards sustainable patterns in freight mobility. The aim is to reward actual socio-environmental merits on a rolling basis, not to compensate for the funding gap amount of green investments (which in the long run might be difficult to demonstrate for certain actions, even if they bring great socio-environmental benefits), or to compensate for the initial losses in the launching or upgrading of new services (i.e. start-up aids).

By way of illustration, **regulatory measures** have proved to be the right approach when the market is ready for the uptake of binding environmental standards. The

[1] Regulation (EU) 2018/1046 of the European Parliament and of the Council of 18 July 2018 on the financial rules applicable to the general budget of the Union.

implementation of the EURO standard on heavy goods vehicle (HGV) fleets or the next cap for sulfur content in marine fuels by 2020 are examples of successful and accepted (though challenging) regulatory measures. However, the way regulatory measures are used depends on the mode of transport. As an example, given the intrinsically global character of the maritime transport the EU has to regulate for this particular mode at the pace of the International Maritime Organization (IMO), which is not the case for the inland modes.

A similar consideration could apply to **charging measures** (e.g. following the *polluter* pays principle) which also need to be harmonized to avoid market distortion. Somehow, charging or incentivizing by reference to external costs would be two sides of the same coin, but could complement each other. That is, while the *polluter pays* principle seeks to internalize the actual external costs incurred (push effect), the eco-incentive approach would reward for actual external costs savings achieved (pull effect).

Moving to **positive incentives**, action grants in the form of reimbursement of eligible costs have proved to be a good approach as well when there is a funding gap amount to compensate, such as in infrastructure investments, facilities or pilot actions (e.g. on experimental technologies or innovative solutions, also in freight transport services). This is the approach in the current CEF, where eligible costs are restricted to certain actions through pre-established criteria with reference to sector-specific requirements.

However, this might not be the most effective approach for triggering decisions with great socio-environmental benefits that either demonstrate null or very low funding gap amount, or do not correspond to pre-established eligible costs for any reason not related to the actual contribution of the action to reducing socio-environmental impacts.

In a context of very **ambitious challenges** in freight mobility for the coming years with regards to the environmental and social impacts of transport, the eco-incentive measures are proposed as a new and complementary instrument to stimulate and accelerate the market uptake on those actions that could make the greatest contribution to reducing external costs.

In addition, setting the achievement of actual and demonstrated socio-environmental merits at the forefront of the eco-incentive measures allows for a common approach which is transferable across the EU territory, regardless the EU region or mode of transport. Indeed, if conveniently measured and monetized with commonly accepted references, carbon emissions, air pollution and social costs should be horizontal factors to any mode of transport beyond specific sectorial or regional considerations.

B. THE COMMON EU APPROACH

The common EU approach is proposed to harmonize the possible financing and implementation of the eco-incentive measures across the EU territory through implementing schemes that follow similar principles and methodology and are consistent with the relevant EU framework.

In order to find the basis for the common approach, a deep review of multiple references has been carried out, covering different EU regions.

Amongst them, the recommendations from the EC and the European Court of Auditors (ECA) following the Marco Polo (MP) programs, the TEN-t and CEF Regulations and the EU compatibility rules on state aid, together with the MS experiences on incentive programs, such as the Italian Ecobonus, have been major references for the common EU approach.

Upon these references, granting EU support to eco-incentive schemes should be based on a set of **requirements** (principles) that are briefly summarized below.

The eco-incentive measures should be based on actual socio-environmental merits attained through actions reducing external costs and be granted upon demonstration of such merits.

Within the definition of socio-environmental merit it is considered the reduction of carbon emissions, air pollution and social costs[2].

Since the grant is not linked to the action itself but to the amount of the socio-environmental merit that is attained, the eco-incentive measures could be neutral on how the socio-environmental merit is achieved (e.g. technologically agnostic). Thus, bringing more flexibility for the market to decide upon the actions which could return the highest merit and for the MS and the EC to decide upon the eligible actions.

The actual socio-environmental merits should be measured based on real performances to the extent possible and monetized upon agreement of the EC and the MS based on common references, with the latest update available of the EC's **Handbook on External Costs of Transport**[3] as the main one.

Different modes of transport and different EU regions require different approaches depending on sector-specific needs and MS priorities, which calls for a regional approach of the eco-incentive measures. In turn, it is likely that the socio-environmental merit attained through the eco-incentive measures would return benefits in the regional level, at least for the local impacts (e.g. social costs or certain air pollution factors). Moreover, when it comes to monetize local

[2] Main factors: CO_2 equivalent, SO_x, NO_x, particulate matter, congestion, accidents and noise

[3] Handbook on the external costs of transport (2019), European Commission. (https://ec.europa.eu/transport/sites/transport/files/studies/internalisation-handbook-isbn-978-92-79-96917-1.pdf)

impacts, there are significant differences among MS which would difficult the application of the EU budget.

Consequently, it makes reasonable thinking that MS should be the promoters of the eco-incentive measures through implementing schemes. Thus, MS would be the ones to elaborate and submit the proposal to the corresponding EU funding program, responsible for the scheme designing and implementation and eventually the beneficiaries of the EU co-financing.

In particular, MS should define the following scope and basic features for the eco-incentive scheme:

- The **targeted market** segment, where the scheme will be implemented.
- The **goals**, which should relate to improvements in the socio-environmental performance of freight transport services through specific actions.
- The **socio-environmental merit** to be incentivized.

Moreover, according to the EU Financial Regulation[4] EU grants shall involve co-financing. Consequently, MS as beneficiaries should be responsible for the scheme's financing as well, mobilizing the financial resources covering the part of the scheme's budget that is not covered with the EU funding.

On the other hand, the EU support needs to be justified on grounds of subsidiarity. Being the eco-incentive measures a form of support based on the achievement of actual socio-environmental merits, EU grants should then focus on those merits which provide benefit to all EU citizens. In this regard, given that carbon emissions have a global impact in the EU regardless of where they are produced, the contribution of the eco-incentive schemes to decarbonization emerges as a relevant criterion to estimate the amount of the EU funding[5] (i.e. the **EU co-financing rate**). Moreover, when it comes to monetize the EU contribution, carbon reduction would be estimated with unit values that are the same for the whole EU (being carbon emissions a global emission factor), thus making it easier to agree on these values at EU level.

Conversely, state aids would target air pollution and social costs. This is not new. For a long time, MS have been promoting incentive programs with national budgets to reduce air pollution and social costs, although with different approaches. In this regard, provided these national schemes could accommodate the principles of the common EU approach they could benefit from the EU support as well. To some extent, the common approach would allow an improved coordination and impact of the current MS support for sustainable freight transport services.

In addition, the regional approach together with the MS taking over the local impacts (e.g. air pollution and social costs) should make it easy to agree at

[4] See note 1.
[5] In addition, NOx reduction may prove global benefits as well.

regional level when it comes to monetize external costs which have different values depending on the region.

With the involvement of the MS support, the eco-incentive measures are likely to have to comply with the applicable rules on state aids laid down in the Treaty of the Functioning of the European Union and further in the applicable EC guidelines.

A legal analysis has been carried out on the subject. The main outcomes of the analysis are discussed in the executive report of the MAE study. In summary, the eco-incentive measures as proposed for the common EU approach may be compatible with the applicable rules on state aids, provided they are implemented in a non-discriminatory way. This particular requirement would depend to a large extent on the market-specifics in which the eco-incentive measure is implemented and should be addressed through the scheme design following the regional approach.

In addition, some issues are raised that might need further debate. On one hand, the discrepancies between the applicable rules with regards to the duration and renewability of the aid depending on the mode of transport. And related to this, the concept of start-up aid which might be restrictive for the purposes of the eco-incentive measures. Indeed, the eco-incentive measures are not conceived to develop new market segments but to the reduction of external costs in existing (mature) markets on a rolling basis. And on the other hand, the fact that some of these rules are obsolete at this time, such as the EC guidelines on state aid complementary to the EU funding for the launching of the Motorways of the Sea (MoS)[6], which refer to the former MP and TEN-t programs (now ended). Finally, it could be discussed to what extent the guidelines on environmental protection would be applicable to the case of eco-incentive measures, provided such measures are exclusively incentivizing socio-environmental merits.

Continuing with the principles of the common EU approach, the eco-incentive schemes should be implemented through administrative and technological structures that minimize the risk of fraud and additional bureaucracy and allow demonstration of the performance achieved according to the specific goals of such schemes.

Finally, and based on the specific recommendations of the ECA and the EC after the MP programs, granting EU support to sustainable freight transport services through eco-incentive schemes should be preceded by an ***ex-ante*** **analysis** proving the positive impacts of such schemes, with specific reference to those impacts that could justify the EU support (e.g. contribution to decarbonization). This impact assessment should be carried out using relevant and rigorous tools to be developed *ad hoc* for each eco-incentive scheme. It is proposed within the common EU approach that these tools should cover at least:

- An **external cost calculator** specifically designed to measure and monetize the socio-environmental merit that is incentivized based on common

[6] Communication from the Commission (2008/C 317/08).

references, with the EC's Handbook on External Costs of Transport as the main one.

- A **market analysis and simulation** tool to estimate the effects of the eco-incentive measure on the targeted market as well as the resulting socio-environmental impacts per external cost factor[7] when used in combination with the external cost calculator.

- A **financial assessment** to estimate the extent to which the eco-incentive measure is relevant to the goals of the scheme, from a market perspective.

A possible **common methodology** for the elaboration of the *ex-ante* analysis is described in the executive report of the MAE study. In addition to the tools two main elements should be considered as part of the common methodology.

- The eligibility criteria, which should be consistent with the targeted market, the goals of the scheme and the merit that is incentivized.

- The relevant scenarios to be used in the simulation. By relevant it is meant reasonable according to the market specifics, measurable with the tools and allowing for the identification of the maximum **budget needs**. Anyhow, the *ex-ante* analysis should compare the situation with and without the eco-incentive measure. Therefore, a baseline scenario should be considered.

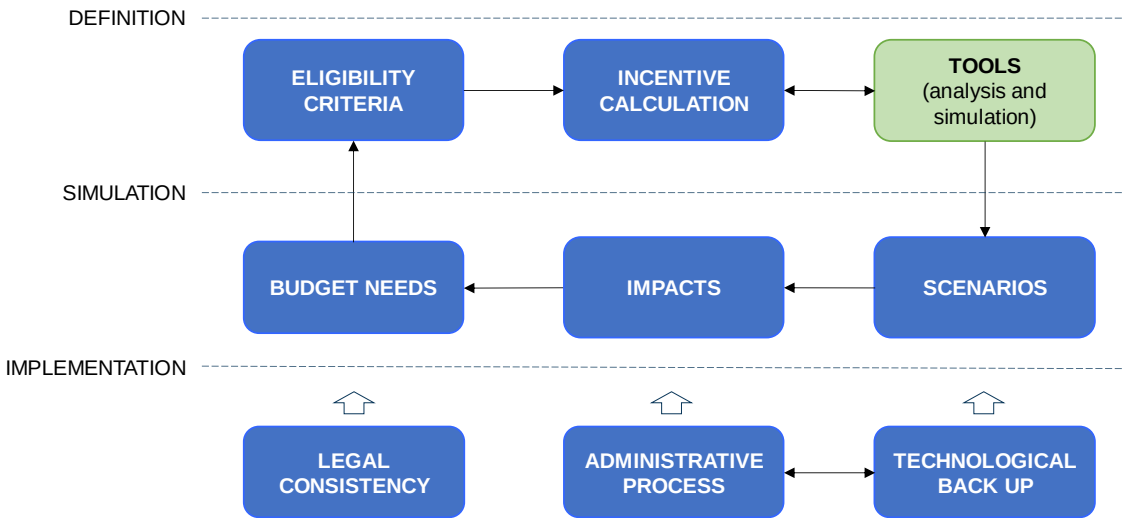

Figure 2: Outline of the common methodology for ex-ante analysis

[7] See note 2.

To the extent possible, the *ex-ante* analysis should prove compliance with the above principles of the common EU approach.

C. THE MAE CASE-STUDY

Following to the common EU approach, a complete *ex-ante* analysis has been performed as an example to prove the impacts of such approach on a possible eco-incentive scheme of the interest of the MS involved in the MAE Action (named as the case-study).

Following the regional approach, the **targeted market** for the eco-incentive measures in the case-study is the MoS ferry and ro-ro transport activities servicing alternative routes to the road transport in the West Mediterranean and the Atlantic regions.

This market segment is currently performing with around 200,000 HGV per year in average. This traffic is very sensitive to the maritime price since there is an alternative route by road. On the other hand, vessels in this market usually sail at higher speeds to secure frequencies that are attractive to the road haulers, which in turn produces higher emissions. Moreover, shipowners have been using smaller vessels to get viable utilization rates. Finally, fleet designs in this market have been considering classic marine fuels for the vessels in order to minimize costs and to offer competitive prices to the road haulers (a scenario changing by 2020). As a result, the environmental performance of the maritime leg is not optimized in this market. Conversely, road has significantly reduced emissions over time (specially air pollution factors) as a direct consequence of the transition in HGV environmental performance from the EURO III to the EURO VI standard. However, road transport is still responsible for significant social impacts, particularly due to congestion, which concern the MS involved. Moreover, congestion is especially severe in two sensitive areas such as the cross-border sections of the Pyrenees and the Alps in the Atlantic and the Mediterranean Core Network Corridors.

All of the above makes the targeted market well suited for an eco-incentive scheme with the **main goal** of improving the environmental performance of MoS while reducing social costs of road transport. This market is considered to be mature, with MoS currently operating in both seas. Therefore, the eco-incentive measures are not intended to develop the market but to stimulate its transition to a more sustainable shipping while contributing to the reduction of social costs from road transport.

The **merit to be incentivized** is the external costs saving from freight units using the improved MoS compared to the road-only alternative. Following the Italian Ecobonus approach, which is recognized as a best practice by the EC and the ECA, the eco-incentive would be granted to the users of the maritime services.

In other words, the eco-incentive would only apply if maritime operators implement actions improving the environmental performance of the maritime leg (green actions) and the road operators remain using the maritime services. With this approach the eco-incentive is implemented in a non-discriminatory way (i.e. demand approach), deadweight is minimized (i.e. green action as a requirement to benefit from the scheme) and funding is made conditional upon results (i.e. eco-incentives will be granted upon proof of boarding).

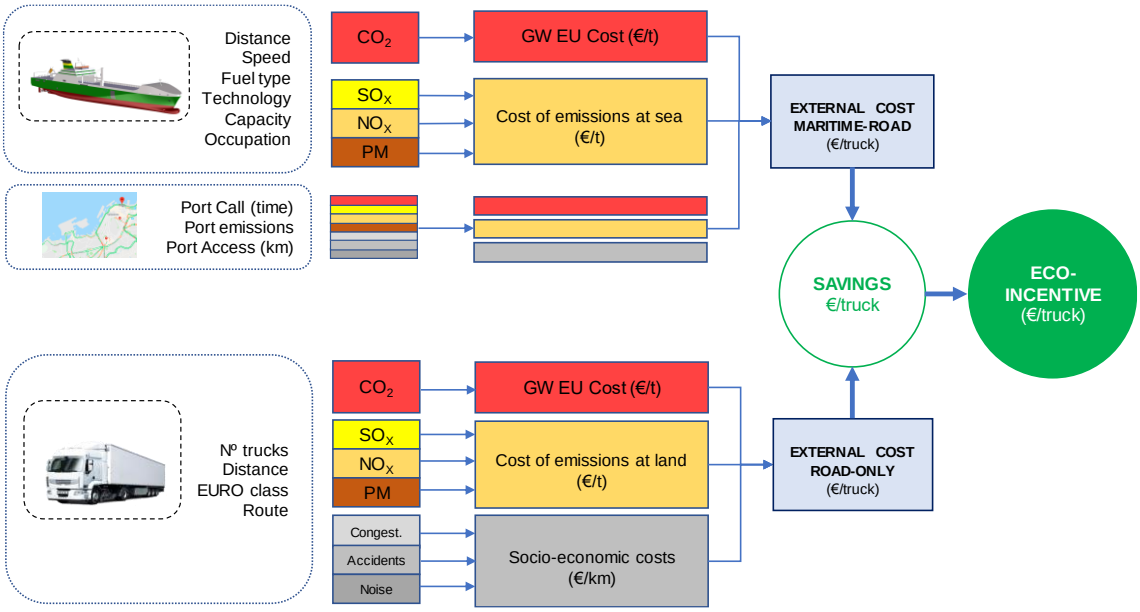

Figure 3: External cost calculator. Incentivized merit in the targeted market. MAE case-study

According to the scope and design of the eco-incentive scheme, the ***ex-ante* analysis** is performed following the common methodology of the common EU approach.

The following **eligibility criteria** have been considered for the case-study (all criteria should be considered together), including 5 years as eligible period (2020-2024). It must be emphasized that these eligibility criteria do not relate to any institutional action already committed by the promoters of the study and must be taken as an example at this stage. In fact, these eligibility criteria might be revised (enlarged or restricted) should this example be moved to an implementing action in the future:

- Only maritime services consisting in international lines with no more than 2 stops or one enroute call.
- Direct beneficiaries shall be the users of the maritime services upon proof of boarding and proof of purchase (i.e. provided by the transport operator and the shipowner). By users it is meant the purchasers of the maritime ticket. Users will also be responsible for the proof of the boarding event.

- Lines shall go from / to a port of the implementing MS to / from another EU port or between ports of the implementing MS.
- Domestic services are not eligible in the example.
- Only maritime services having a door-to-door road alternative in operation are eligible (i.e. no pure channel crossing lines).
- Only ro-ro, ro-pax or con-ro vessels are eligible (for ro-pax and con-ro, only freight on ro-ro units is eligible).
- Regular services with a minimum frequency of 1 departure per week by a dedicated vessel (i.e. no seasonal services).
- Services consisting of new or upgraded lines producing external costs savings per transported unit compared to the road-only alternative. Such merit shall be demonstrated and monetized using the scheme's external cost calculator tool and incur direct costs to the shipowners by means of green actions improving the environmental performance of the maritime service.
- Only accompanied or non-accompanied trips of rolling cargo, intended as freight that can be loaded and unloaded autonomously on the vessel (i.e. no cranes used), may be considered eligible. New cars would be considered eligible given they are loaded on trucks.
- Direct beneficiaries shall commit to a minimum number of trips (100 trips a year).
- Maritime services shall be open to all users under the same conditions and in a non-discriminatory way.
- Only services using vessels complying with 2020 sulfur cap (or its equivalent with abatement technologies) are considered eligible.

Then, the following **scenarios** are compared:

- A baseline scenario, with all MoS switching from high sulfur fuel oil (HSFO) to marine gasoil (MGO) or low sulfur fuel oil (LSFO) to comply with the IMO 0.5% sulfur cap by 2020. As result an estimated increase of 12% in the sea rates is considered due to the higher price of these compliant fuels, leading to modal back shift effects. No eco-incentive is granted in this scenario (i.e. **regulation merit**).

- A **green scenario**, with all MoS switching to liquified natural gas (LNG) and the sea rates maintained. Due to the green action an eco-incentive is granted to the users of the maritime services in this scenario, thus leading to a modal shift effect. The choice of LNG is based exclusively on the assumption that this option would bring the largest environmental merit from today's perspective. Thus, the green scenario will return the maximum eco-incentive

possible and allow the estimation of the maximum budget needs, which is an objective of the *ex-ante* analysis.

The same MoS are considered for simulation in both scenarios (i.e. no market development as a result of the eco-incentive). In particular, 5 MoS in the West Mediterranean and 6 MoS in the Atlantic. Most of these MoS are existing services at this time or having existed in the past.

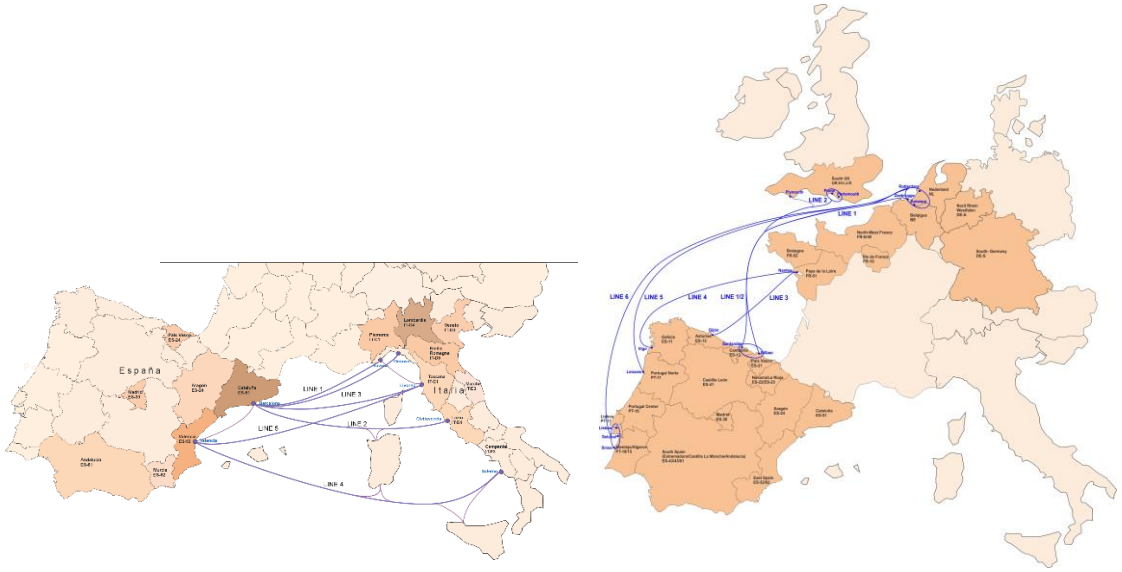

Figure 4: MoS considered in the ex-ante analysis. MAE case-study. West Mediterranean and Atlantic regions.

Following to these scenarios, three tools have been designed and calibrated *ad hoc* for the *ex-ante* analysis:

- An **external cost calculator tool**, to calculate the eco-incentive and assess the socio-environmental impacts[8].

- A **transport modelling tool**, allowing for the following outcomes in combination with the external cost calculator:
  - Effects on demand in the scenarios with and without eco-incentive.
  - Net external costs savings comparing both scenarios.

[8] The latest version of the EC's Handbook on External Costs of Transport is from June 2019 and was not available at the time the tool was developed. Therefore, the calculator is mainly referred to the previous version of the Handbook (2014) except for carbon pricing which takes the reference from the first version of the manual (2008), resulting in an estimated value of 34 €/ton CO_2 equivalent for the MAE case-study. This value would have been around 100 €/ton CO_2 equivalent if estimated with reference to the 2014 or 2019 version of the Handbook, which was considered too high. In fact, 34 €/ton CO_2 equivalent comes closer to the central values that the European Investment Bank is considering for the economic appraisals of investment projects (below 50 €/ton CO_2 equivalent in the period 2020-2025).

- Total eco-incentive given (i.e. the maximum budget needs for the proposed scheme).

- A **shipowners' perspective tool**, estimating the additional net incomes to shipowners as a result of the additional demand (due to the modal shift effect) and assessing the extent to which such incomes are attractive enough from the financial perspective for the shipowners to implement the green actions (LNG investments in the case-study).

The complete impact assessment is performed with these three tools, estimating the net effects resulting from the comparison between the green and baseline scenarios in both the West Mediterranean and the Atlantic regions. A brief summary of the **results** is included below, in aggregate for both regions.

Overall, the assessment proves positive impacts. In other words, the eco-incentive demonstrates its ability to trigger the green actions in the maritime leg by significantly improving the financial returns of such actions from the perspective of the shipowners. As a result, the eco-incentive measure would lead to a significant improvement in the environmental performance of MoS in the targeted market, while reducing social costs from road transport (which is the goal of the eco-incentive scheme).

In particular, with a total 148.1 M€ in eco-incentives over 5 years (2020-2024), 550,000 trucks would be secured off the road and shipowners would indirectly benefit from 164.2 M€ of additional incomes making the business case for green actions of 343.0 M€[9]. As a result, a total 312.7 M€ of external costs savings would be attained in the targeted market, of which 218.8 M€ due to the greener MoS and 93.9 M€ due to 550,000 trucks being secured off the roads.

PERIOD 20-24				
	ECO-INCENTIVE	**INDIRECT INCOMES**	**GREEN ACTIONS**	**EXT. COST SAVINGS**
WEST MED	98,324	58,892	162,586	157,714
ATLANTIC	49,813	105,275	180,454	154,983
TOTAL	**148,137**	**164,167**	**343,040**	**312,697**

Table 1: Final assessment (x1000 €). MAE case-study. Leverage effect of the eco-incentive measure

27.9 M€ out of the total 312.7 M€ of external cost savings are due to a net reduction of 820,000 tons of CO_2 equivalent[10]. This benefit of 27.9 M€ due to

[9] This amount refers to the additional investment cost of the LNG vessels (green scenario) over the investment costs of the conventional ones (baseline scenario).
[10] See note 8.

carbon reduction over a total budget (i.e. total eco-incentive given) of 148.1 M€ could be assimilated to the amount of EU funding, resulting in a co-financing rate of 19%[11]. This rate compares well with the maximum co-financing rates that are usually considered in the current CEF (i.e. 20% for sustainable freight transport services, 30% for MoS).

In most cases the green actions do not prove the existence of a funding gap amount. However, the eco-incentive brings additional incomes to the shipowners that improve the financial returns of such actions and stimulate the investment decision. With no eco-incentive, it is likely that shipowners would take more conservative actions with no relevant impacts on the environmental performance of the MoS beyond the strict compliance with the environmental regulation.

In addition, the risk of demand is reduced by definition since the eco-incentive is granted to demand. Therefore, the scheme design would grant better financial conditions to the shipowners which in turn would improve the financial returns of the investment. Ultimately this effect would make the green action even more attractive to the shipowner. In addition, it could also ease access to EU financial instruments.

Finally, as part of the *ex-ante* analysis, a possible **implementing process** has been outlined, as example. In brief, and on the one hand, such process includes the procedures that MS would need to complete to secure the funding (both from the EU and the MS). On the other hand, once funding is secured, the procedures that MS would have to implement to launch and manage the eco-incentive scheme.

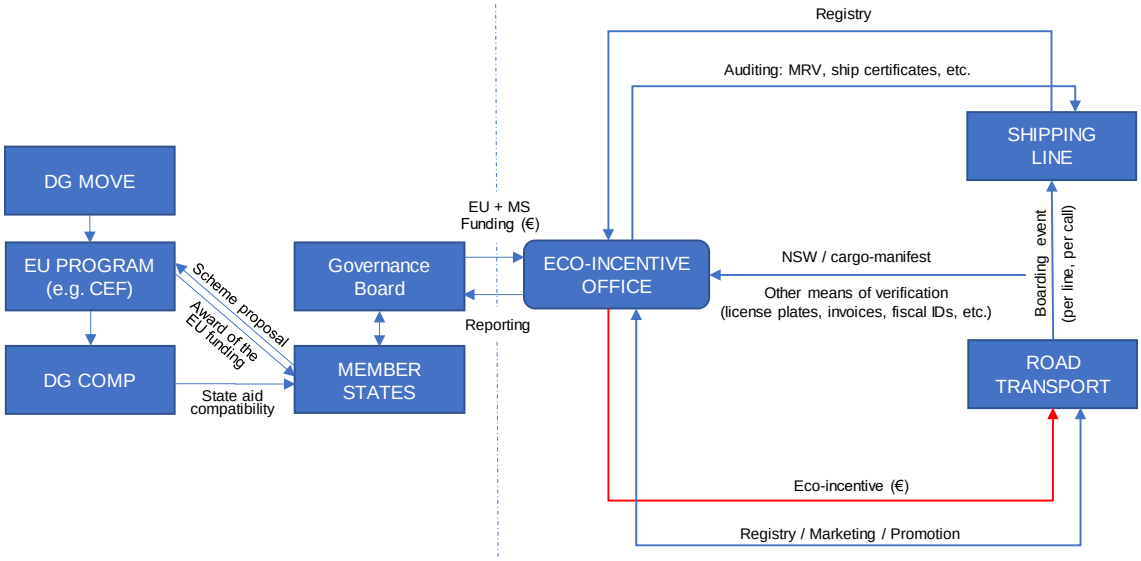

Figure 5: Outline of the implementing process of the eco-incentive scheme. MAE case-study

[11] Should carbon pricing be estimated with reference to the 2014 or 2019 version of the Handbook this percentage would increase significantly. Nevertheless, the EU contribution could be limited to a maximum co-financing rate, in the same way as it happens with the funding gap amount in the current CEF approach.

D. FINAL CONSIDERATIONS AND MOVING FORWARD

The MAE Action ends at proposal level and is intended to the debate. Moving to real implementing actions based on the proposed approach requires broad consensus.

Preliminary contacts have been established with relevant private and institutional stakeholders in the course of the study, with two main objectives.

First, to get a better understanding of the concerns, needs and priorities from different actors with regards to the goal of sustainability in freight mobility in a context of extraordinary challenges in this field for all modes of transport.

Secondly, to get a better knowledge of the operational structures and specific technical, legal and economic fields where these actors play, representing the specific frameworks within which they should develop and reach these challenges.

Further to these contacts, the MAE team had the opportunity to verify in all the meetings a common willingness and active sense of responsibility which makes the case for coordinated efforts under the development framework of sustainable mobility. Yet, the sector-specific priorities and constraints still undermine this great potential and call for new approaches and mechanisms to trigger it.

By way of illustration, there is an overall consensus on the need to mitigate greenhouse gas (GHG) emissions of transport that extends to both public and private stakeholders. On the one hand, and beyond the on-going debate on the inclusion of the transport sector in the EU Emission Trading Scheme (ETS), many transport operators are already considering the carbon footprint as part of their commercial activities. To some extent it appears that the sector is already internalizing that transport will eventually be included in such ETS, as it accounts for more than 20% of the total GHG emissions in the EU. On the other hand, public institutions are committed to public support for actions that reduce carbon emissions in transport. However, in many cases the support is granted only if the action demonstrates the existence of a funding gap amount, with such grants not being calculated on the grounds of the actual merits attained with the action (i.e. in terms of carbon reduction) but based only on financial considerations.

Conversely, this approach from transport operators with regards to decarbonization changes when it comes to the reduction of air pollution or social costs (e.g. congestion). This is probably due to the local nature of these impacts, which makes it more difficult to internalize them through ETS schemes when it comes to monetizing such impacts.

In these cases, transport operators do not feel stimulated and tend to accommodate their practices to a strict compliance with the sector-specific regulations setting the environmental standards for each mode of transport. In

doing so, they seek not to jeopardize the commercial viability and competitiveness of their transport activities in the market.

However, reducing air pollution and social costs are key goals of sustainable mobility. Moreover, these factors are of great concern to MS, precisely because of the local nature of their effects.

Above all, it should be noted that both GHG and air pollution from transport activities are proportional to energy consumption. Moreover, certain modes of transport have not yet developed the necessary technology or reach the commercial readiness on this technology to implement a full mitigation of all emission factors. This calls for common approaches that can improve the effectiveness of public support, combining the action of the EU and the MS to stimulate for the greenest solutions that exists at any given time, including both global and local levels of impact.

The **common EU approach** on eco-incentive measures, as proposed, falls under this objective.

The main contribution to the debate concerns the possibility of stimulating sustainable freight transport services through action grants based on the achievement of actual socio-environmental merits. The specific actions attaining such merits would be proposed by the transport market.

This approach is presuming a transport market which is mature and able to improve its socio-environmental performance in market conditions.

In this context, the eco-incentive measures would play a neutral role in the market (from the perspective of internal costs) as they would only be granted on the basis of actual external cost savings. In addition, by being proportional to the amount of such savings, the eco-incentive measures would stimulate for those actions that could contribute most to reduce carbon emissions, air pollution and social costs. Conversely, the approach is not to compensate for market losses (e.g. start-up aids) or to reimburse the funding gap amount of certain investment projects (i.e. the current CEF approach).

When estimating the EU contribution to the eco-incentive measures, the approach allows EU support to focus on those impacts that benefit all EU citizens (e.g. decarbonization), conveniently measured and monetized through common references, notably the EC’s Handbook on External Costs of Transport.

Thereby, the eco-incentive measures would extend the scope of the current CEF approach, where only actions proving the existence of a funding gap amount are granted with the EU support. This has proved to be a good approach for infrastructure investments as well as for pilot actions in the field of innovation and new technologies. However, it might not be as effective when it comes to trigger actions with great socio-environmental benefits but with null or low funding gap amount. Such actions would make the case for the eco-incentive measures. In other words, when there are multiple alternatives in the market that are compliant with the binding regulations and can be adopted by the stakeholders with almost

no funding gap amount, there is no clear mechanism available to grant positive incentives that make the market decide for those actions that can achieve the greatest socio-environmental merits.

In addition, the involvement of the MS as promoters of the eco-incentive schemes allows for regional approach within the common EU approach. Thereby, as MS are responsible for the scheme design, the eco-incentives measures will better address the regional specifics and priorities of the transport market where the scheme is to be implemented.

Moreover, when it comes to monetizing external costs, this regional approach will ease consensus among the MS involved regarding the value of the local factors, leaving to the EU level the consensus on the value of the global ones.

It should be noted that MS have been promoting incentive schemes with national budgets for many years. Provided that these national schemes could accommodate the principles of the common approach and thus benefit from the EU support, such programs might improve their impact and effectiveness.

Finally, it seems the right time for new approaches on the debate that could increase the effectiveness of the EU and MS support to sustainable freight transport services.

On 28th November 2018, the EC presented its very ambitious strategic long-term vision for a prosperous, modern competitive and climate neutral economy[12]. A net-zero GHG emissions is envisioned for the EU by 2050, in line with the also very challenging objective of the Paris Agreement to keep the global temperature increase to well below 2°C and pursue efforts to keep it to 1.5°C. Transport is targeted in the pathway to this transition, being responsible for around a quarter of GHG emissions in the EU. All transport modes will therefore have to contribute jointly to decarbonization, including freight transport. The EC does not hide its preference for electrification to underpin such transition, although it recognizes that it will not be the only option for all modes of transport based on today's technologies. In this regard, the EC extends the scope of the strategy to other possible ways to contribute to decarbonization, including new or improved alternative fuels, improved efficiency, behavioral changes by companies reducing or internalizing external costs, etc. Moreover, reducing air pollution, congestion, accidents and noise in combination with this transition to decarbonization is also mentioned in the strategy when it comes to the local impacts of transport, especially in urban areas.

On 13th April 2018, by Resolution of the Marine Environment Protection Committee (MEPC), the IMO adopted the initial strategy on reduction of GHG emissions from ships[13]. This initial strategy is also mentioned by the EC in its long-term vision, recognizing the intrinsically global dimension of maritime

[12] A Clean Planet for All. Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank on a European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy (COM(2018) 773 final).
[13] Resolution MEPC.304(72).

transport and the need for coordination with the IMO in relation to this mode of transport. The IMO initial strategy is very ambitious as well, although not as much as the EC's net-zero GHG emissions target, proposed for 2050. In this case, the IMO vision is to phase GHG emissions out from international shipping as soon as possible, but within this century. However, the IMO initial strategy sets certain levels of ambition such as the reduction of the total annual GHG emissions by at least 50% by 2050 compared to 2008, or the reduction of CO_2 emissions per transport work by at least 40% by 2030, pursuing efforts towards 70% by 2050, both compared to 2008. Based on today's technologies maritime transport will have to face extraordinary efforts to meet these levels of ambition. However, it is interesting to underline this reference to carbon intensity (i.e. CO_2 emissions per transport work) which calls again to transport efficiency as a means to move towards decarbonization, not necessarily based on technology (e.g. increasing the capacity of the vessels, optimizing cargo, reducing speed, etc.).

On 6th June 2018 the EC launched the legislative process for the revision of the Connecting Europe Facility for the period 2021-2027 (CEF2), with the adoption of a first proposal for a Regulation of the European Parliament and the Council[14]. Partial provisional agreements have been reached in the Interinstitutional negotiations (Trilogue). Although the process is not yet concluded at the time of preparation of this report, and the remaining issues will have to be agreed at second-reading with the new Parliament, the latest proposal does not seem incompatible with the possible consideration of eco-incentive measures in future work programs. Likewise, the upcoming revision of the TEN-t guidelines will bring an opportunity to the debate on the potential role of eco-incentive schemes as projects of common interest for the sustainable freight transport services under **article 32 of the TEN-t Regulation[15]**.

Finally, on June 2019 the EC has published the new update of the Handbook on the external costs of transport[16], which is the main common reference to measure and monetize external costs at EU level and consequently a fundamental pillar of the common EU approach on eco-incentive measures, as proposed.

In this context of ambitious challenges and review of the development frameworks, it seems the time to debate how to accelerate the development of sustainable freight transport services over the coming years.

This proposal on eco-incentive measures intends to be of use of the EC and the MS in such a debate.

The executive report of this summary, including the specific tools that have been developed for the MAE case-study, is available at www.mae-project.eu.

[14] Proposal for a Regulation of the European Parliament and of the Council establishing the Connecting Europe Facility (COM (2018) 438 final).
[15] Start of the legislative process for the revision of Regulation (EU) 1315/2013 planned for 2020.
[16] See note 3.

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