MED ATLANTIC

ECOBONUS

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

PRESENTATION

On the preliminary report for consensus

November 2018

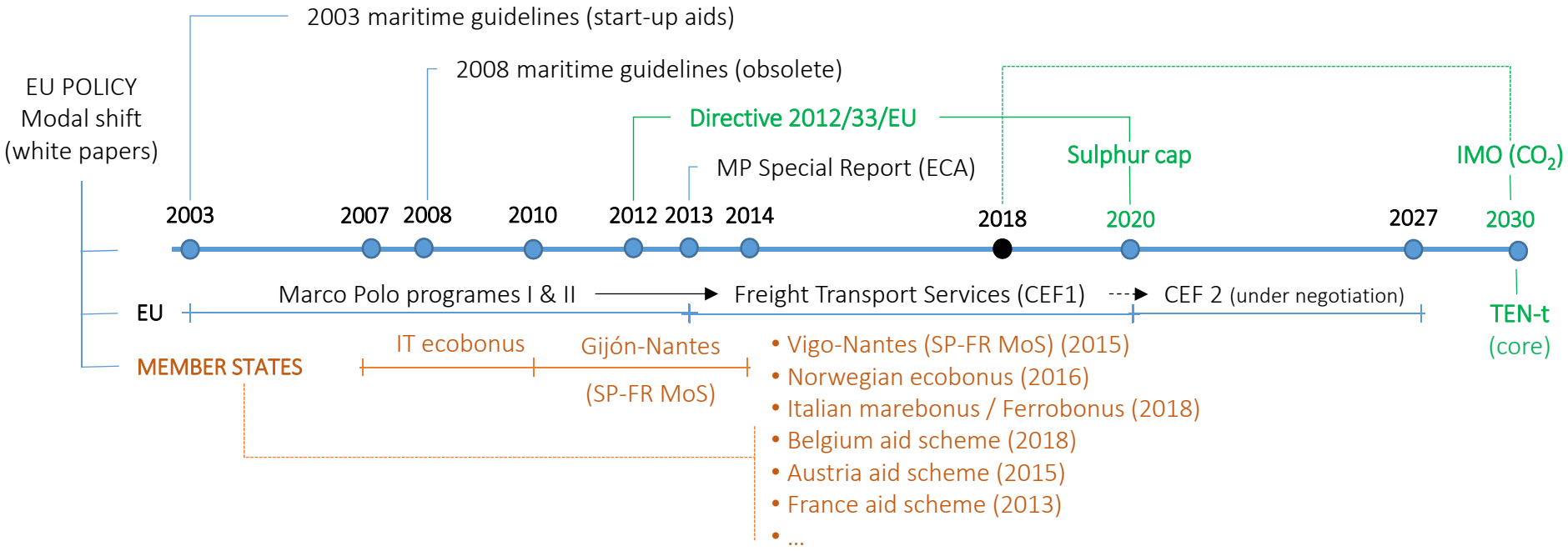
What is MAE Action?

Project	MED ATLANTIC ECOBONUS (2014-EU-TM-0544-S)
Call	CEF 2014
Type	Policy study
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: December 2018
Budget	1,543,838 € (Funded 50%)
Contact	mae.project@puertos.es

What is MAE Action?

- **Policy study** at proposal level (intended to the debate)
- Towards a **common EU approach** to eco-incentives measures to stimulate sustainable freight transport services (open to all modes of transport and EU regions)
- Delivering a complete **ex-ante analysis** taken the motorways of the sea in the West Med-Atlantic region as example to prove the impacts of the approach

Departing from …



EU: Discontinuing modal shift actions, focusing on greening technologies (CEF1)
Article 32 Regulation EU 1315/2013 (TEN-t guidelines): **Sustainable Freight Transport Services**

MS: Still supporting modal shift / combined transport

Key recommendations to further incentive programs supporting freight transport services:

- European Court of Auditors Special Report nº3 (2013) on the Marco Polo Program
- COM (2013) 278 final and COM(2013) 321 final: EC outlook and reply to the ECA report

Arriving to …

A possible common approach for the EU support to eco-incentive actions developing *sustainable freight transport services,* based on the following **PRINCIPLES**:

- No market distortion (e.g. directed to demand)
- Targeting mature markets (i.e. not targeted to start-up services)
- Just aimed at improving the socio-environmental performance of freight mobility
- Open to all EU regions and all modes of transport
- No longer pure modal shift goals “per se” (road is no longer EURO 3)
- Incentive calculation based exclusively on socio-environmental merits (i.e. measuring external costs savings is needed)
- Technologically agnostic on how the environmental merit is achieved
- Funding conditional upon results (e.g. paying upon proof of boarding)
- MS co-responsibility (i.e. in the definition, the implementation and the financing of the action)
- Compatible with state aid rules (regarding intensity & duration)
- Minimizing deadweight
- Minimizing the risk of fraud
- Minimizing the need for additional data requests
- Demonstrating performance achieved (i.e. monitoring)

… plus a basic requirement

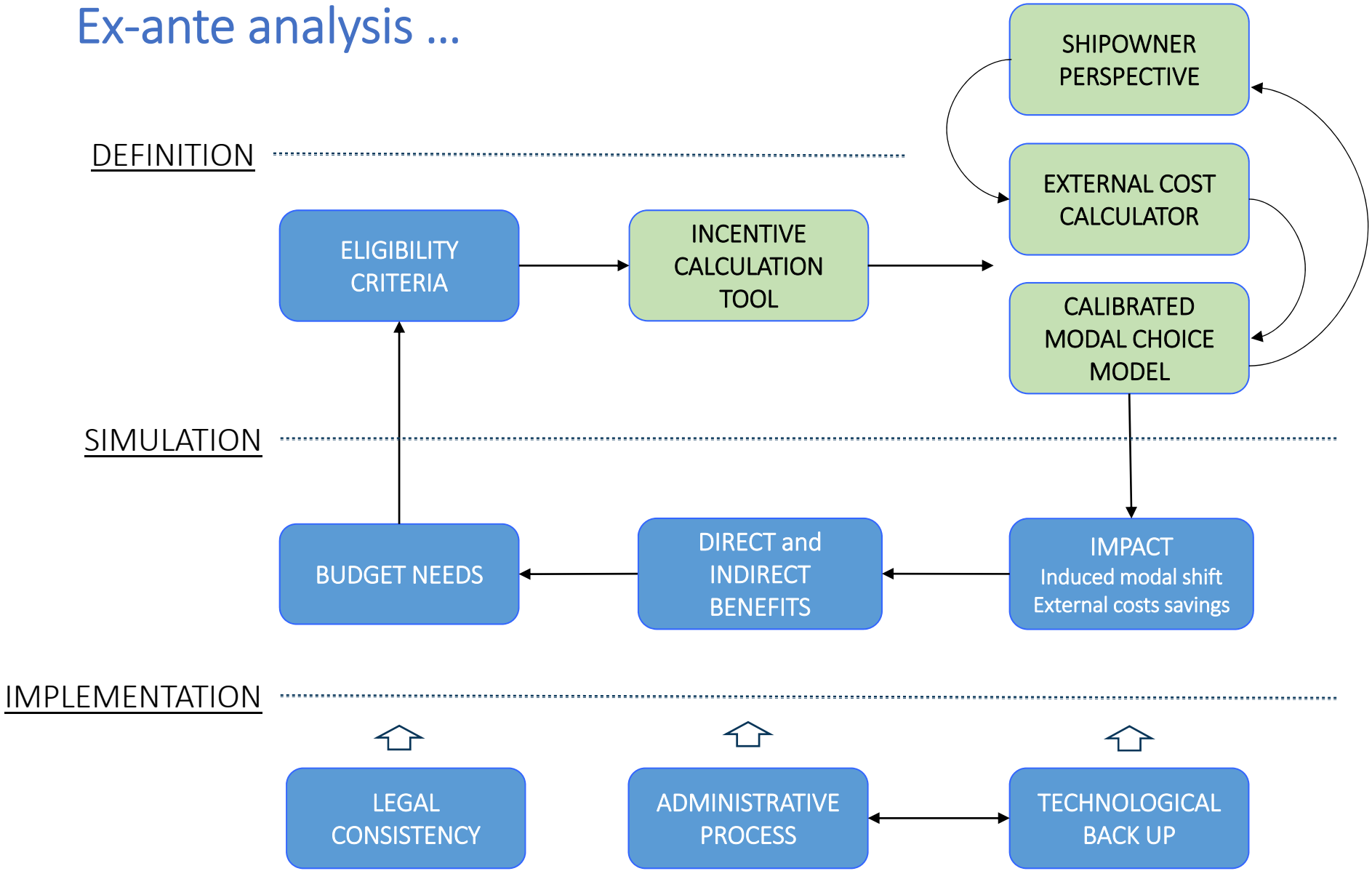
In addition, granting EU financial support to any eco-incentive action shall be conditional to an **ex ante analysis** showing whether and to what extent there is an EU added value **(ECA report)**

MAE example

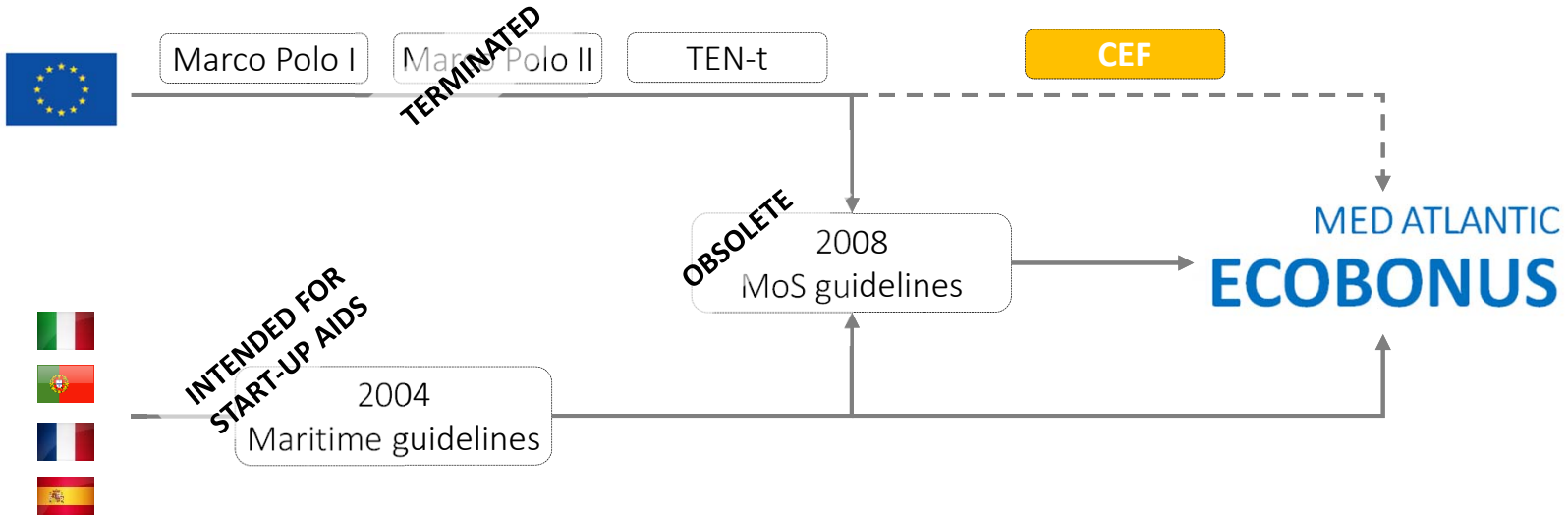
Definition:

- **Targeted market:** ro-ro/ferry motorways of the sea servicing alternative routes to the road transport in the West Mediterranean and the Atlantic regions
- **Goal:** greener performance of the maritime services (while securing modal balance)
- **Environmental merit incentivized:** External costs savings from freight units using the maritime service compared to the road-only alternative due to a green action in the maritime leg

Ex-ante analysis …



… state aids



- It is unlikely that the 2004 maritime guidelines are amended (variety of topics)
- 2008 motorways of the sea guidelines are more likely to be amended to meet the CEF standards on aid's maximum intensities and duration
- The previous would allow a better alignment of state aid rules for all modes of transport

Eligibility criteria … (as example)

- 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. By users it is meant the purchasers of the maritime ticket.
- Lines shall go from / to a port of the implementing Member States to / from another EU port or between ports of the implementing Member States.
- 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 in new or upgraded lines performing a socio-environmental merit, as described. Such merit shall be demonstrated and quantified -using the scheme's external cost calculator tool- and incur direct costs to the shipowner by means of a green action improving the environmental performance of the maritime service.
- Only accompanied or non-accompanied units intended as freight that can be loaded and unloaded autonomously on the vessel (i.e. no cranes used). New cars are not eligible unless they are loaded on trucks.
- Direct beneficiaries shall commit to a minimum number of trips.
- 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 thresholds as set in the Sulphur Directive (or its equivalent with abatement technologies) are considered eligible

External cost calculator tool

- Developed from latest existing **EU references and best practices**, using 2016 constant values.
- Designed *ad hoc* for the targeted market to **estimate the socio-environmental merit per line and per unit**, as described (comparing maritime-road and road-only alternatives).
- External costs considered: **greenhouse gases**, **air pollution** (NOx, Sox and PM) and **socio-economic costs** (congestion, accidents and noise for the road-only alternative).
- Prepared **to measure the main possible actions** to be taken by the shipowners to reduce external costs (technology and not technology based).
- A **70% occupancy rate** has been considered for all vessels, as an average.
- The road performance is calculated using an **average mix for the EURO standard** of the truck fleet operating the routes.
- It estimates a greater impact for **road on port access** (9 + 9 km) as well as the **environmental performance of the vessels at port** (6h/call and 8 ton/day).
- **Only considering vessels' emissions from eligible units.** Private cars (pax) and new vehicles using the capacity of the vessel take their share out from the calculation by using 10 pax and/or 6 new vehicles as a truck equivalent.

External cost calculator tool (cont.)

Route ----> Parallel

MARITIME DATA		
SHIP	Lane meters	3000
	Occupancy*	70%
	Pax	0
	New Veh	0
FUEL		MDO 0,5%
REDUCTION TECH.		NONE
SPEED		17
FUEL CONSUMPTION t/day		40

*Occupancy: Set 70% as default

ROAD DATA	
NUMBER OF TRUCKS	140
NUMBER OF TRUCKS equivalent	140
FUEL CONSUMPTION l/km*100	36,0
EURO STANDARD	2010

Include: ☑ SOCIO-ECONOMIC
Direct entry: ☐ USE DIRECT ENTRY
Cold Ironing: ☐ ON

EXTERNAL COSTS **Parallel 2010**

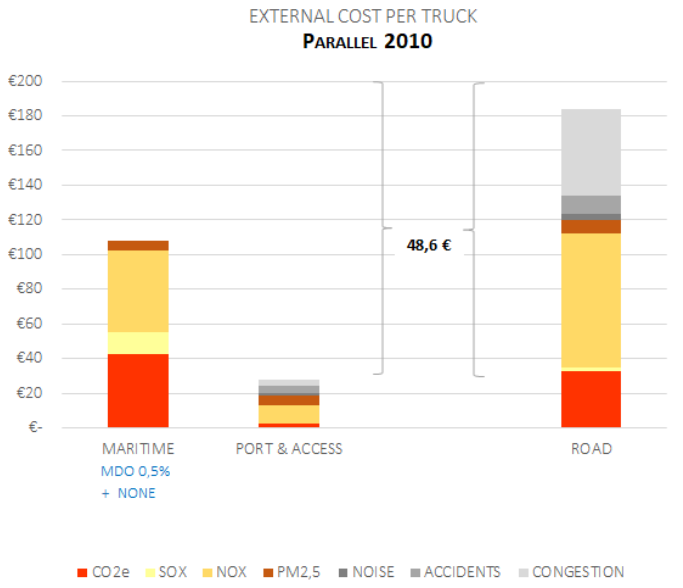
	CO_2e	SO_X	NO_X	$PM_{2,5}$	DISTANCE	TIME	
	t	kg			km	hrs	days
MARITIME	174,4	571,1	2.746,5	125,1	1.000	32,8	1,4
PORT & ACCESS	6,4	4,2	128,1	2,8	32	6,0	0,3
ROAD	134,1	30,9	1.141,7	40,5	1.000	27,8	3,1

MARGINAL EXTERNAL COST ESTIMATION

	ENVIRONMENTAL				SOCIO-ECONOMIC		
€/veh 1000 Km	CO_2e	SO_X	NO_X	$PM_{2,5}$	NOISE	ACCIDENTS	CONGESTION
MARITIME	42,3 €	12,7 €	47,3 €	5,3 €	- €	- €	- €
ROAD	32,6 €	2,2 €	77,1 €	8,2 €	3,4 €	10,4 €	49,9 €
€ veh trip							
MARITIME	42,3 €	12,7 €	47,3 €	5,3 €			
PORT & ACCESS	2,2 €	0,4 €	10,3 €	5,5 €	1,9 €	3,7 €	3,5 €
ROAD	32,6 €	2,2 €	77,1 €	8,2 €	3,4 €	10,4 €	49,9 €

TOTAL EXTERNAL COST ESTIMATION

€/veh	ENVIRONMENTAL	SOCIO-ECONOMIC	TOTAL
MARITIME	107,6 €		**107,6 €**
PORT & ACCESS	18,4 €	9,0 €	**27,5 €**
ROAD	120,1 €	63,6 €	**183,7 €**
Modal shift	-5,9 €	54,6 €	**48,6 €**



Input tables

Output tables

Output chart

- Results are presented in € per unit in each alternative (road-only *vs* maritime-road).
- The external cost savings (€ per unit) per line give the value of the incentive
- Due to the lack of data some assumptions/simplifications have been taken on simulation. The calculator accepts entering direct values if they are provided.

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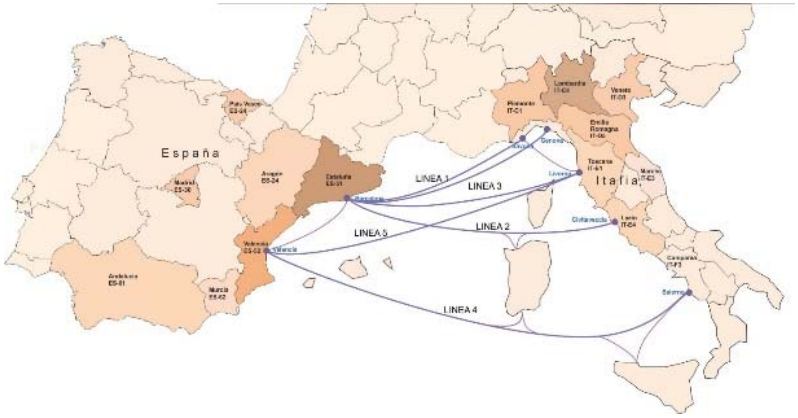
MED ATLANTIC ECOBONUS

Transport modelling tool

- A complete transport modelling tool has been **calibrated for the targeted market**
- Aimed at replicating the market performance and **simulating the effects of the eco-incentive measure**
- Two calibrations have been carried out, one for the West Med and other for the Atlantic
- The methodology follows the classic **four-step transport modelling approach** (i.e. global mobility, spatial distribution, modal choice and route assignment, including the shares between lines). The last two models use a logit formulation.
- The modelling uses **GDP, transport prices** (road and maritime) and **frequencies** (on the maritime services) as the main explanatory variables.
- 5 lines for the West Med and 6 lines for the Atlantic are considered:



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Transport modelling tool (cont.)

- The goodness of the calibration is considered as **valid (under statistical parameters)**.
- The **estimated values are consistent with the real observed values**, including the effects from the Italian Ecobonus and the financial crisis.
- It brings additional knowledge on the market behavior that is also consistent with the actual performance.
- e.g West Med values (x 1000 ton):

REAL

AÑO	TOTAL	Solo carretera	Autopista del Mar	LINEA 1 BCN-GEN	LINEA 2 BCN-CIV	LINEA 3 BCN-LIV	LINEA 4 VAL-SAL	LINEA 5 VAL-LIV
2008	8.931	5.757	3.174	1.113	875	488	524	174
2009			2.687	468	1.090	493	394	243
2010	8.318	5.631	2.687	341	1.189	451	445	262
2011			3.290	437	1.126	636	425	666
2012			2.771	181	1.010	506	364	710
2013			2.805	67	1.189	395	398	756
2014			3.266	29	1.281	473	541	943
2015			3.840	69	1.350	780	635	1.006
2016			3.410	30	1.282	662	600	836
2017			3.711	32	1.384	715	660	920

ESTIMATED

AÑO	TOTAL	Solo carretera	Autopista del Mar	LINEA 1 BCN-GEN	LINEA 2 BCN-CIV	LINEA 3 BCN-LIV	LINEA 4 VAL-SAL	LINEA 5 VAL-LIV
2008	8.978	5.796	3.182	1.125	815	496	415	331
2009	8.095	5.425	2.670	604	990	521	308	247
2010	8.318	5.388	2.930	410	1.276	621	338	285
2011	8.297	5.079	3.218	474	1.154	853	269	468
2012	7.812	5.134	2.678	214	1.146	535	273	511
2013	7.601	4.875	2.726	74	1.104	576	371	600
2014	7.794	4.456	3.338	86	1.345	660	501	747
2015	8.116	4.261	3.855	83	1.540	706	658	868
2016	8.492	4.806	3.686	83	1.371	705	657	869
2017	8.917	5.085	3.833	84	1.456	715	704	873

- By altering the values of the explanatory variables the model is **prepared to simulate the effects on modal balance and on external costs per line, including the new shares.**

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MED ATLANTIC ECOBONUS

Shipowners' perspective tool

- Assessing the **contribution of the eco-incentive measure to the financial perspective of the shipowners** that must have taken a green action in their lines to be eligible.
- The eco-incentive brings additional units to the lines, leading to **additional incomes** (as part of the 'indirect benefits') which should reduce the financial impact of the green action
- **The tool replicates a basic operating account from a line**, estimating the additional incomes from a given eco-incentive together with the corresponding additional CAPEX and OPEX resulting from the green action.
- The WACC and the residual value of the investment are used as part of the calculation.
- As a result, the tool estimates the impact of the eco-incentive measure using **basic financial ratios (IRR, NPV, Payback)**
- It provides other ratios to assess the additional benefits over the 'additional investment' and over the 'operation expenses' which are also relevant to the purposes of the eco-incentive approach.
- **The additional incomes are estimated as the net contribution to the vessel** from the additional units
- The operational profile of the line (vessel's size, speed, frequency, fuel consumption, etc.) is the same as taken from the external cost calculator tool, although the user can enter direct values.
- Fuel prices are taken from real market values

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Shipowners' perspective tool (cont.)

Line details	XXX
Nautical miles	271
Vessel Lane Meters	2.100
Trucks equivalent	116
Trucks	98
Vessel average speed	18 knots
Vessel power (kW)	21.600
Weekly port salings	3 s/w
Number of vessels	1
Departures (sailings)	312
Tons of MGO (per sailing)	31
Tons of LNG (per sailing)	26
Fuel saving per trip	5.811 €
Induced modal shift	29 K units
Unit net contribution	540 €
Indirect incentives	18.860.442 €
Unit investment	15.172.414 €
Incremental LNG inv.	15.172.414 €
cost of LNG Kw	702 €
Annual fuel saving	1.813.066 €
Indirect incentive/investment	124%
Indirect incentive/operation	26%
WITH NPV	18.092.844 €
IRR	30%
Payback	4 years
WITHOUT NPV	3.115.097 €
IRR	11%
Payback	14 years

Line operating profile

Induced modal shift and net contribution

Incremental investment in LNG vs conventional MGO

Results WITH eco-incentive (over 5 years)

Results WITHOUT eco-incentive

WACC	**8%**
Res. value	**5%**

HFO	389 €
MGO	619 €
LNG	504 €
Δ HFO	-114 €

molecule	28 €/MWh
logistics	4 €/MWh

Scenarios

A 5 years period is considered for the simulation exercise (2020-2024). Two hypothetical scenarios are considered to estimate the maximum budget needs:

BASE SCENARIO: All lines switch from HFO to MGO/ULSHFO fuel to comply with the IMO 0,5% sulphur cap. The environmental merit is very limited, and no eco-incentive is given to the users. the higher cost of the fuel lead to an average 12% increase in sea rates that is applied to all users from day one (estimated for all lines as a 50% fuel price increase x 24% weight of fuel over the total costs of the line).

GREEN SCENARIO: All lines switch to LNG vessels from day one. Sea rates are maintained. The environmental merit is the highest possible, including at ports (auxiliary engines running also on LNG) and all users receive the maximum eco-incentive.

The impacts of the eco-incentive measure are estimated as a difference between the two scenarios for both the modal (back) shift and for external cost savings effects

Scenarios (cont.)

- The simulation runs with the **same lines** that were considered for the calibration of the transport modelling tool.

- **Global mobility grows according to the available official GDP projections** per each zone, and a 2% annual as a default.

- **Market is mature and no new lines are considered** as a result of the eco-incentive measure. Lines adapt to demand by increasing the frequency (when frequency is 3 departures per week or below) or the capacity of the vessels (when frequency is over 3 departures per week).

- The prices of the maritime and the road transport are expressed in constant values of 2016.

- **Road transport is principally EURO VI in 2020**, starting with an average external cost ratio of 0,11 €/v.km in 2020 and reaching the level of 0,10 €/v.km as of 2024, based on the assumptions of the external cost calculator.

Selected lines

The selected lines are featured as follows (based on real performances and estimations):

WEST MED REGION

ROUTE	VESSEL	#V	NM	KM	GEO	LM	PAX	VEH	OCC LM	SPEED	TRUCKS	TRUCKSe
Barcelona-Civitavechia	CRUISE X	2	439	1.298	65%	3.050	400	50	70%	24	142	191
Barcelona-Livorno	EUROCARGO ALEXANDRIA	2	382	1.053	70%	3.810	0	0	70%	18	178	178
Barcelona-Genoa	FANTASTIC/MAJESTIC	1	347	885	75%	2.250	100	12	70%	19	105	117
Valencia-Salerno	EUROCARGO SALERNO	2	710	1.939	70%	3.810	0	0	70%	18	178	178
Valencia-Livorno	EUROCARGO VALENCIA	2	534	1.374	75%	2.550	0	0	70%	18	119	119

Estimated 0,5 M trucks per year with 31% share for MoS

ATLANTIC REGION

ROUTE	VESSEL	#V	NM	KM	GEO	LM	PAX	VEH	OCC LM	SPEED	TRUCKS	TRUCKSe
Bilbao-Zeebrugge	RORO	2	675	1.139	114%	2.300			70%	19	107	107
Santander Portsmouth	FERRY	1	537	1.135	91%	1.780	300		70%	19	83	113
Gijon-Nantes	VISENTINI	1	271	951	55%	2.110	200	50	70%	19	98	127
Vigo-Nantes	SUARVIGO	2	475	1.344	68%	1.542		250	70%	18	72	114
Leixoes Zeebrugge	RORO	3	844	1.866	87%	3.050			70%	14	142	142
Lisbon Zeebrugge	RORO	1	1020	2.099	93%	2.300			70%	15	107	107

Estimated 2,2 M trucks per year with 3% share for MoS

Eco-incentive per line

The external cost calculator returns the following **eco-incentives per unit and per line** on the green scenario:

Line	Region	Eco-incentive (€/unit)	Discount (%)
Valencia Salerno	West Med	161	23
Leixoes Zeebrugge	Atlantic	146	12
Lisbon Zeebrugge	Atlantic	123	10
Valencia Livorno	West Med	92	13
Vigo-Nantes	Atlantic	89	12
Barcelona Civitavechia	West Med	86	12
Barcelona Livorno	West Med	84	12
Gijon-Nantes	Atlantic	67	11
Santander Portsmouth	Atlantic	60	7
Barcelona Genoa	West Med	52	10
Bilbao-Zeebrugge	Atlantic	44	4

The maritime distance and the 'shortcut' over the road-only route together with the vessels' capacity and speed explain the **variety of values**.

This values are introduced in the modelling tool as **virtual discounts over the sea rates**

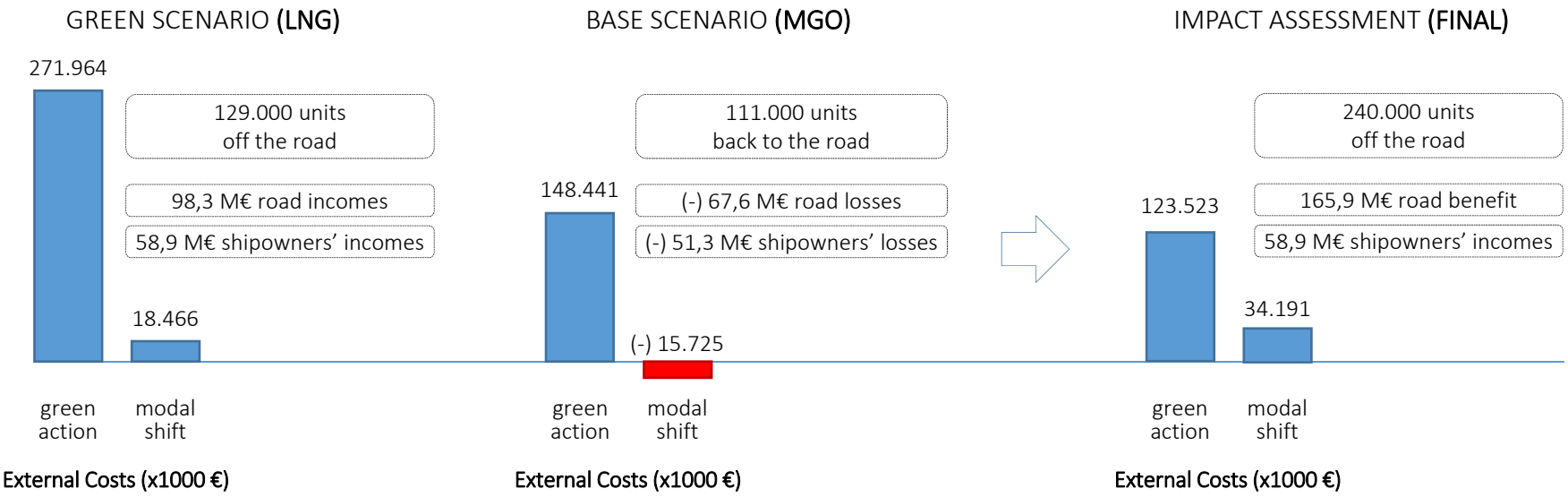
Main outcomes from the modelling tool

The modelling tool returns the following values in each scenario, per line:

- TOTAL EXTERNAL COST SAVINGS (i), due to the green action
- TOTAL EXTERNAL COST SAVINGS (ii), due to the modal (back) shift effects
- TOTAL **NUMBER OF UNITS**, shifted or back shifted (+) and (-)
- TOTAL **ECO-INCENTIVE GIVEN**, i.e. the budget needs
- TOTAL **INDIRECT BENEFITS** to the shipowners (+) and (-)

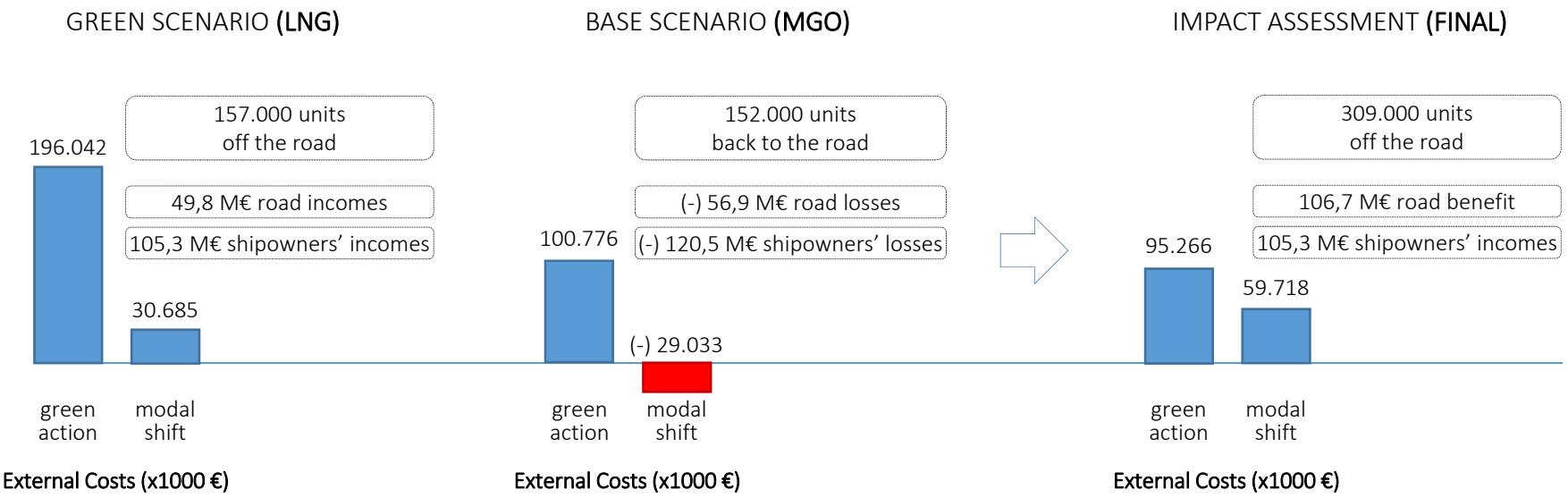
The assessment acknowledges the merit of the eco-incentive as the mathematical **difference between the two scenarios (base and green)**

Results from simulation. West Mediterranean



- The outcomes refer to the accumulate effects in the 5 years period (2020-2024)
- The total cost of the eco-incentive is estimated at 98,3 M€
- In terms of market share, the eco-incentive measure would increase the share of the maritime-road option to a 33%. Conversely, the share would fall to a 26% in the base scenario

Results from simulation. Atlantic



- The outcomes refer to the accumulate effects in the 5 years period (2020-2024)
- The total cost of the eco-incentive is estimated at 49,8 M€
- In terms of market share, the eco-incentive measure would increase the share of the maritime-road option to a 5%. Conversely, the share would remain at the current 3% in the base scenario

Shipowners' perspective assessment

- It estimates the financial ratios (IRR, NPV and payback) for the green action **comparing the situation with and without eco-incentive**, as from 2020.

- The tool has been calibrated with the **additional incomes** to shipowners taken from the simulation, and the **additional CAPEX and OPEX incurred by LNG compared to MGO**

- **Latest references from DNV-GL** have been used for LNG investments

- The fuel cost at the time of the calibration **643 €/ton** for the low sulfur conventional fuel -MGO or alternatively ULSFO- and **472 €/ton** for the LNG -using 25 €/MWh for the molecule and a 5 €/MWh for logistics-

- The weighted average cost of capital (WACC) is simulated at **8%** and the residual value of the investment at **5%**, based on market values.

Results. West Mediterranean

	BCN-GEN	BCN-CIV	BCN-LIV	VAL-SAL	VAL-LIV
	Barcelona Genoa	Barcelona Civitavechia	Barcelona Livorno	Valencia Salerno	Valencia Livorno
Line details	Mediterranean Sea	Mediterranean Sea	Mediterranean Sea	Mediterranean Sea	Mediterranean Sea
Fuel saving per trip	9.311 €	19.812 €	9.334 €	22.876 €	17.384 €
Induced modal shift	1 K units	33 K units	17 K units	32 K units	22 K units
Unit net contribution	400 €	580 €	540 €	560 €	580 €
Indirect benefits	342.549 €	19.130.713 €	9.035.129 €	17.770.427 €	12.613.527 €
Unit investment	23.362.069 €	29.913.793 €	15.172.414 €	18.103.448 €	18.103.448 €
Incremental LNG inv.	23.362.069 €	59.827.586 €	30.344.828 €	36.206.897 €	36.206.897 €
cost of LNG Kw	667 €	598 €	702 €	754 €	754 €
Annual fuel saving	2.904.954 €	12.362.770 €	2.912.153 €	7.137.159 €	5.423.849 €
Indirect benefit/investment	1%	32%	30%	49%	35%
Indirect benefit/operation	1%	8%	7%	13%	13%
WITH NPV	29.602.216 €	79.797.641 €	6.301.793 €	49.755.647 €	28.498.696 €
IRR	11%	25%	11%	26%	19%
Payback	14 years	5 years	14 years	6 years	7 years
WITHOUT NPV	5.712.920 €	64.441.166 €	-1.198.004 €	35.571.241 €	18.247.189 €
IRR	11%	20%	7%	19%	14%
Payback	14 years	7 years	NEVER	7 years	9 years

- The financial returns of the investment are clearly improved and the paybacks are reduced
- Only in one case the eco-incentive is determinant to the viability of the investment
- The co-financing rate for the shipowner would be placed over 30% and the weight over operating costs far below the limits of the state aids' maximum intensities

Results. Atlantic

	BIO-ZBR	SAN-PMT	GIJ-NAN	VGO-NAN	LEX-ZBR	LIS-ZBR
	Bilbao-Zeebrugge	Santander Portsmouth	Gijon-Nantes	Vigo-Nantes	Leixoes Zeebrugge	Lisbon Zeebrugge
Line details	Atlantic	Atlantic	Atlantic	Atlantic	Atlantic	Atlantic
Fuel saving per trip	16.188 €	12.960 €	7.372 €	11.509 €	17.129 €	20.642 €
Induced modal shift	10 K units	22 K units	18 K units	22 K units	43 K units	23 K units
Unit net contribution	765 €	612 €	446 €	509 €	883 €	1.172 €
Indirect benefits	7.838.936 €	13.692.791 €	8.204.422 €	11.271.814 €	37.574.383 €	26.692.211 €
Unit investment	18.103.448 €	26.315.789 €	15.172.414 €	15.172.414 €	18.103.448 €	18.103.448 €
Incremental LNG inv.	36.206.897 €	26.315.789 €	15.172.414 €	30.344.828 €	54.310.345 €	18.103.448 €
cost of LNG Kw	754 €	658 €	702 €	843 €	724 €	724 €
Annual fuel saving	5.050.652 €	2.021.721 €	2.300.087 €	5.386.389 €	5.344.146 €	2.146.794 €
Indirect benefit/investment	22%	52%	54%	37%	69%	147%
Indirect benefit/operation	5%	23%	14%	15%	19%	30%
WITH NPV	20.956.322 €	5.123.801 €	14.522.347 €	32.852.529 €	29.565.724 €	24.753.280 €
IRR	16%	11%	22%	22%	17%	34%
Payback	9 years	13 years	5 years	5 years	6 years	3 years
WITHOUT NPV	14.444.700 €	-6.074.107 €	7.944.104 €	23.778.924 €	-643.537 €	3.583.278 €
IRR	13%	5%	14%	17%	8%	10%
Payback	12 years	NEVER	10 years	8 years	NEVER	14 years

- The financial returns of the investment are also clearly improved, including the paybacks
- Just in two cases the eco-incentive is determinant to the viability of the investment
- The co-financing rate for the shipowner would be placed over 50% in many cases, and the weight over operating costs would also comply with the limits of the state aids' maximum intensities

Aggregate results

PERIOD 20-24 (€ x 1000)				
	ECO-INCENTIVE	IND. INCOMES	GREEN ACTIONS	EXT. 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

- The eco-incentive measure **demonstrates a positive contribution to the main goal** since it is clearly improving the financial returns and paybacks of the green action.
- The measure would then contribute to a **total 218,8 M€** savings in external costs, **directly acknowledged to the green action**.
- In addition, **550.000 units would be secured off the roads** which would bring an **additional 93,9 M€ of external cost savings** credited to this modal balance effect.
- A total 820.000 tons of **CO2 emissions** would be saved (**27% reduction**)
- **The total cost of the measure is estimated at 148 M€** for the 5-years period (considered as a maximum), aimed at EU co-financing and paid only upon results.

Aggregate results (cont.)

- There is a **leverage effect** from the eco-incentive measure since **148,1 M€** from the public support bring additional incomes of **164,2 M€** to the shipowners and help triggering **343,0 M€** investment on green actions.

- These investments might cost 102,9 M€ to the EU funding if submitted and awarded to the current CEF work programs, without any additional effects on demand.

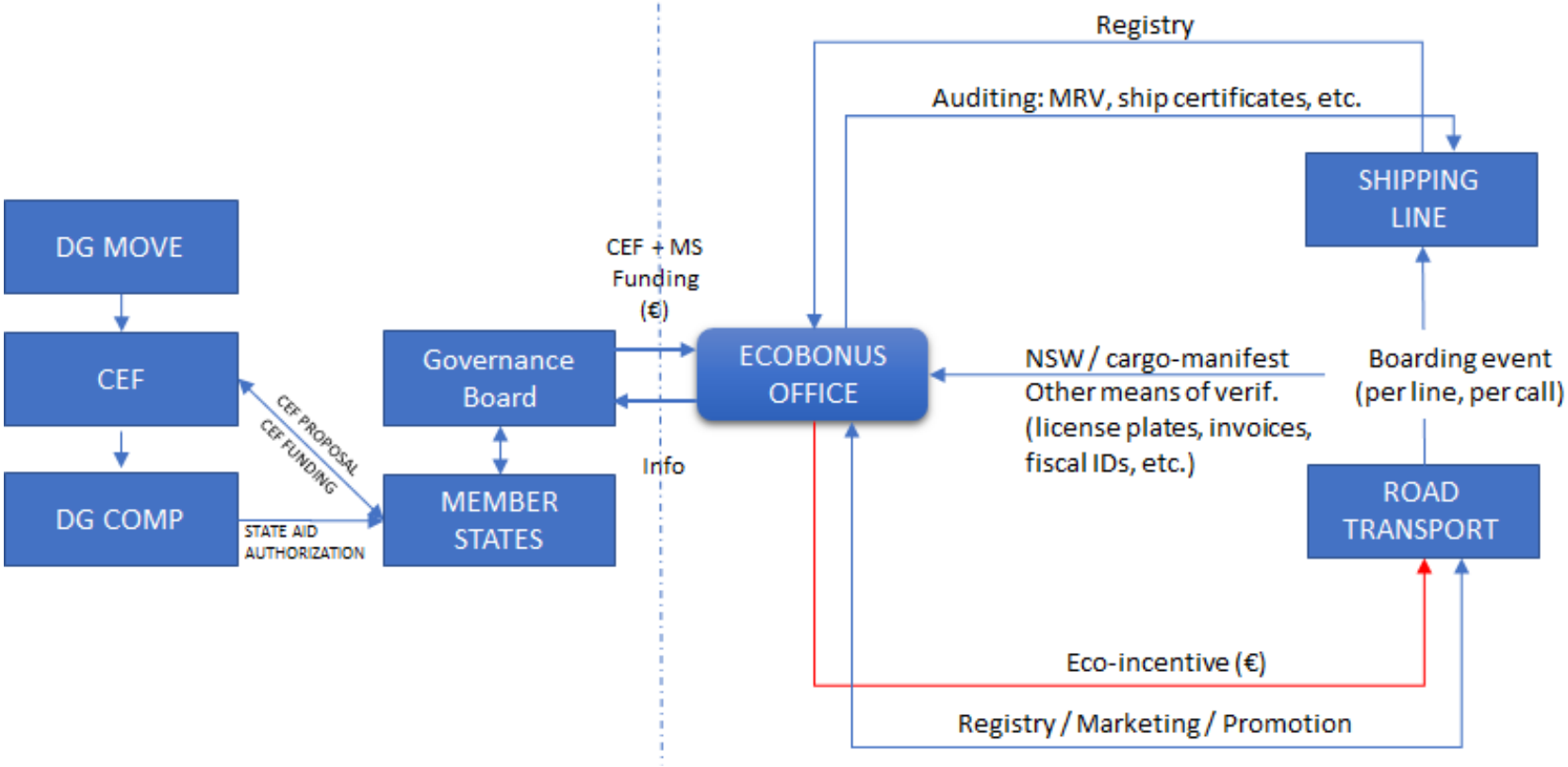
- Conversely, if the eco-incentive measure is taken as eligible to the EU funding, the cost would be about 44 M€

- By directing the eco-incentive through demand, **the measure secures no market distortion.** Although, **it brings an improved competitiveness** to the transport system since the prices of the road-only alternative are higher -in average- than the prices of the maritime-road option

- In terms of the financial risks for an investment on a green action, the eco-incentive approach, as proposed, **minimizes the risk of demand by definition**. Therefore, it might improve the access to better financing conditions and to the **EU financial instruments.**

- The intensities of the eco-incentive are **compliant with the maximum limits as set in the state aid rules**. On duration, the 5-years would met the standards of the CEF program, although an amendment of the 2008 maritime guidelines is as required to the case as needed in general.

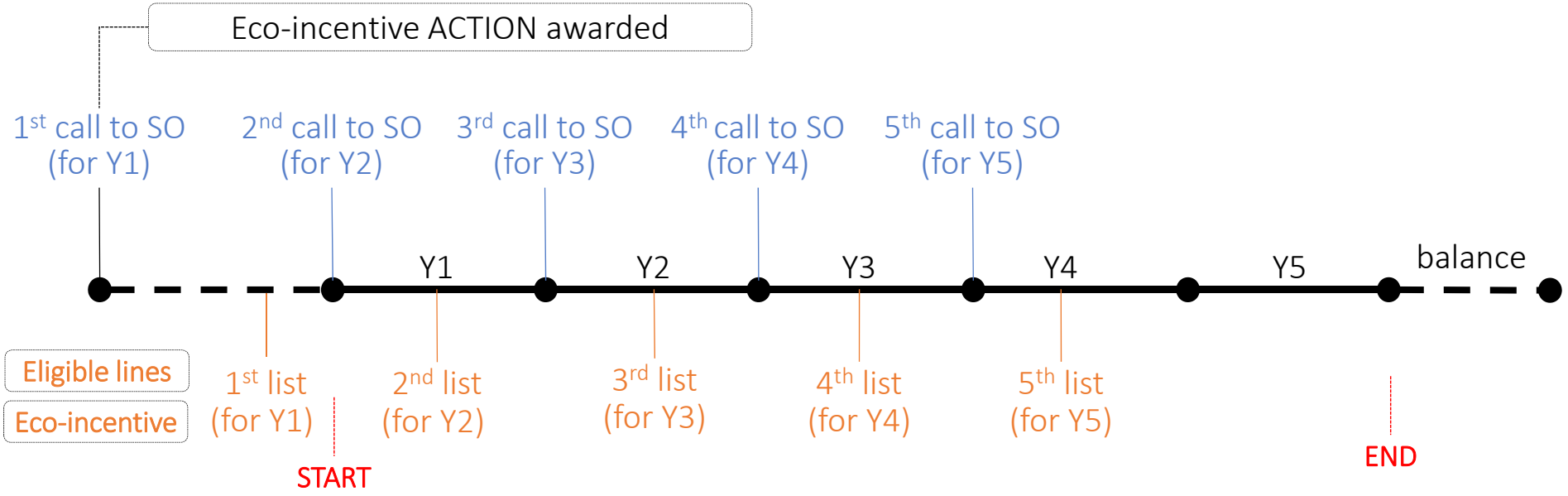
Possible scheme implementation



- Minimize the risk of fraud
- Minimize additional bureaucracy
- Demonstrate the performance achieved
- Meet the operational structures of the EU funding program to which the scheme is submitted (e.g. CEF)

Possible scheme implementation (cont.)

PRELIMINARY APPORACH:



- **Dual call mechanism**: 1/year for shipowners; 1 open for road operators)
- Shipowners shall produce **evidence of the green action** at registration
- Only for **lines sailing at the time of the call**
- Road operators shall produce **evidence of the boarding events**

Next steps: feedback

- **MAE study ends at proposal level**, presenting the common EU approach and the ex-ante analysis taken as example.
- **Broad consensus is needed** before moving forward with real implementing actions.
- **Feedback is welcomed** on the outcomes and the many assumptions that are taken for the study as well as on the missing lines, in case.
- The relevant documents and tools can be downloaded in the following link: https://www.dropbox.com/sh/7fmcr2nfvyytt6y/AAB-v9iJ0uK8TGaw-lSHqCP3a?dl=0
- Please let us know your feedback in this workshop or direct it to mae.project@puertos.es

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