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Fifth Work Plan of the
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Acronyms and Abbreviations

AF	Alternative Fuels
AGS	Annual Growth Strategy
AML	Área Metropolitana de Lisboa
ATL	Atlantic Core Network Corridor
AVEP	Alta Velocidad España-Portugal
bn	Billion
BPF	Banco Português de Fomento
CDC	Caisse des Dépôts et Consignations
CEE	Connecting Europe Express
CEF	Connecting Europe Facility
CEMT	Classification of European Inland Waterways
CNC	Core Network Corridor
DB	Deutsche Bahn
DG MOVE	European Commission – Directorate General for Mobility and Transport
DIP	Detailed Implementation Plan of MoS
EC	European Commission
EDP	ERTMS Deployment Action Plan
EGD	European Green Deal
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EMS	European Maritime Space
ERTMS	European Rail Traffic Management System
ERDF	European Regional Development Funds
EP	European Parliament
ESA	European Space Agency
ETCS	European Train Control System
EU	European Union
GDP	Gross Domestic Product
GHG	Greenhouse Gas Gases
GPSO	Le Grand Projet du Sud-Ouest
HSR	High-Speed Rail
ICO	Instituto de Crédito Oficial
ICT	Information and communications Technology
IPCS	Installation Permanente de Contre-Sens
ITS	Intelligent Transport System
IWW	Inland waterway
km	kilometre
KPI	Key Performance Indicator
LNG	Liquefied Natural Gas
m	metre
MITMA	Ministerio de Transportes, Movilidad y Agenda Urbana
mn	Million
MoS	Motorway(s) of the Sea
MoT	Ministry of Transport
MTMS	Multimodal Transport Market Study
MS	Member States of the European Union
n.a.	not available / not applicable
NGV	Natural Gas Vehicle
OPS	Onshore Power Supply

PNI	Programa Nacional de Investimentos
RFC	Rail Freight Corridor
RIS	River Information System
RoRo	Roll-On Roll-Off
RRF	Recovery and Resilience Facility Fund
RRT	Rail-Road Terminal
RVSL	Rouen Val de Seine Upstream Logistics
SBCI	Strategic Banking Corp. Ireland
SNCF	Société Nationale des Chemins de Fer français
SSS	Short Sea Shipping
SSMS	Sustainable and Smart Mobility Strategy
SUMP	Sustainable Urban Mobility Plan
TEN-T	Trans-European Transport Network
TMS	Traffic Management System
UIC	International Union of Railways, referred hereafter in the context of this workplan, as the European standard nominal track gauge of 1435 mm
WG	Working Group
WP	Work Plan
VNF	Voies Navigables de France
VTS	Vessel Traffic System

Country Codes after ISO 3166:

DE	Germany
ES	Spain
IE	Ireland
FR	France
PT	Portugal

1 Towards the Atlantic Corridor's fifth Work Plan

1.1 Introduction

Beyond the urgent need to effectively address the climate change crisis, since the adoption date of the 4th Work Plan in May 2020, the EU has faced several other crises. The first was institutional with the formal withdrawal of the United Kingdom from the EU, the second was sanitary with the COVID-19 pandemic and the third is caused today by the Russian war of aggression against Ukraine, which implies a humanitarian, as well as a food and energy, crisis.

In this context, the EU is demonstrating its capacity to work on all fronts, to act fast and as one entity. Succeeding the Green Deal in 2019, the European Climate Law enforcing a reduction of net emissions of greenhouse gases by at least 55% by 2030¹ and a climate-neutrality by 2050 and the Sustainable and Smart Mobility Strategy (SSMS) in December 2020 providing an action plan, the EU has adopted important packages of legislations that will affect and transform the transport:

The Fit for 55 Package, including the proposal of Regulation for alternative fuels transport infrastructure, the proposals for increasing the ambition of the EU Emissions Trading System, the ReFuelEU Aviation and FuelEU Maritime initiatives.

The Winter Package, including the proposal for revision of the TEN-T guidelines, as well as a new Urban Mobility Framework, an update of the 2010 ITS Directive and an Action Plan on long-distance and cross-border rail.

In May 2022, the European Commission proposed the REPowerEU European Commission's plan². The new geopolitical and energy market realities require to drastically accelerate our clean energy transition and increase Europe's energy independence from unreliable suppliers and volatile fossil fuels. The REPowerEU plan sets out a series of measures to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition, while increasing the resilience of the EU-wide energy system. It is based on: diversifying – saving - accelerating clean energy.

Russia's attack on Ukraine and its consequences show on an almost daily basis how fragile the entire transport and logistic system is and how important good transport connections with our neighbouring countries as well as a resilient infrastructure are. The crisis might still be with us with for quite some time and we need to think not only of short-term but also long-term solutions of how the transport system can address those huge challenges. The Atlantic Corridor is the furthest away from Ukraine, but, with its many important ports, it will play a very important role in the energy sector, e.g. by facilitating imports of LNG and other energy sources (i.e. "Re-Powering Europe") and in many other ways. The trends in de-globalisation and the shortening of value chains will pose an important challenge to logistics and transport, and in particular to ports. At the same time, a faster electrification and a replacement of fossil-based fuel in the transport sector are instrumental. Hence, the progress towards an interoperable rail network and the enhancement of the maritime dimension on the Atlantic CNC are key aspects of our common work with all stakeholders of the Atlantic.

This document corresponds to the fifth Work Plan that I am presenting as Coordinator for the Atlantic Core Network Corridor and the last one to be adopted within the framework of the current TEN-T Regulation. At this point in time, and considering the crises context, it is of

¹ compared to 1990

² https://eur-lex.europa.eu/resource.html?uri=cellar:fc930f14-d7ae-11ec-a95f-01aa75ed71a1.0001.02/DOC_1&format=PDF

utmost importance to use the remaining time to deliver a technically compliant and operationally functioning Corridor by 2030. This Work Plan highlights the main results of the Corridor's development and defines the priority work areas to ensure a multimodal, seamless, interoperable and environmentally friendly Atlantic CNC by 2030.

Despite all the different travel constraints imposed due to the coronavirus pandemic, the regular functioning of the Corridor has been maintained and even reinforced through remote means. We carried out the 15th and 16th Corridor Forum Meetings (March and November 2021), a dedicated Corridor Workshop (February 2021), a Workshop on the "Smart and Sustainable Maritime Transport in the Atlantic and North Sea Region Post-Brexit" (April 2021) together with Prof. Péter Balázs and Kurt Bodewig, respectively the Coordinators of the North Sea Mediterranean and Motorways of the Sea, all in a remote format. And more recently, a Corridor meeting during the Connecting Europe Days in Lyon on 28 June 2022.

Similar to what had happened in previous years, I took part in the activities of AVEP (June 2022 and June and November 2021), and I am very pleased with the progress that Portugal and Spain have made by coordinating activities. Likewise, I took part in the High Level Working Group France-Spain meeting on the cross-border rail connection Bordeaux-Vitoria (May 2021). I had the opportunity to acknowledge the progress in terms of planning and coordination between the two countries and the intermediate goal of starting regional cross-border services as of 2024, but also to express my concerns to the fact that the deployment of the Permanent Contraflow Installation (IPCS) of the section between Le Gazinet and Morcenx has not yet been planned. Moreover, the European Year of Rail gave us the opportunity to be physically present in Lisboa for the Conference on high-speed rail and to board the Connecting Europe Express (CEE) between Lisboa-Madrid-Hendaye-Bordeaux, holding a set of meetings and discussions with various stakeholders (September 2021). Later in October, after having travelled for 36 days across 26 countries, the CEE returned to the Atlantic Corridor, and together with my counterparts, I participated in the Coordinators' Seminar in Strasbourg, and to the final stretch of the journey between Strasbourg and Paris - remembering that the completion of this alignment was one of our key achievements back in 2017.

The COVID-19 pandemic had a significant impact in 2020 and 2021, emphasising the importance of a resilient transport system. For port authorities, in particular those where the cruise segment is important, market recovery has not yet been reached, whereas for the cargo sector, the worldwide container crisis has also been affecting our ports' growth. Nonetheless, for the total of the Atlantic ports, the container flows have increased in the order of 2% compared to 2019, benefitting from the growth of Sines, Leixões, Las Palmas and Huelva. For road freight, the Green Lanes initiative in 2020 showed its relevance to keep our internal market working and I am very happy to see that a further upgrade and widening of these tools for a multimodal concept is being piloted with the Atlantic Corridor³ as a test bed.

The legislative proposal for a revised TEN-T Regulation results from a comprehensive evaluation of the existing legal framework, following extensive consultation of Member States and stakeholders, as well as an in-depth assessment of the impacts of the changes proposed. The revised TEN-T Regulation shall contribute to the objectives of the European Green Deal (EGD) and of the Sustainable and Smart Mobility Strategy (SSMS). The proposal is accompanied by an update of the 2013 TEN-T planning methodology, a report on the

³ The new Green Lanes Communication issued in October 2020 extended the initiative to include multimodal transport, thus considering also rail, water and air transport. Therefore, the tool should evolve accordingly in order to also support rail, maritime and air transport. With the involvement of several nodes (ports, platforms) and the support of rail freight corridor, the pilot tests are being deployed in Portugal and Spain, including the maritime border in Algeciras with a third country and the land border of Irún towards France.

implementation of TEN-T during the years 2018 and 2019, besides a communication on the extension of the TEN-T network to the EU neighbouring third countries.

The revised TEN-T Regulation introduces a number of new or reinforced infrastructure requirements, which promote the development of infrastructure of sustainable forms of transport. In order to achieve the targets and to fulfil the objectives of the EGD and the SSMS, an intermediary deadline of 2040 is proposed to be introduced for the new standards on the core network and for advancing the existing standards on the comprehensive network, notably the deployment of ERTMS. Furthermore, it proposes a geographical alignment of the CNCs with the RFCs to form a single set of “European Transport Corridors”. For our Atlantic Corridor, the extended core network and the alignment with the RFC bring the opportunity to integrate the Porto-Vigo alignment - the busiest cross-border point between Portugal and Spain - and I am extremely glad for this. It also proposes to include in the core network the HSL connection from Santiago de Compostel to Ourense – Medina del Campo towards Madrid. On the new extended core network, the inclusion of the southeast line connecting Lisboa to Elvas/border via Entroncamento has been proposed, as well as an extension on the extended rail and road core network to Brest as new core port of the corridor, and another rail extension on the extended core network connecting to the comprehensive port of La Rochelle. Finally, it proposes to include the Tagus River as part of the IWW from Lisboa till Castanheira do Ribatejo.

This 5th Work Plan fully integrates the extensions brought by the CEF Regulation 2021/1153 (CEF 2), notably the maritime links to the Irish core ports and hinterland links to Nantes-St-Nazaire core port, but does not include the proposed extensions listed above, as the negotiations by the co-legislators are ongoing. The document follows a similar structure as the previous editions, starting from an overview on achievements and compliance levels, as well as targeted analyses on what still has to be ensured for the Corridor’s completion until 2030.

1.2 Achievements along the Atlantic Corridor since 2018

The Atlantic Corridor has been progressing well since the adoption of the TEN-T Regulation in 2013, with a total of 91 projects completed to date, of which 31 projects include study and works.

Since the last Work Plan in May 2020, important projects have been concluded, namely the following most relevant achievements:

- The conclusion of the works on the Galicia high-speed railway line and start of operations of the last section on 20 December 2021⁴, linking Madrid and the city of Ourense;
- Construction of the A-62 motorway - Section: Fuentes de Oñoro - Border ES/PT, concluded in December 2020 & Cross-Border Road Link A25-IP5 Vilar Formoso – Border PT/ES, concluded in December 2021;
- The Atocha - Chamartín connection: 3rd and 4th tracks between Atocha - Torrejón de Velasco & the remodelling of the Madrid Chamartín railway complex to adapt it to high-speed services, both concluded in December 2020;

⁴ Puesta en Servicio del Tramp Pedralba de La Pradería-Ourense (línea de Alta Velocidad Madrid-Galicia), Available at: https://www.adif.es/documents/20124/5563405/20211220_DossierAVGalicia.pdf/4a36b251-6f77-90b8-7ea5-a85db28e6dcf?t=1640102406681&download=true

- Upgrade of Linha de Leixões: Improvement of the rail-road accessibility of the Leixões port, concluded in December 2020;
- Double track Pinar de Antequera section, part of the Madrid - Irún/Hendaya (French Border), concluded in December 2020;
- ERTMS deployment in Madrid node (common for ATL-MED), concluded in December 2020;
- Multimodal platforms layout in the Port of Rouen: Extension of the RVSL multimodal maritime terminal Development of Petit Couronne Quay (QPC) Creation Honfleur multimodal platform Petroplus (conversion of an old raffinery site), concluded in December 2020;
- Modernisation of Serqueux-Gisors rail line, put into operation in March 2021;
- IPCS (permanent counterflow installations) deployment between Morcenx and Dax that will help to overcome the bottleneck in the Gazinet – Dax section, put into operation in June 2019;
- Electrification of Salamanca-Medina del Campo, concluded in December 2019 with the remaining section Fuentes de Oñoro – Salamanca planned to 2022;
- Sustainable LNG Operations for Ports and Shipping - Innovative Pilot Actions (GAINN4MOS) in the Port of Nantes-St Nazaire, concluded in September 2019;
- Upgrade of the maritime traffic control (VTS Vessel Traffic System) in the Ports of Sines and Lisboa, completed in January 2019.

Besides these concluded projects, it is also important to add that relevant progress has been made with regards to the following major Corridor investments:

- The rail connection between Aveiro and Vilar Formoso (Spanish border), on the Portuguese Beira Alta Line, with the deployment of ERTMS currently under way and the works expected to be finalised by December 2023;
- The rail sections between Sines-Ermidas-Grândola and Évora-Caia, on the South railway Line linking the Portuguese port of Sines and the Spanish border currently under works for all sections and expected to be completed on time, by December 2023;
- The electrification and upgrade of Badajoz-Mérida also with the works progressing;
- Actions enabling the rolling motorway services to connect the Ports of Algeciras and Huelva with Zaragoza are ongoing.

Among the most relevant projects to be completed by 2030, the following can also be pointed out:

- The Valladolid – Venta de Baños – Burgos high-speed line concluded and expected to enter operation by 2022;
- The Badajoz RRT by September 2022;
- The remodelling works for the Chamartín railway station to adapt to high-speed services, with completion foreseen by December 2023;
- Hendaye-Irún rail upgrade, foreseen by December 2025;

- Rail access to the Outer Port of Coruña, foreseen by 2026;
- The renewal, electrification, signalling and upgrade of Algeciras-Bobadilla;
- The rolling motorway Algeciras/Huelva to Zaragoza and the rolling motorway Vitoria to Lille.

These projects to be completed by 2030 are further discussed in Chapter 3.

2 Characteristics of the Atlantic Corridor

The existing alignment of the Atlantic Corridor, as established in EU Regulations 1315/2013 and 2021/1153, connects Europe's south-western regions towards the centre of the EU, linking the Iberian Peninsula ports of Algeciras, Sines, Lisboa, Leixões (Porto) and Bilbao through Western France to Paris and Normandy and further east to Strasbourg and Mannheim in Germany.

2.1 The new alignment under Regulation (EU) No 1153/2021 (CEF2)

A relevant change compared to the last Work Plan is the addition of new CEF2 sections to the Atlantic Corridor. These new sections – 1,083 kilometres of road, 3,000 km of rail sections and 301 km of inland waterways in Portugal, Spain and France – have been added to the Atlantic Corridor following the approval of the new CEF2 Regulation. The new sections, as shown in **Figure 1**, focus on developing cross-border links between Member States in order to ensure a better connectivity between core nodes and cross-border projects.

Moreover, the new alignment of the Atlantic Corridor includes 10 new maritime ports, 2 new inland ports, 4 new airports and 4 new rail-road terminals. Not impacting on compliance criteria, but relevant for the progress of the Corridor, is the addition of following urban nodes: Toulouse, Sevilla, as well as Las Palmas and Santa Cruz de Tenerife in the Canary Islands, including the maritime connections of these Islands with the Iberian Peninsula, as well as the maritime connections from Ireland to France

Of the ten new maritime ports, three are the Irish ports of Cork, Dublin and Shannon Foynes, with the inclusion of the airport of Cork and Dublin corresponding to the entrance of a fifth Member State in the Atlantic Corridor. It is important to note that in relation to Ireland only the ports and airports and their first and last mile road and rail connections are included in the Atlantic Corridor. The rest of the network in Ireland is included in the North-Sea Mediterranean Core Network Corridor.

The total length (with Corridor alignment) of the railway network of the Corridor is 11,295 km, including the planned lines foreseen in the Corridor by 2030. At the end of 2020, the Atlantic railways infrastructure that is functional and in operation (approximately 80% of the core network) extends over 9,016 km, of which 7,136 km correspond to freight lines.

Figure 1 : Alignment of the Atlantic Corridor as extended by CEF2 Regulation



2.2 Compliance 2021 with the technical infrastructure parameters of the TEN-T Guidelines for 2030

The TEN-T technical infrastructure parameters (KPIs) have constantly been monitored since 2014. They have been important to monitor the achievements and progress along TEN-T Core Network Corridors, as laid down in Article 39 of the TEN-T Regulation.

In 2020, the European Green Deal called for a 90% reduction in greenhouse gas emissions from transport, in order for the EU to become a climate-neutral economy by 2050. To achieve this systemic change several legislative actions have been lately proposed by the European Commission, in particular regarding the deployment of alternative fuels infrastructure for all modes of transport (please refer to Chapter 4.2).

The last years showed a significant expansion of the electric automotive market requiring higher need for ultra-fast recharging infrastructures along the network. However, the below calculation of the KPI concerning the deployment of alternative fuels in terms of electric charging infrastructure for road on the Corridor does not focus only on ultrafast charging but integrates all types of recharging points: slow, rapid and ultra-fast.

For rail, the loading gauge parameter is not a formal requirement of the current TEN-T Regulation, but has been proposed by the Commission in the context of the revision of the TEN-T Regulation. Although this KPI is not yet measured, along the Atlantic Corridor, major bottlenecks for the deployment of rolling motorway systems persist: In Spain between Huelva / Algeciras and Zaragoza (~40 tunnels); in France between Dax and Hendaye (3 tunnels), between Poitiers and Bordeaux (4 tunnels), between Meaux and Epernay (3 tunnels) and between Metz and Strabourg (1 tunnel).

It is important to recall that the methodology to calculate the compliance rate of the deployment of European rail nominal track gauge of 1435 mm (hereafter European standard track gauge) on the Corridor considers as compliant the Iberian track gauge lines equipped with polyvalent sleepers or with a third rail. This type of railway sleepers allows changing the gauge by relocating the rails in the sleepers at the appropriate width corresponding to 1435 mm European standard track gauge. Hence, without prejudging of the complexity of such migration in terms of management, this technique prepares the ground for a future switch to the European standard track gauge.

Finally, it is also important to note that progress on ERTMS is reflected in Chapter 3.2.

The significant increase in the Atlantic Corridor's sections due to the new CEF2 alignment did not negatively affect the progress of the Corridor regarding its compliance with the TEN-T requirements. The following changes in the technical parameters (as of 12/2020) were observed:

- For rail, the new sections had inverse impacts on three KPIs for rail transport in Spain and France. In Spain, rail electrification increased from 71% in the old alignment to 83% compliance in the new alignment, with compliance with line speed requirements for freight lines also increasing from 90% to 94%. However, track gauge compliance (considering the lines in European standard track gauge and those with polyvalent sleepers) decreased from 31% to 29% in Spain. In France, compliance with electrification requirements decreased from 100% to 96%, while line speed dropped from 93% to 90% as a result of the extension Nevers – Montchain - Chagny. These changes led to a reduction of the Corridor's compliance levels with the requirements of track gauge (from 59% to 57%), though electrification and freight line speed compliance levels increased from 88% to 90% and from 86% to 89%, respectively. All other parameters remained the same as in December 2020.

- For road, the Corridor extensions do not affect the TEN-T KPIs, with all roads classified as motorways or express roads. Compliance for alternative fuels deployment increased to 94% with regards to electric charging points, largely resulting from electric charging deployments along the Corridor.
- In its old alignment, the Corridor was fully compliant with regard to all IWW criteria in the Seine River from Le Havre until Paris. With the Corridor extensions, compliance levels decreased, though still remaining high. This decrease is mainly a result of the inclusion of the Douro River as a cross-border link, whose international sections are not under direct jurisdiction of the Port of Leixões or any other port authority. The sections under the jurisdiction of the Port of Leixões are compliant (although important bottlenecks still persist).
- For maritime ports, the Corridor was fully compliant for the connection to rail parameter. With the Corridor extensions, compliance level decreased to 94% once the core port of Shannon Foynes is not currently connected to rail. The Canary Islands are technically exempt from rail requirements and the other ports added to the Corridor are connected to rail. With the new alignment, the KPI referring to the availability of clean fuels in ports increased from 38% to 39%. However, in inland ports, the inclusion of the Douro led to the decrease of this parameter from 33% to 25%.
- For rail-road terminals, the inclusion of CEF2 Corridor sections resulted in an increase compliance of the technical parameters of intermodal capacity (from 80% to 86%), electrified train terminal accessibility (from 40% to 71%) and availability of at least one freight terminal open to all (from 80% to 100%). This analysis considers only the RRT in operation. In turn, the accessibility of terminals to 740m trains decreased from 40% to 36%.

When looking to 2030, most parameters are expected to be achieved by then. The following aspects are important to be pointed out:

- For rail, compliance with technical parameters is expected to reach 96% by 2030, including the Y Basque that is currently going forward to end by 2029. The 3% non-compliance is expected to occur in France and Portugal, especially due to the postponement and/or not yet planned last section of the GPSO project towards Spain, and the Lisboa-Évora high-speed line project. This is expected to particularly affect the compliance with the rail requirements on electrification and track gauge. Moreover, significant parts of the existing Iberian lines prior to 2014 are not expected to be upgraded in Portugal, resulting in a drop of the compliance level for the European standard track gauge parameter to 95% at a Corridor level.
- For road, the Corridor is now fully compliant with the parameter of road classification, with the completion of the upgrade to motorway in the Vilar Formoso-Fuentes de Oñoro border. The A25 road section became operational on 20th December 2021⁵, enabling a direct road connection from the Port of Aveiro to the Spanish border. The Corridor extensions have not compromised these compliance levels. On the availability of clean fuels, the Corridor, in its old alignment, had reached 92% for electric charging compliance. The new alignment is 82% compliant. The compliance for LNG in the Corridor's roads drops from 39% to 34% with the new alignment. It is worth referring again that this KPI does not distinguish the type of charging point (i.e. fast, ultra-fast), only if it is available in a certain section of the road network.

⁵ <https://www.infraestruturasdeportugal.pt/pt-pt/abertura-ao-trafego-na-a25-entre-vilar-formoso-e-fronteira>

- The Corridor is also expected to reach full compliance for all parameters of IWW. As previously pointed out, the bottlenecks still remain for certain parts of the year in Paris due to bridge height, which cannot be solved due to historical reasons. In Douro (part of the Corridor extensions), limitations are also present due to the obsolescence of locks, though that issue is expected to be tackled soon on the Portuguese side.
- For maritime and inland ports, compliance levels are high. Despite almost all ports being connected to rail, there are still significant critical bottlenecks in the ports of Sines, Algeciras, Le Havre, Lisboa and Leixões. Nonetheless, several investments are planned to address these and other issues. By 2030, all parameters are expected to reach full compliance. On the availability of clean fuels, the Corridor is expected to achieve full compliance by 2025-2027, with ongoing projects addressing LNG, hydrogen and onshore power supply facilities.
- As for RRT, by 2030, the Corridor is expected to reach 93% compliance, especially due to the still unclear role of Poceirão RRT in Portugal.
- The core* airports⁶ of the Atlantic Corridor have a low compliance with the requirement of rail connectivity, with only one airport (Paris Charles de Gaulle) compliant with this requirement. Madrid Barajas is already connected to rail, though not to long-distance nor long-distance high-speed rail (a project which is ongoing). By 2030, most airports are expected to achieve full compliance, except the airport of Lisboa. Regarding the availability of alternative fuels, no fixed storage tank is currently reported to be in use in the airports of the Atlantic Corridor. As for the availability of alternative fuels for airport landside ground services (e.g. e-mobility, hydrogen, CNG and LPG), the Corridor's airports dispose of electric charging facilities in parking areas for visitors and workers.

Table 1: Compliance with TEN-T requirements at a Corridor level (2020 and 2030)

KPI	Total	
	2020 ⁷	2030 ⁸
Railways		
Extensions in Km	2020	2030
All lines	9 066	11 295
Freight lines	7 186	8 999
Lines in Iberian gauge	3 917	219
Traction (electrification) (all lines)	90%	98%
Line speed (freight lines)	89%	100%
Axle load (freight lines)	100%	100%
Train 740m length (freight lines)	41%	100%

⁶ In accordance with Annex II.2 of the Regulation (EU) 1315/2013, Airports marked with * are the main airports falling under the obligation of Article 41(3). The Atlantic the core * airports are: Dublin– Paris (Charles de Gaulle and Orly) – Madrid (Barajas) – Lisboa.

⁷ Current compliance levels reflect the status of the infrastructure network (in operation or to be upgraded) as of December 2020 and are based on the analysis performed in the 2nd Corridor Study Update Report (February 2021). Planned sections not yet in operation are only considered for compliance in 2030.

⁸ The expected compliance levels by 2030 are based on the Work Plan Project List from September 2021.

KPI	Total	
	2020 ⁷	2030 ⁸
UIC Track gauge (all lines) ⁹	77%	97%
UIC (operational)	53%	65%
UIC (non-operational)	24%	32%
Iberian track gauge (lines in IB gauge before 2014) ¹⁰	23%	1,5%
IWW		
CEMT class > Class IV	100%	100%
Draught > 2.5 m	95%	100%
Bridge height	100%	100%
RIS	95%	100%
Roads		
Type (express road or motorway)	100%	100%
Alt fuels (LNG)	34%	100%
Alt fuels (electric charging – all types)	82%	100%
Seaports		
Rail connection ¹¹	94%	100%
CEMT connection	100%	100%
Clean fuels	39%	100%
Term. Availability	100%	100%
Waste facilities	100%	100%
Inland ports		
Rail connection	100%	100%
CEMT connection	100%	100%
Clean fuels	25%	100%
Term. availability	100%	100%
Airports		
Rail connection (all airports)	36%	91%
Rail connection (core* airports) ¹²	20%	80%
Clean fuels (land side)	100%	100%
Clean fuels (air side)	N/A	N/A
Term. Availability	100%	100%
Rail-road terminals		
(n=12 in 2020; n=14 in 2030)		
Intermodality	86%	93%
740m train	36%	93%
Electrification	71%	93%
Term. availability	100%	93%

⁹ The methodology to calculate the compliance rate of the deployment of European standard track gauge on the corridor considers as compliant the Iberian lines equipped with polyvalent sleepers. This type of railway sleepers allows for changing the gauge by relocating the rails without exchanging sleepers and hence prepare the ground for a future switch to the European standard track gauge.

¹⁰ Sections with Iberian gauge lines existing and in operation before 2014 are excluded from the KPI compliance calculation – specific calculation for the Atlantic Corridor. In 2030, with all the core lines planned to be delivered and excluding the Iberian gauge lines existing before 2014, the share of Iberian gauge extension reduces from 23% to 1,5%. Non-compliance will be in Portugal (HSL Lisboa-Évora and Casa Branca-Grândola).

The Canary Islands are exempt from rail requirements. Gran Canaria and Tenerife are not connected to rail. For Ireland, Dublin and Cork have rail connections: Dublin's connection is in use, but Cork's is not used at the moment and Shannon Foynes needs to restore its connection, currently non-existing.

¹² In accordance with Annex II.2 of Regulation (EU) 1315/2013, airports marked with * are the main airports falling under the obligation of Article 41(3). The core * airports of the Atlantic Corridor are: Dublin– Paris (Charles de Gaulle and Orly) – Madrid (Barajas) – Lisboa.

Figure 2 : Electrification (status as of 2020)

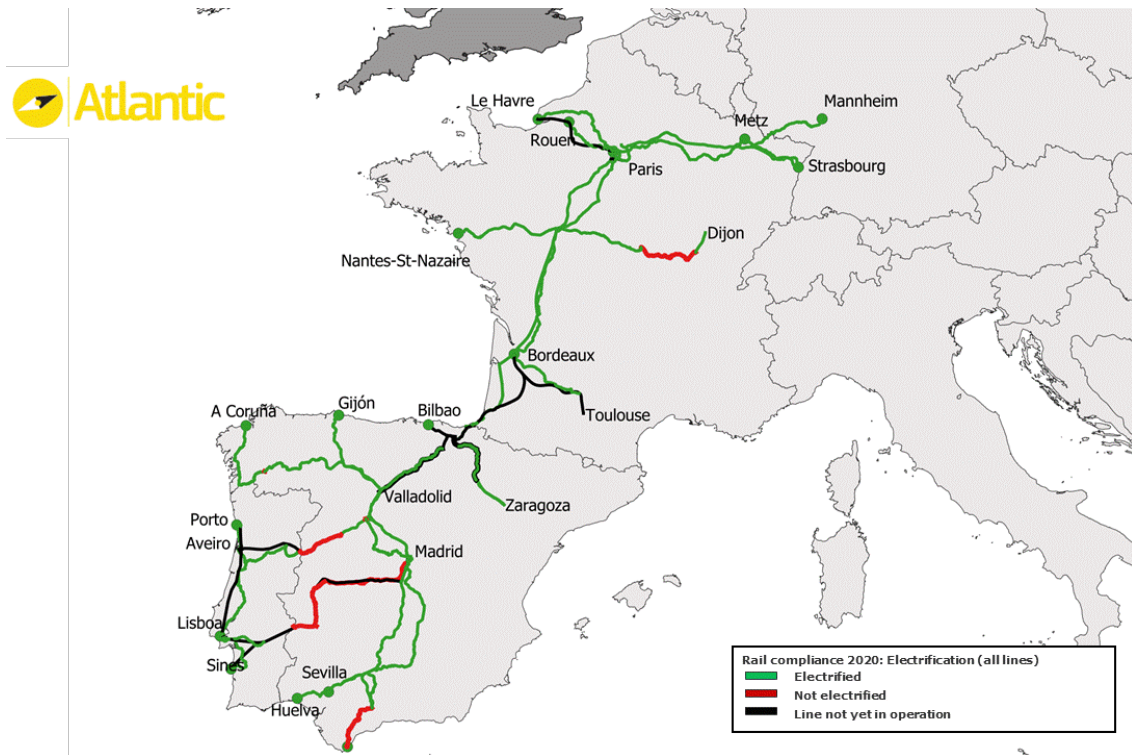


Figure 3 : Train Length for freight lines (status as of 2020)

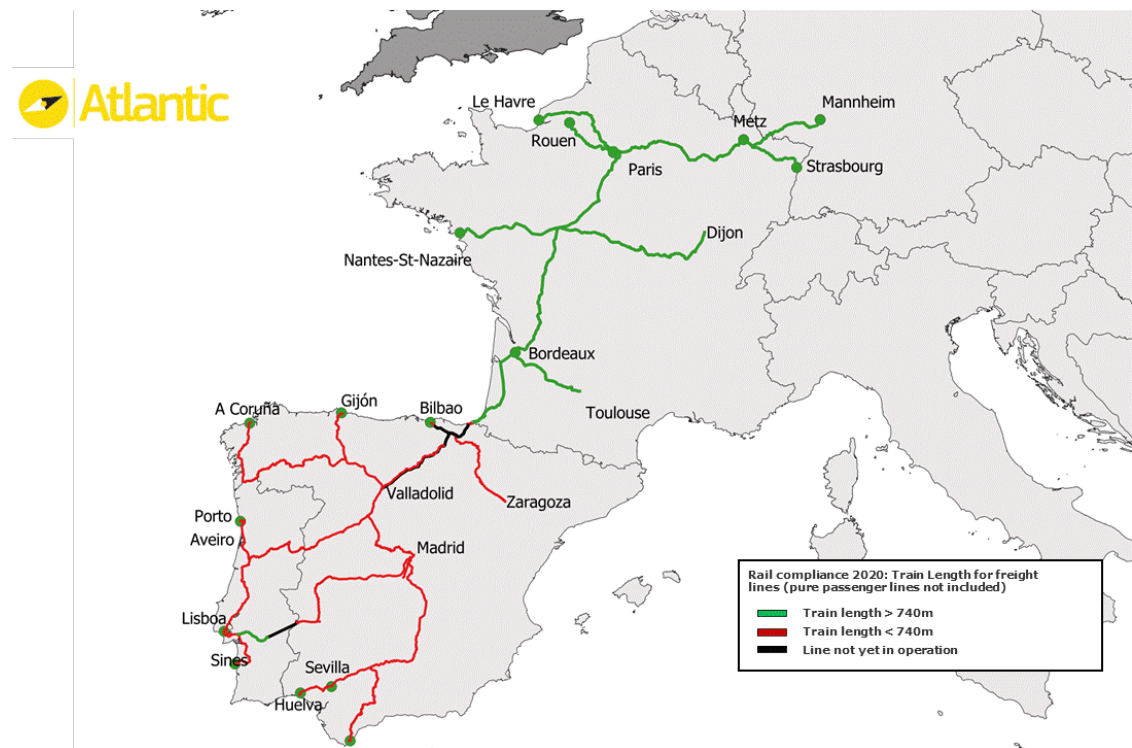


Figure 4 : Line speed for freight lines (status as of 2020)

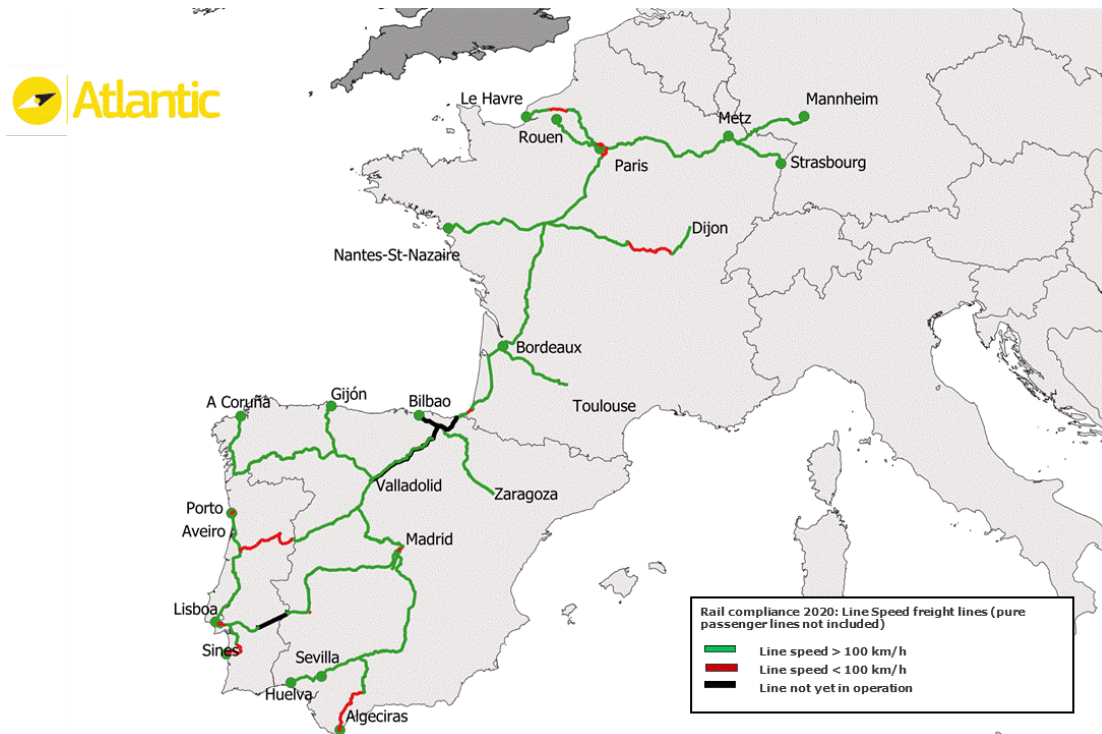
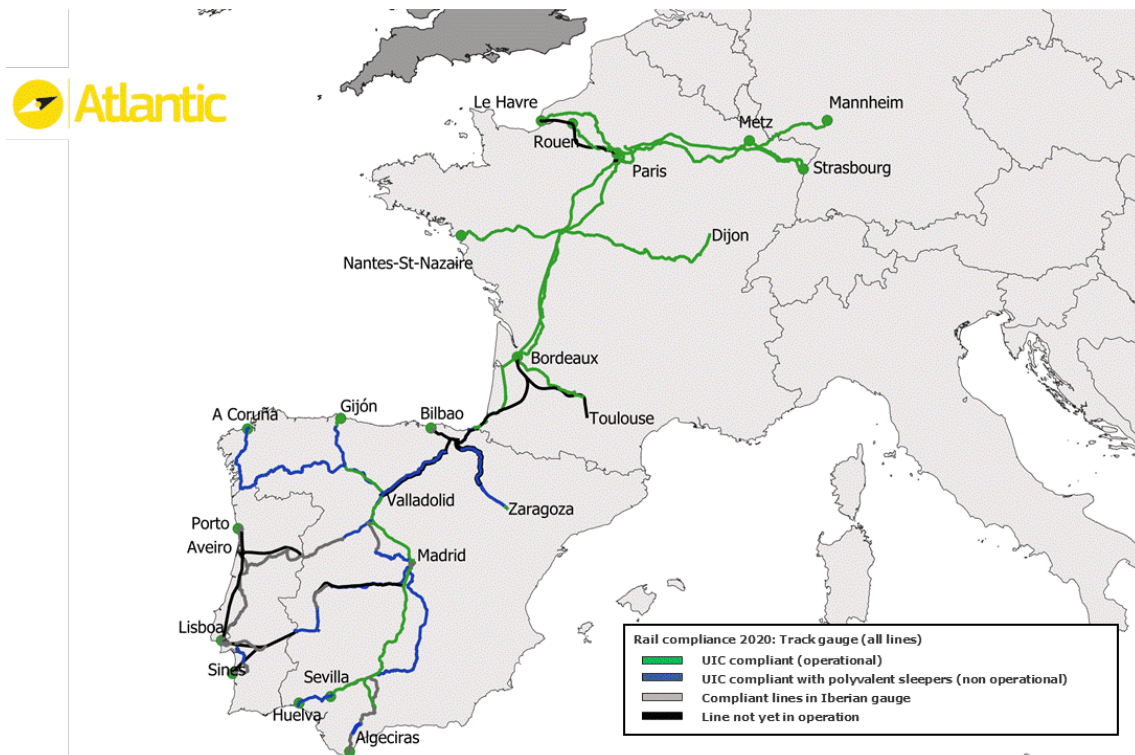


Figure 5 : Track gauge (status as of 2020)



2.3 Evolution over time of the KPIs by Member State

The Atlantic Corridor has made important progress since its development in 2014. Nonetheless, seamless connectivity and full Corridor development by 2030 can only be achieved by overcoming some critical issues, such as rail capacity bottlenecks. The following sub-chapters present an analysis of the current situation highlighting the evolution over time per Member State, whenever applicable, and important issues that still need to be addressed.

Portugal

Table 2: Compliance with TEN-T rail and RRT parameters in 2020 and 2030 in Portugal

KPI	2020	2030
Railways		
Traction (electrification)	100%	89%
Line speed (freight lines)	63%	100%
Axle load	100%	100%
Train 740m length (freight lines)	10%	100%
UIC Track gauge	0%	79%
UIC (operational)	0%	0%
UIC (non-operational)	6%	79%
Iberian track gauge (lines in IB gauge before 2014)	94%	10%
Rail-road terminals		
Intermodality	50%	50%
740m train	0%	50%
Electrification	50%	50%
Term. Availability	50%	50%

Although significant progress has been made for the development of the connection between Lisboa and Madrid completing the missing link between Évora and the border and allowing for a direct connection (conventional) to Madrid currently requiring a long detour, important sections of the core network will not be ready by 2030. The core network high-speed line Lisboa-Évora-Border full completion will be reached only by 2050 while Casa Branca-Grândola is not even included in the investment plan. The new HSL Lisboa-Porto is expected to be completed by 2028, including the connection to Porto airport. This means that by 2030, only 89% of the core network in Portugal will be completed. These issues are further discussed in Chapter 3.7.

Table 3: Compliance with TEN-T road parameters in 2020 and 2030 in Portugal

KPI	2020	2030
Roads		
Type (express road or motorway)	100%	100%
Alt fuels (hydrogen)	0%	100%
Alt fuels (LNG)	11%	100%
Alt fuels (electric)	89%	100%

The road sections are fully compliant with the TEN-T requirements of motorway/express road, especially with the most recent conclusion of the works in the Vilar Formoso border. In addition, together with Spain and France, Portugal is the test bed for ITS-G5 and 5G cross-border pilots, making the Atlantic one of the frontrunners in terms of ITS and C-ITS deployment.

Table 4: Overview of TEN-T parameters for IWW, sea and inland ports and airports in Portugal in 2020 and 2030

KPI	2020	2030
IWW		

KPI	2020	2030
CEMT class > Class IV	100%	100%

KPI	2020	2030
Draught > 2.5 m	84%	100%
Bridge height	100%	100%
RIS	100%	100%
Seaports		
Rail connection	100%	100%
CEMT connection	100%	100%
Clean fuels	0%	100%
Term. Availability	100%	100%
Waste facilities	100%	100%
Inland ports		
Rail connection	100%	100%
CEMT connection	100%	100%
Clean fuels	0%	100%
Term. Availability	100%	100%
Airports		
Rail connection (all airports)	0%	0%
Rail connection (core* airports)	0%	0%
Clean fuels (land side)	100%	100%
Clean fuels (air side)	-	-

KPI	2020	2030
Term. availability	100%	100%

All ports are connected to the rail network, but important bottlenecks still remain hindering an effective maritime-rail multimodality, particularly due to restrictions to longer trains (to be reached before 2030)

Following the adoption of CEF2 Regulation, the Douro River became part of the Atlantic Corridor's inland waterway network, which has RIS fully deployed. Nonetheless, actions are required to improve its navigability and address its functional obsolescence, mainly in terms of geometrical correction and interventions in locks, as discussed ahead.

Furthermore, as regards the clean fuels, it should be mentioned that Douro's Inland Waterway has implemented two electric power supply pilots supported by CEF1 and implementation along the waterway in other piers is ongoing (Pinhão, Régua, Pocinho, Barca d'Alva are concluded to name a few).

Spain

Table 5: Compliance with TEN-T rail and RRT parameters in 2020 and 2030 in Spain

KPI	2020	2030
Railways		
Traction (electrification) (all lines)	83%	100%
Line speed (freight lines)	94%	100%
Axle load (freight lines)	100%	100%
Train 740m length (freight lines)	0%	100%
UIC Track gauge (all lines) 16	71%	100%
UIC (operational)	22%	56%
UIC (non-operational)	49%	44%
Iberian track gauge (lines in IB gauge before 2014)	29%	0%
Rail-road terminals		
Intermodality	80%	100%

KPI	2020	2030
740m train	0%	100%
Electrification	80%	100%
Term. availability	100%	100%

In Spain, the planned investments are compatible with the implementation European standard track gauge. Several technical solutions are applied depending on the case: the installation of mixed gauge (third rail), the upgrade to European standard track gauge with polyvalent sleepers or full renewal, and the construction of new European standard track gauge lines.

Table 6 : Overview of TEN-T parameters for road, IWW, sea and inland ports and airports in Spain in 2020 and 2030

KPI	2020	2030
IWW		
CEMT class > Class IV	100%	100%
Draught > 2.5 m	100%	100%
Bridge height	100%	100%
RIS	60%	100%
Roads		
Type (express road or motorway)	100%	100%
Alt fuels (hydrogen)	0%	100%
Alt fuels (LNG)	48%	100%
Alt fuels (electric)	88%	100%
Seaports		
Rail connection	100%	100%
CEMT connection	100%	100%
Clean fuels	63%	100%
Term. Availability	100%	100%
Waste facilities	100%	100%
Inland ports		
Rail connection	100%	100%
CEMT connection	100%	100%
Clean fuels	0%	100%
Term. Availability	100%	100%
Airports		
Rail connection (all airports)	60% ¹³	100%

KPI	2020	2030
Rail connection (core* airports)	0%	100%
Clean fuels (land side)	100%	100%
Clean fuels (air side)	-	-
Term. Availability	100%	100%

All Spanish ports in the Atlantic Corridor are connected to the rail network, except for the ports of the Canary Islands, which are technically exempt from rail connectivity requirement. However, none of the Spanish ports in the Atlantic Corridor are currently connected in European standard track gauge, and train length restrictions are a heavy constraint, although there are several investments on going in order to improve this issue. All ports connected to rail are further improving the rail infrastructure with a view to improving the hinterland connection and thereby increasing possibilities for modal shift (Bilbao, A Coruña (old inner port), Huelva, Algeciras, Sevilla, Gijón).

The Spanish road network is full compliant for motorways and with already a high compliance for alternative fuels deployment (48% for LNG and 88% for electric charging – all charging types).

France

Table 7 : Compliance with TEN-T rail and RRT parameters in 2020 and 2030 in France

KPI	2020	2030
Railways		
Traction (electrification) (all lines)	96%	100%
Line speed (freight lines)	90%	100%
Axle load (freight lines)	100%	100%
Train 740m length (freight lines)	100%	100%
Track gauge (all lines)	100%	100%
Rail-road terminals		
740m train (freight lines)	67%	100%
Electrification	67%	100%

KPI	2020	2030
Term. availability	100%	100%

France is fully compliant with all rail parameters, except for electrification (96%) and line speed for freight lines (90%). Significant progress has been made to complete the rail sections in France over the past years, especially with the modernisation of the Serqueux-Gizors line and the IPCS (permanent counterflow installations) deployment between Morcenx and Dax, as mentioned in previous sections.

¹³ Out of the five Spanish airports located in the Atlantic Corridor, two are located in the Canary Islands, being thus technically exempt from rail connections. Therefore,

these airports are considered compliant in terms of these requirements.

Nevertheless, the core network in France is not expected to be completed by 2030 as a result of the postponement of the GPSO project towards the Spanish border.

Table 8 : Compliance with TEN-T road parameters in 2020 and 2030 in France

KPI	2020	2030
Roads		
Type (express road or motorway)	100%	100%
Alt fuels (hydrogen)	14%	100%
Alt fuels (LNG)	32%	100%
Alt fuels (electric)	76%	100%

For road, France is fully compliant with the requirement on motorways/express road. The compliance with the availability of clean fuels is the highest in the Corridor, with 76% on electric charging points, 49% on LNG and 24% on hydrogen deployment, with full deployment expected by 2030.

Table 9 : Compliance with TEN-T IWW parameters in 2020 and 2030 in France

KPI	2020	2030
IWW		
CEMT class > Class IV	100%	100%
Draught > 2.5 m	100%	100%
Bridge height	100%	100%
RIS	100%	100%

The Seine River meets all parameters of IWW, having reached 100% of RIS deployment in 2017. As pointed out in the previous version of the Work Plan of the Atlantic Corridor, historical characteristics prevent overcoming bottlenecks experienced during certain periods of the year in Paris due to bridge height.

Table 10 : Compliance with sea and inland ports TEN-T parameters in 2020 and 2030 in France

KPI	2020	2030
Seaports		
Rail connection	100%	100%
CEMT connection	100%	100%
Clean fuels	50%	100%
Term. Availability	100%	100%
Waste facilities	100%	100%
Inland ports		
Rail connection	100%	100%
CEMT connection	100%	100%
Clean fuels	20%	100%
Term. Availability	100%	100%
Airports		
Rail connection (all airports)	25%	25%

KPI	2020	2030
Rail connection (core* airports)	50%	50%
Clean fuels (land side)	100%	100%
Clean fuels (air side)	-	-
Term. availability	100%	100%

The Corridor CEF2 extensions have made the Port of Nantes-St Nazaire part of the Corridor, strengthening the maritime dimension of the Atlantic. The French ports of Le Havre and Nantes-St Nazaire are fully compliant with the availability of clean fuels and significant efforts have been made by the port of Bordeaux and Voies Navigables de France to ensure the full deployment of alternative fuel infrastructure.

Germany

Table 11 : Compliance with TEN-T parameters in 2020 and 2030 in Germany

KPI	2020	2030	KPI	2020	2030
Railways			Rail-road terminals		
Traction (electrification) (all lines)	100%	100%	Intermodality	100%	100%
Line speed (freight lines)	100%	100%	740m train	100%	100%
Axle load (freight lines)	100%	100%	Electrification	100%	100%
Train 740m length (freight lines)	100%	100%	Term. availability	100%	100%
Track gauge (all lines)	100%	100%			
Inland ports					
Rail connection	100%	100%			
CEMT connection	100%	100%			
Clean fuels	100%	100%			
Term. Availability	100%	100%			

The rail sections of the Atlantic Corridor in Germany are fully compliant with all parameters. Overall, no major delays have been experienced on the German sections of the Atlantic.

Ireland

The inclusion of Ireland as a fifth Member State of the Atlantic Corridor has included the airports of Cork and Dublin and brought connectivity to the ports of Cork, Dublin and Shannon Foynes. As previously mentioned, only their first and last mile (close hinterland) road and rail connections are included in the Atlantic Corridor. The rest of the TEN-T network in Ireland is part of the North-Sea Mediterranean Core Network Corridor.

Table 12 : Compliance with TEN-T parameters for seaports in 2020 and 2030 in Ireland

KPI	2020	2030
Seaports		
Rail connection	67%	100%
CEMT connection	-	-
Clean fuels	0%	100%
Term. Availability	100%	100%
Waste facilities	100%	100%

Ireland is technically exempt for technical parameters for rail, but not for the requirement of rail connectivity to ports. The ports of Dublin and Cork have rail connections, although the rail connection in Cork is currently not in use. Inversely, the rail connection to the port of Shannon Foynes needs to be restored. None of the Irish ports are yet compliant in terms of the parameter on the availability of clean fuels, though full compliance is expected by 2030. The EALING - European flagship Action for coLd ironING in ports¹⁴ project, involving ports in Ireland, as well as Portugal and Spain, aims at aiming to accelerate the transition to electrification and deployment of Onshore Power Supply (OPS) solutions by 2025.

¹⁴ <https://ec.europa.eu/inea/en/connecting-europe-facility/cef-transport/2019-eu-tm-0234-s>

3 What still has to be realised by 2030

3.1 Rail transport and Rail-road terminals

Rail transport

The Corridor is fully compliant in terms of axle load requirements, with high compliance levels for electrification (90%) and line speed for freight trains (89%).

Electrification is still missing in some rail sections, namely in France: Nevers – Montchain - Chagny (one of the Corridor extensions) where Electrification works are delayed. However, the section Serqueux-Gisors entered in operations in March 2021, connecting the port of Le Havre and Île de France. In Spain: Algeciras-Bobadilla has been delayed as the project has to restart a new environmental assessment and in the two cross-border sections with Portugal: Fuentes de Oñoro-Salamanca for which the electrification was expected by the first trimester of 2022, but works are still delayed until the end of 2022; and Badajoz – Merida expected by 2022. Overall, compliance with electrification requirements is not compromised, with full compliance for electrification foreseen to be reached closer to 2030 and by the end of 2022 for the border connections with the same voltage as the Portuguese network.

The current non-achievement of the 100 km/h line speed for freight trains occurs in France, Spain and Portugal, while Germany is fully compliant¹⁵. Nonetheless, full compliance is expected to be reached by 2030.

The compliance level with train length (740m freight trains length) and standard track gauge requirements are particularly low in Portugal and Spain. Full compliance for train length is foreseen by 2030.

Figure 6 and **Figure 7** depict an overview of the compliance with TEN-T rail parameters “electrification”, “track gauge”, “line speed for freight trains” and “axle load” by 2030. All the Iberian lines equipped with polyvalent sleepers have been classified as European standard track gauge compliant, since this technique prepares for the migration to this track gauge. Spain should reach 100% compliance by 2030 (including the different technologies: third rail - polyvalent sleepers on Iberian track gauge, full renewal in European standard track gauge of some lines and/ or construction of new European standard track gauge). However, full compliance (including with polyvalent sleepers) will not be reached in Portugal.

It is worth noting that the ongoing market developments on variable axle gauge rolling stock together with the existing third rail technique create today better conditions to envisage a progressive migration to European standard track gauge on the Corridor. **Figure 7** below indicatively shows the railway lines where trains with European standard track gauge can already be operated in Spain.

¹⁵ However, a section between Neustadt and Hochspeyer has line speed reduced to below 100 km/h, as a result of topographical constraints the speed must be adapted for this section. Article 11, 2 (a) iii of Regulation 1315/2013 “guidelines for the development of the Trans-European transport network (...)” applies for this section.

Figure 6 : Rail compliance by 2030

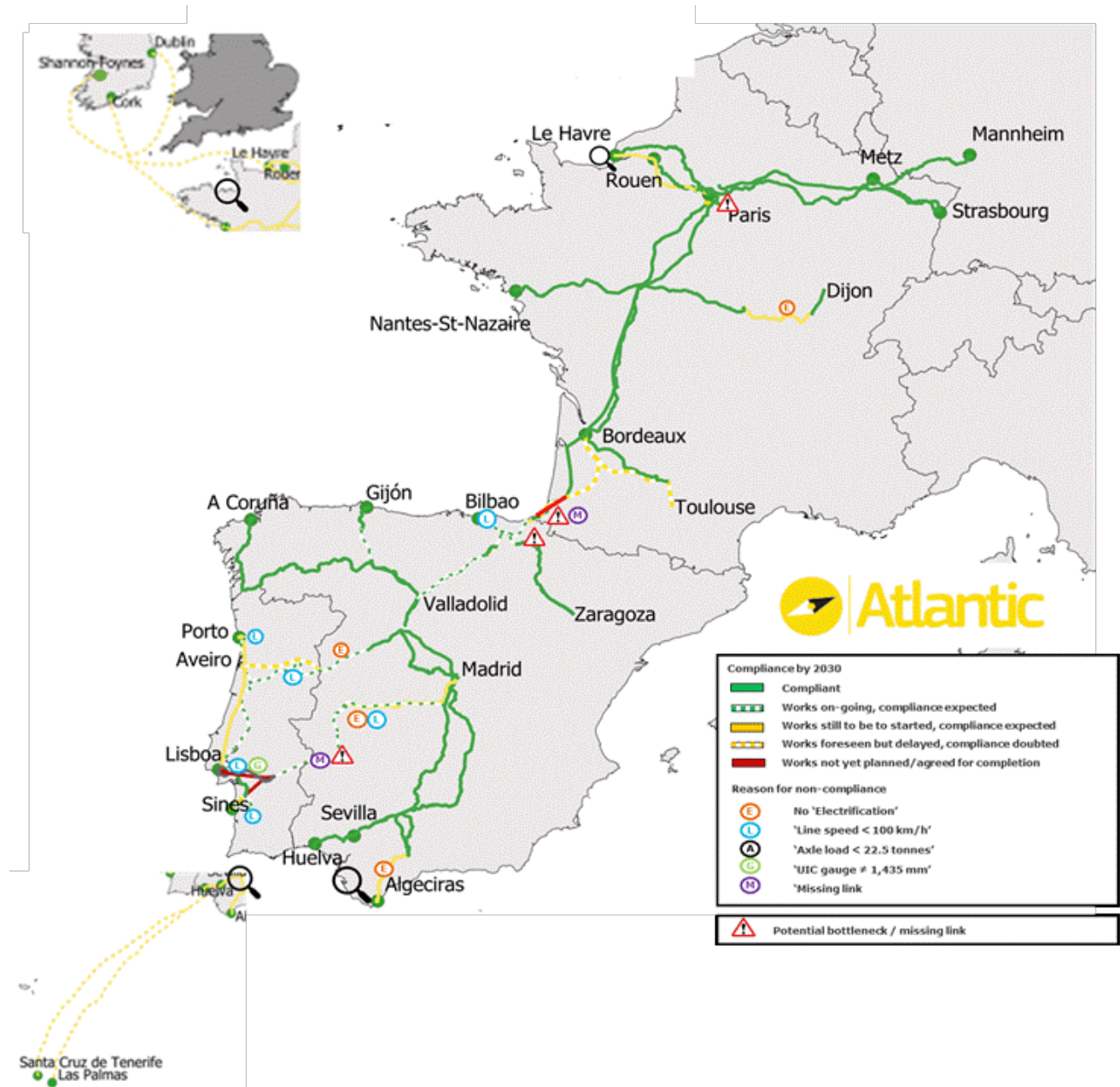
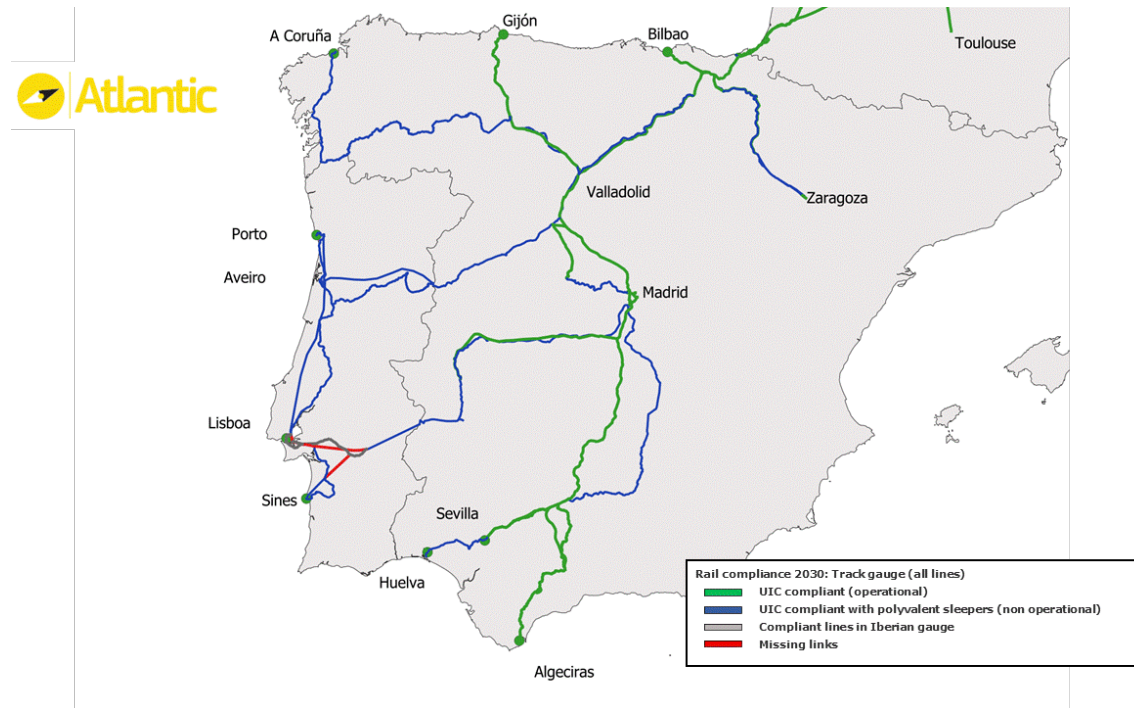


Figure 7 : 2030 UIC operational railway lines, UIC Compliant railway lines (polyvalent sleepers) and Iberian railway lines of the Atlantic Corridor In the Iberian peninsula



Rail-Road terminals

Rail-road terminals remain with similar compliance levels when compared to the analysis carried out in 2017. By the end of 2022, the planned terminals of Poceirão and the new Valladolid RRT remained non-operational. As previously pointed out, the Corridor expects to reach 93% compliance level by 2030, dependent upon the situation in Poceirão.

3.2 ERTMS deployment for 2023

ERTMS deployment for 2023

According to the ERTMS EDP, 1,620 km and 1,760 km of the Atlantic Corridor’s railway network are expected to be operational by 2021 and 2023, respectively. Overall, ETCS is in operation in 10% of the ATL, while GSM-R in 39% of the Corridor. In June 2022, 60% of the ATL length planned in the EDP by 2023 was in operation with ETCS.

Given the current deployment figures and considering that some Member States have already notified delays in the implementation of ERTMS, it will not be possible to meet the ERTMS EDP deadlines by 2023 in the Atlantic Corridor, although the sections marked in the EDP as “beyond 2023” are expected to be in operation by 2030.

The following bottlenecks regarding the 2030 compliance have been identified:

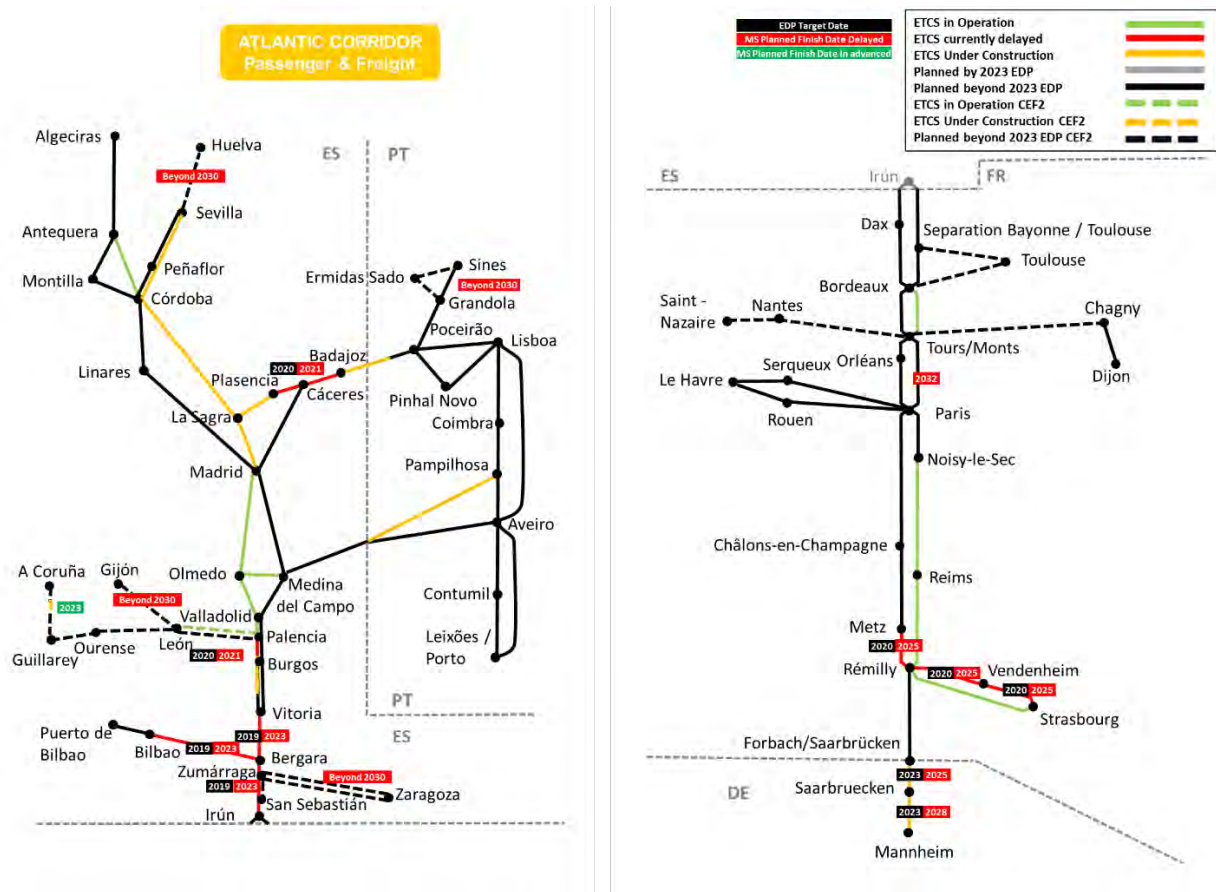
- The commissioning of the lines Sevilla – Huelva, León – Gijón and one of the lines that goes from Zumárraga to Zaragoza were not included in the Spanish deployment plan for 2030, since it only included the lines which were part of the Corridor before the adoption of the CEF2 Regulation, and it has not been updated after the Corridor CEF2 extensions.

- The commissioning of the line Grândola Norte – Sines, in Portugal, is not included in the Portuguese deployment plan for 2030. However, there is another route that will allow a continuous operation GSM-R from Grândola – Ermidas to Sines before 2030.
- The French plan does not ensure that lines planned in the EDP beyond 2023 will be in operation by 2030. This is particularly the case for the high-speed line between Tours and Paris, which is expected to be completed by 2032.

EDP Compliance

The following figure shows the state of play and deadlines for ERTMS deployment in the ATL, considering the dates of the ERTMS EDP.

Figure 8 : Status of ERTMS deployment in the Atlantic Corridor



In Spain, there are already some lines in operation in the Corridor. The Spanish sections next to the cross-border points with both France and Portugal (Badajoz), respectively planned in the EDP by 2019 and 2020, have been delayed until 2023. The remaining sections of the Atlantic Corridor are addressed in the Spanish deployment plan and expected to be completed by 2030, except for three sections which are part of the Corridor extensions: Sevilla – Huelva, León – Gijón and one of the lines from Zumárraga to Zaragoza.

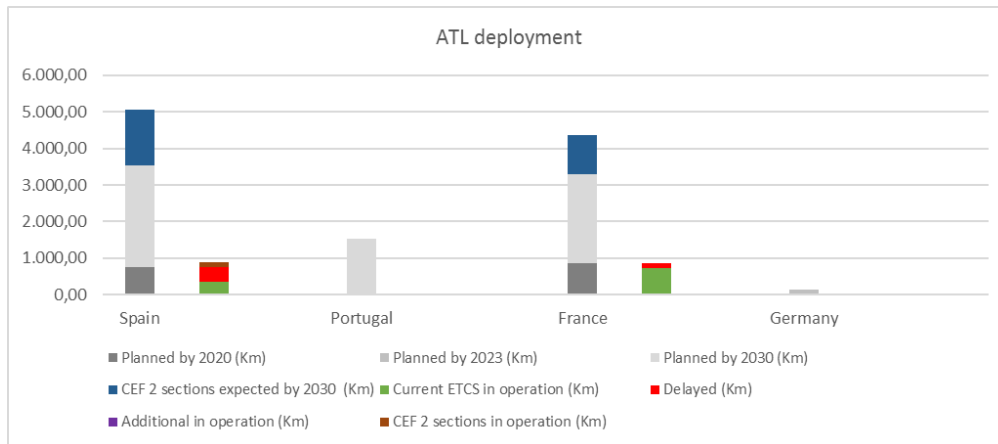
In Portugal, no lines are planned to be equipped with ETCS by 2023, in line with the EDP deadlines. The conventional core network in Portugal is expected to be entirely equipped by 2030, according to the Portuguese deployment plan. It is important to add that the Grândola

Norte–Sines line is not included in the Portuguese deployment plan for 2030. However, this new line is expected to be changed from core to extended core with the forthcoming revision of the TEN-T Regulation.

In France, there are already some lines in operation in the Corridor. The Metz – Rémilly – Strasbourg line, planned in the ERTMS EDP by 2020, is delayed until 2025.

In Germany, there is only one ATL line that goes from the French border to Mannheim. This line was expected to be completed by 2023 but it will be delayed until 2028.

Figure 9 : ETCS deployment (km) in the Atlantic Corridor per Member State



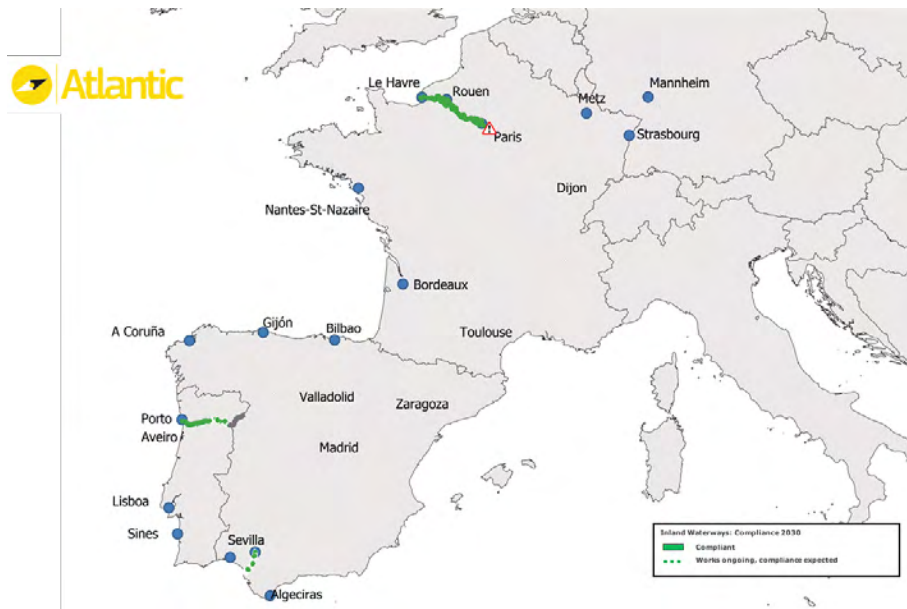
3.3 IWW and inland ports, including RIS Deployment Plan

The inclusion of Douro and Guadalquivir increased the Corridor’s extension by 301 km, representing an increase of 80% of the Corridor’s inland waterway network. As previously referred, the Corridor, including its new two additional inland waterways, has a high compliance rate for the different parameters and is expected to reach full compliance with all requirements by 2030.

With the Corridor extensions, the compliance levels have decreased, though still at high compliance level for all parameters. With the ongoing actions, the Guadalquivir in Spain will turn fully compliant for RIS. In the Douro River, actions are required to improve its navigability and address its functional obsolescence, mainly in terms of geometrical correction and interventions in locks.

The expected situation for 2030 IWW is summarised in the figure below.

Figure 10 : IWW compliance by 2030



3.4 Road transport (including ITS and AF deployment)

The Corridor is fully compliant for the parameter “motorway or express road”. Nevertheless, there is a good number of projects still required to adequate the road network to higher quality standards.

This includes last mile connections in several ports, but also the completion of the upgrade of road connection from the port of Sines. Although this section is classified as an express road, it requires further upgrade to motorway.

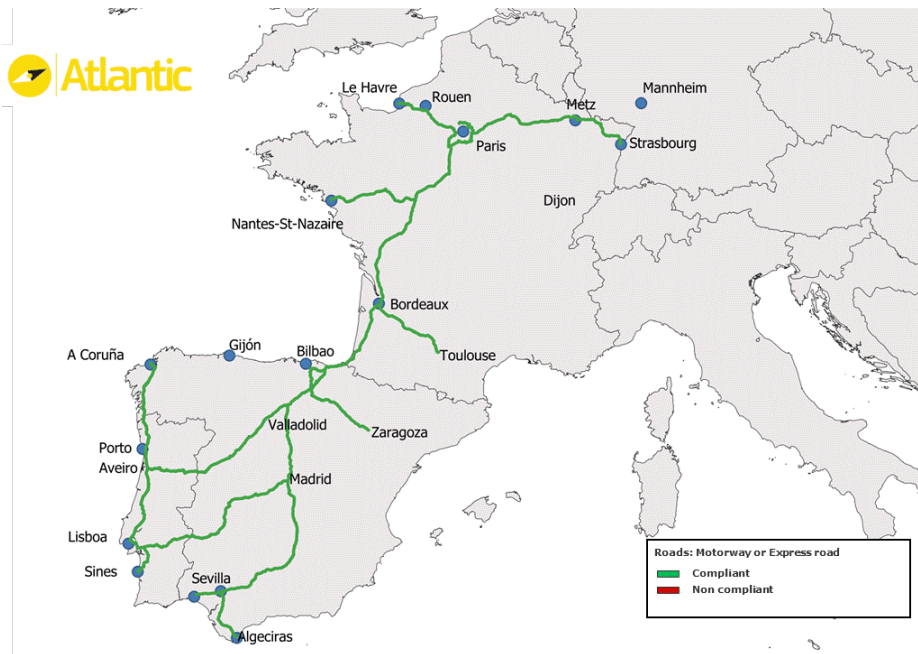
On the availability of clean fuels, including all types of recharging infrastructure all together slow, fast and ultra-fast, the Corridor reaches a compliance of 82%, with the perspective of full compliance by 2025 for electric recharging and LNG supply. Nevertheless, when performing the gap analysis considering the updated requirement for ultra-fast chargers, the continuity of the network is broken, and large investments are still required to reach full compliance.

The Atlantic Corridor is also a good performer in relation to ITS and C-ITS deployment. Largely benefitting from the support of the European Union (i.e. projects Arc Atlantique, MEDTIS, etc.), the Atlantic core roads are already well covered by traffic management and traffic information systems, in line with Action B of the ITS Directive.

Between Portugal, Spain and France, ITS-G5 and 5G cross-border pilots and tests are being performed, turning the ATL roads into a front run corridor.

The expected situation for 2030 for the road network is summarised in the **Figure 11** below.

Figure 11 : Compliance with road requirements by 2030



3.5 Airports

The connection of main airports to the rail network is essential to achieve the intermodality and interoperability objectives set by the TEN-T Regulation, and obligatory by 2050, except where physical constraints prevent such connections.

Regarding the five core* airports in the Corridor (Paris CDG, Paris Orly, Madrid-Barajas, Lisboa and Dublin), only Paris CDG is currently compliant with the rail connection parameter. For Madrid Barajas, works are foreseen and will not impact the 2030 milestone.

Rail connections to Madrid Barajas

The Ministry of Public Works and Transport has started the study for the high-speed rail connection with Madrid Barajas airport. The Spanish infrastructure manager Adif aims at increasing rail capacity and improving connections via the new Chamartín station, which will enable high-speed rail reaching the airport and will bring two stations into one. Two scenarios are being analysed (actual infrastructure, which implies capacity limitation at the airport station or build a new station at the terminal – crossing both runways). The project is expected to be completed by 2030, linking Barajas to Chamartín in less than 10 minutes. A public consultation on the connection was launched by MITMA in September 2021¹⁶.

Lisboa’s second airport

Decisions on the second airport of Lisboa are still being made. An Environmental Strategic Assessment (ESA) will address several options to support those decisions. The options include a main airport in Montijo, a secondary airport also in Montijo and a main airport in an

¹⁶ Adif somete a información pública el proyecto para construir la conexión del aeropuerto de Barajas con la red de alta velocidad, Available at: https://www.mitma.es/ferrocarriles/estudios-en-tramite/estudios-y-proyectos-en-tramite/fuente-de-la-mora_hortaleza_t4_madrid_barajas, July 2022

alternative location - Alcochete. As a secondary airport, Montijo is argued to be the fastest and cheapest alternative to implement, though environmentalists claim such option may have negative impacts on a natural reserve and some bird species of the Tagus estuary. Besides, the runway structure would only allow operations with small to medium aircraft. In turn, operations in Alcochete would have greater opportunities of expansion, in the long-term. In both options, the government is considering implementing railway connections to/from the airport, though connectivity to long-distance rail may not be possible. The ESA is expected to be finalised by 2023. Detail projects will follow. If Montijo is chosen as a secondary airport, operations may start by the end of 2028, with possibility of expansion. In the case of Alcochete, the airport may be open by 2032.

Paris airports

Although CDG airport in Paris is already compliant, a new high-speed line (HSL) station is planned with Ile-de-France and south of the Nord-Pas de Calais-Picardy. This will relieve congestion at Gare du Nord station and facilitate the development of regional train services towards Picardy and connection to main French and European cities. The studies are ongoing.

The "Grand Paris Express", a new high-capacity metro network, will link the main centres of the metropolitan area of Paris and Ile de France, connecting the airports of Orly and the airport of Charles de Gaulle and main railway stations. The eastern part of the Orly-Versailles line of the Grand Paris Express (GPE) are planned to enter operation by 2027.

Dublin airport

The proposed MetroLink project is a high-capacity, high-frequency rail line which will run from Dublin city to north of Dublin Airport, linking the Airport, rail and bus services and creating a more integrated public transport network in the Greater Dublin Area. The preliminary Business Case will be brought for Government approval by Q3 2022. Once full planning approval is received there will be an estimated 9-10 year timeframe for delivery.

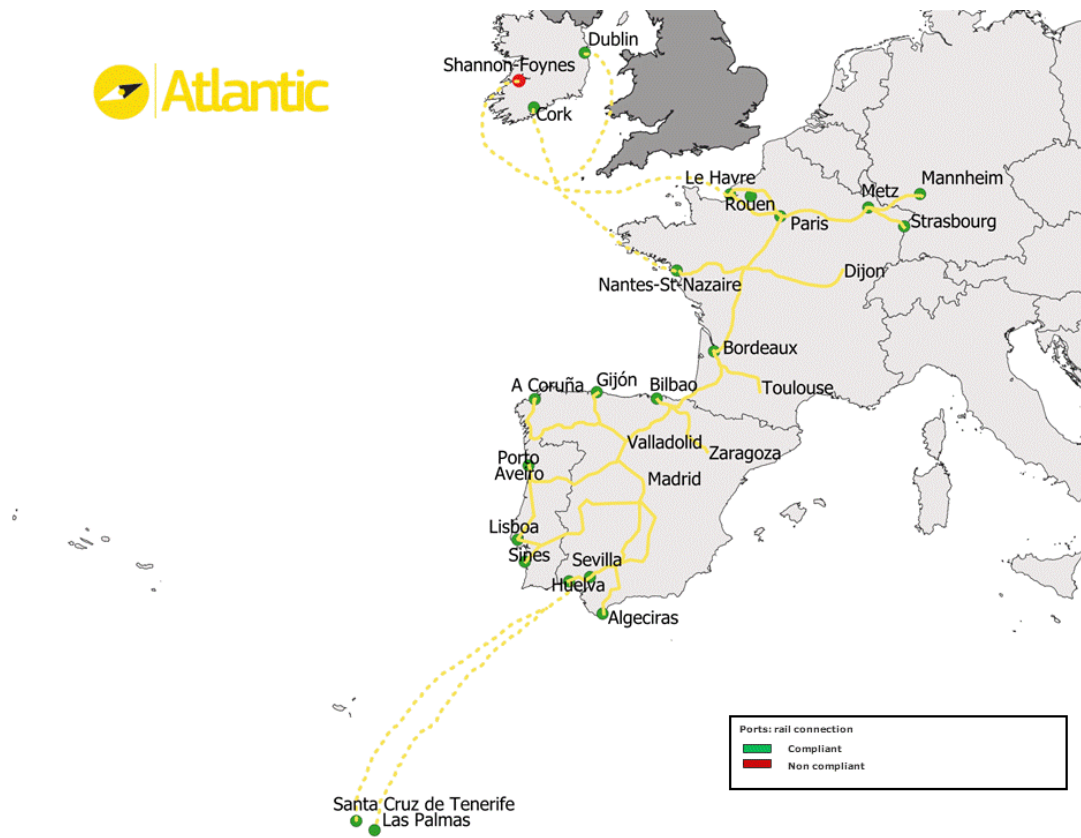
3.6 Maritime Ports on the Atlantic Corridor

In its new CEF2 alignment, the Atlantic Corridor includes 18 maritime ports. With the Corridor extensions, the maritime dimension of the Corridor is well-acknowledged, extending the ATL beyond continental Europe, towards Gran Canaria and Tenerife (both in the Canary Islands) and to the Irish ports of Cork, Dublin and Shannon Foynes.

Despite almost all ports being connected to rail¹⁷, there are significant bottlenecks (see chapter 3.7) that are particularly critical for the ports of Sines, Algeciras, Le Havre, Lisboa and Leixões.

¹⁷ The inner port of Coruña is already connected but the rail access of the outer port is planned by end of 2026.

Figure 12 : Compliance with port rail connections



The Canary Islands are technically exempt from rail connection to the port requirements. For Ireland, the ports of Dublin and Cork have rail connections, though the latter is currently not in use and the rail connection to the port of Shannon Foynes needs to be restored. In this respect, with the Corridor extensions, compliance rates remain extremely high (94%).

All ATL seaports are fully compliant with the requirement to offer at least one terminal open to users in a non-discriminatory way and applying transparent charges, while all ports also provide port waste reception facilities.

Regarding the provision of publicly accessible LNG refuelling points for maritime transport, such option is already available in the ports of Nantes Saint Nazaire and Le Havre (France), Bahía de Algeciras, Santa Cruz de Tenerife, Huelva and Bilbao (Spain). In Portugal, for Sines and Leixões there are no LNG stations, but LNG truck to ship supply is provided. LNG projects are ongoing in Bordeaux, Gijón and Las Palmas and in Sevilla for hydrogen, all expected to be concluded before 2030.

Other ports, such as Bordeaux, Huelva and Sines have planned or ongoing projects for Hydrogen installations, that in the current context of an increased role of ports in the energy sector can boost even more the role of the Atlantic as gateway for energy. Although not yet included in the project list, the upgrade of large fuel bunkering installations for clean energy, including offshore renewable energy are under discussion for several ports, such as Leixões and the Irish ports.

The Canary Islands

The Canary Islands are one of the outermost territories of the European Union. Regulation (EU) 1315/2013 set up that the ports of Santa Cruz de Tenerife and Las Palmas de Gran Canaria, as well as the airports of Las Palmas and Tenerife South, each with over 10 million passengers and being the backbone of the tourism sector in the Islands, belonging to the core network.

CEF2 Regulation (EU) 2021/1153 established that those four infrastructures, together with the urban nodes of Las Palmas and Santa Cruz de Tenerife, are part of the Atlantic Corridor with maritime links to the Iberian Peninsula.

The Azores and Madeira Islands

While not integrating the core network nor the Atlantic Corridor (although Funchal is expected to be integrated as an urban node after the adoption of the revised TEN-T Regulation), beyond enhancing their role in terms of the territorial cohesion of outermost regions, the maritime links to the autonomous regions of the Azores and Madeira can play a crucial role in terms of the implementation of the EU decarbonisation strategy. This is particularly relevant in the case of Azores and its foreseen LNG bunkering supply, which is of extreme importance considering the maritime routes towards the United States and Canada. In addition, it is worth mentioning the recent settlement for the installation of a Space port in Azores, an agreement with ESA for the Atlantic international satellite launch programme. Furthermore, both regions fulfil a strategic role in terms of the EU Military Mobility projects and strategies. In the case of the Azores, its geographical location as a logistic platform for the North Atlantic region, while Madeira fulfils an important role for the Macaronesia region. Nevertheless, the ports and airports of the islands of Madeira and the Azores have not been included in the TEN-T core network, thus not integrating the Atlantic Corridor.

3.7 Overview of the major challenges

This sub-chapter summarises the major challenges for the Atlantic Corridor.

3.7.1 Major challenges for rail transport

Portugal

Lisboa-Caia

The line between Lisboa and the border with Spain, at Caia, is meant to be upgraded and reach a higher minimum average speed in the context of the new connection between Lisboa and Madrid. This is being carried out in several phases in accordance with the Portuguese investment plan (PNI) for railways 2030:

- The first phase consists of building a new high-speed section between Évora and Elvas near the border, merging with the upgraded conventional line in the last 6 km to the border. This phase is ongoing and should be finalised by the end of 2023, except for the section Évora-Évora Norte, which is delayed. The conclusion of the works is still planned for the end of 2023.
- Before 2035, the second phase will finalise the high-speed cross-border section between Elvas and Caia, the high-speed section Lisboa – Pinhal Novo, including the new bridge on the Tagus River.
- The final phase that would entirely connect Lisboa to Madrid with the completion of the high-speed section Pinhal Novo – Évora at the latest by 2050.

This explains why the full high-speed line connecting Lisboa to Madrid will not be compliant by 2030.

Sines-Ermidas-Grândola

The completion of the missing link between Évora and the border will shorten the travel time between the port of Sines and the border in almost four hours.

Also in this respect, as foreseen by Implementing Decision C(2018) 2356¹⁸, the modernisation of the line Sines-Ermidas-Grândola, will also significantly reduce the time of the freight flows from the port of Sines to Spain. The contract for works on the section between Ermidas-Sado and Sines for modernising the current branch linking the Sines railway line to the South International Corridor, was signed in September 2021 for 28.5 million euros¹⁹. The Action will also prepare the Sines-Ermidas railway section and the Southern Line stations Ermidas-Sado and Canal Caveira located in the Ermidas-Grândola section, for the installation of polyvalent sleepers preparing for the migration to European standard track gauge in full synchronicity with Spain. With this, the Portuguese government is still confident that works can still be finished on time, although it remains a challenge.

The full completion of the high-speed line connecting Lisboa to Madrid by 2050, as well as the new extended core line Sines-Grândola-Casa Branca by 2040 together with the upgrade to double-track by end of 2024 of the section Poceirão-Bombel, will further improve the timing to connect the port of Sines port to the Spanish hinterland.

Porto-Vigo

Even though the Porto-Vigo cross-border connection is not (yet) on the Atlantic Corridor, it is worth being highlighted in this 5th Work Plan, as it is the busiest cross-border connection between Portugal and Spain in terms of both road and rail traffic and for both passengers and freight.

On the Spanish side, the new high-speed line between Pontevedra and Vigo was built before 2014 in Iberian track gauge with polyvalent sleepers. The high-speed line between Vigo and the border is expected to be completed in coordination with Portugal. The feasibility study for the itinerary to get out of Vigo towards the South has already been tendered by MITMA.

On the Portuguese side, the new high-speed line between the border and Porto will be carried out in two phases: the section between the border and Braga, as well as the connection between Porto and its airport will be built by the end of 2030. The last section between the airport and Braga is expected to be completed by the end of 2040. Consequently, the travel time on the Portuguese side will be reduced from the current 1h50 to 1h by the end of 2030 and to 45 minutes by the end of 2040.

Spain

Y Basque's high-speed lines

The Y Basque's high-speed lines will connect the three main cities of the Basque region, i.e. Vitoria, Bilbao and San Sebastián. From San Sebastián, there should be a high-speed connection to the border with France at Irún and the Y Basque should be connected

¹⁸ Commission Implementing Decision of 24.4.2018 on the Évora-Mérida cross-border rail connection along the Atlantic Core Network Corridor

¹⁹ Infraestruturas de Portugal: Arranque da empreitada entre Sines e a Linha do Sul, available at: <https://www.infraestruturasdeportugal.pt/pt-pt/arranque-da-empreitada-entre-sines-e-linha-do-sul>

southwards to Madrid via Burgos and Valladolid also at high-speed, all in UIC compliant operational track gauge.

The access to Bilbao (new station) and the access to Vitoria (new station, also part of the rolling motorway service) are still under environmental assessment, expecting approval in the coming months, while the section Burgos-Vitoria received environmental approval only recently, in June 2021. Hence, the date of 2030 for completion still contains some risks.

Regarding the section between San Sebastián (Astigarraga) and Irún, the decision about the new high-speed section Astigarraga-Irún is dependent on the decisions of France regarding the upgrade of the existing conventional line and the planning of the new high-speed line between Bordeaux, Dax and Hendaye. Pending this decision, Spain decided to upgrade the existing conventional line with a new electrical traction substation and a third rail to allow the traffic of European standard track gauge trains. These upgrades should be implemented by the end of 2024, although that date appears challenging.

The works in the section Venta de Baños - Burgos was concluded in December 2020, with tests starting soon and the commission of the section expected in 2022. The section Burgos – Vitoria is under environmental assessment, and the planning phase has been completed.

New high-speed line Lisboa-Madrid: Spanish side

The new high-speed line between the border with Portugal at Caia (border point before ES), Badajoz, Cáceres, Plasencia, Toledo and Madrid is in various stages of completion. This line will be UIC compliant with polyvalent sleepers²⁰. The most advanced section is the one in Extremadura, from Plasencia Cáceres to Badajoz with renewal works expected to be completed by end 2022 to connect the existing upgraded conventional line on the Portuguese side in Caia and the new line Évora-Elvas to be completed by the end of 2023. The construction of the last stretch of the new high-speed line between Elvas and the border on the Portuguese side and its new high-speed connection on the Spanish side in Badajoz should be ready at the latest by 2040.

The section between Madrid and Castilla-la-Mancha (Madrid until Talavera de la Reina) is still under informative study. Environmental assessment is expected to take place over 2022/2023 and works to start in 2024 or 2025. This section should be in UIC compliant operational track gauge. The following section until the PT border would *a priori* be in UIC compliant polyvalent sleepers.

Between Talavera de la Reina in Castilla-la-Mancha and Plasencia in Extremadura, some sections are under works while others only have their design ready.

In this respect, the deadline for completion of Madrid – border with PT in HSL until 2030 may be challenging.

Regarding the existing conventional section between Badajoz and the border, works to upgrade it are ongoing and electrification is expected to start soon.

Bobadilla-Algeciras

The current line is a non-electrified single track Iberian gauge line, with speed limitations due to high gradients, no possibility for night traffic as a result of the absence of central traffic control and with capacity for maximum 550m freight trains. Preparatory studies for electrical supply stations and catenary led to restart a new environmental assessment.

²⁰ This type of railway sleepers allows for changing the gauge by only relocating the rails without exchanging sleepers and hence prepare the ground for a future switch to the European UIC operational track gauge.

In January 2021, European Coordinators for the Atlantic and Mediterranean Corridors Carlo Secchi and Iveta Radicova sent a joint letter to Secretary of State for Transport Pedro Saura. They underlined the importance of the line for the Port of Algeciras, the 4th biggest port in the EU, acknowledged the fact that it will most probably not be possible to build a new high-speed line and asked for improvements to the existing conventional line, more specifically electrification, 740m sidings, the reduction of gradients and the deployment of ERTMS.

In his answer in June 2021, Secretary of State Pedro Saura committed to renovation works to be realised before the end of 2030 for a budget of €470 million, including electrification, renovation of the tracks, increase of the loading gauge of the tunnels, improvement of the safety infrastructure and 750m sidings. The new Centralised Traffic Control (CTC) is planned, although no ERTMS deployment is expected at this point. In addition, several actions are planned in order to allow rolling motorway services through the Zaragoza-Algeciras railway line, such as the enlargement of tunnels.

France

Existing conventional line Bordeaux-Hendaye

The complex of Irún-Hendaye, at the border, will be remodelled in order to allow for a smooth crossing of European standard track gauge trains between France and Spain without having to tranship/transfer or change bogies. A specific working group is overseeing the plans and the preliminary studies are being finalised. The adaptation works are expected to be completed by the end of 2024, in line with the realisation of the third rail on the conventional line between San Sebastián and Irún.

In terms of the tunnels, there are nine tunnels which require an increase of loading gauge for rolling motorways services (plus additional 10 tunnels between Lille and Bordeaux for the future rolling motorway between Lille and Vitoria): four just south of Bordeaux (Lormont 1, 2, 3 and 4) and five between Bayonne and Hendaye (Citadelle, Saint-Esprit, Mousserolles, La Négresse, Les Redoutes). Two of those nine tunnels are being studied and works are planned to be carried out at the occasion of the regeneration of the line. However, this leaves the seven other tunnels unaddressed before the end of 2030. In other words, there will be no possibility to implement rolling motorways services on the line by the end of 2030, and the time horizon for this possibility is still unknown.

Finally, the line itself will be partly regenerated before the end of 2030 as follows, within a total budget envelope of about €423 million:

- Renewal of the tracks and of the ballast between Talence and Lamothe by end 2022;
- Renewal of the tracks and of the ballast between Lamothe and Ychoux by end 2024;
- Renewal of the tracks and of the ballast between Ychoux and Morcenx by end 2026;
- Renewal of the ballast between Bordeaux and Lamothe by end 2026;
- Renewal of the catenary between Dax and Bayonne by end 2029.

Unfortunately, those works will not be enough to provide a minimum average speed sufficient to be assimilated to high-speed and some renewal works are planned for after 2030, including the renewal of the catenary between Bordeaux and Dax. Therefore, we are not in a situation where the upgrade of the line will sufficiently mitigate the postponement of the new high-speed line. Spain will build the new section of the Y Basque between San Sebastian and Irún after 2030 in coherence with works planning in the French side.

Another issue is the fact that the works on the line are being carried out during the night in order not to disturb operations throughout the day – mostly passengers and regional traffic. However, this also entails closures of the line given that it is not entirely banalised²¹ (the section Bordeaux-Morcenx is not banalised), with impacts on long-distance freight traffic. Based on the negative feedback from the railway undertakings, it is assumed that this will lead to a further decrease of long-distance freight traffic. The planned works to regenerate this line by 2030, as the necessary future maintenance works of the line will continue to negatively affect the existing cross-border freight traffic if a permanent contraflow installation is not set up.

Noteworthy, some advances were secured in France with the adoption by the French Council of Ministers on 2 March 2022 of the ordinance creating the GPSO public project company (société de projet) which is endowed with legal personality and financial autonomy. Its mission is to contribute to the financing of railway infrastructure, including by managing the financial participation of the different stakeholders: the French government, SNCF Réseau, the local authorities and groups of local authorities, on the basis of the financing plan approved in February 2022 for the phase 1 and 2 of the projects (Bordeaux-Toulouse and Dax). A revision of the official timings is also under consideration with a view of trying to secure the works for the Bordeaux-Toulouse branch, foreseen around 2030, under optimistic assumptions. The completion of the Bordeaux-Dax branch will be achieved as a continuation of Bordeaux-Toulouse branch.

3.7.2 Major challenges for inland waterway transport

The Seine River meets all parameters of IWW, having reached 100% of RIS deployment in 2017, except for historical characteristics prevent overcoming bottlenecks experienced during certain periods of the year in Paris due to bridge height.

On the Portuguese side, further actions are required to improve the navigability and functional obsolescence of the Douro River, notably its locks.

Regarding the Tagus River, there are currently plans to develop a project to classify it as an IWW, destined for barges and aiming at the flow of goods by river from and to Castanheira do Ribatejo. This is considered to have a remarkable ecological potential, shifting a significant share from road freight transport in the logistical chain. The navigability project of the Tagus River is considered instrumental for the progress of the port of Lisboa with the Execution Project and EIA for the improvement of the channel and navigation conditions in progress.

3.7.3 Major challenges for airports

Out of the five core* airports on the Atlantic Corridor (Dublin, Paris CDG, Paris Orly, Madrid-Barajas and Lisboa), only Paris Charles de Gaulle airport is fully compliant with the requirement of rail connectivity. Of the other core* airports of the Atlantic Corridor, only the airport of Madrid Barajas has plans to implement high-speed rail connections. In Lisboa, the unknown situation of the city's second airport still raises issues on the capacity of ensuring high-speed rail connections to/from the airport.

It is also important to add that Paris Charles de Gaulle has future plans on the improvement of the current high-speed rail connections to/from the airport, though an end date for such

²¹ With permanent contraflow installation.

project is not yet known and not yet reflected in the Project List of the Atlantic Core Network Corridor.

Of the other airports of the Atlantic Corridor, a high-speed connection to Porto airport is expected to be completed by 2030, as part of the Porto-Vigo HSL.

3.7.4 Major challenges for maritime ports

Despite the COVID-19 crisis, container rail services continue growing in the ports of the Atlantic Corridor. Improving port accessibility using rail in the hinterland is a necessary condition to promote such traffic but key persisting bottlenecks for ATL seaports still remain, affecting in particular the ports of Sines, Algeciras, Le Havre and Leixões.

The port of Sevilla will be improved with the construction of a new rail access. This new access will reduce the running times for freight trains in approximately two hours and thirty minutes, by avoiding the backtracking manoeuvre that they currently must do to access the port rail branch.

While for Le Havre, the electrification of the section Serqueux-Gisors, entered in operation in March 2021, significantly improved its hinterland rail connection to Paris, for the Iberian ports: track gauge, line speed, train length, gradient and electrification (in the case of Algeciras) still impact the performance of these ports in their hinterland flows. Notwithstanding such bottlenecks, it is worth noting that both Sines, Algeciras and Bilbao increased their rail traffic flows when compared to 2019.

These bottlenecks are addressed in several ongoing and planned projects, though the electrification of Algeciras line is suffering significant delays due to environmental procedures.

Therefore, it is not surprising that Atlantic ports actively continue the promotion of programmes to enhance their efficiency (digitalisation, extended gateways, single windows, etc.) and to develop multimodal hinterland connections, as the investment foreseen under PNI2030 to increase rail capacity in Lisboa city and port, particularly the improvement of the railway connection of the port, and also the inland navigation conditions in and upstream the port area. Moreover, and affecting in particular the port of Leixões, bottlenecks are also related with the urgent need to enhance capacity (access channels and berths) for both terminals and storage areas is called for to cope with increasing international traffic and enhanced size of vessels, as visible for the increase in container and RoRo traffic regarding 2019.

The Fit for 55 package includes different proposals of relevance to the ports and specifically for the Atlantic: a proposal for a Alternative Fuels Infrastructure Regulation (AFIR, see below), a new proposal to increase the use of alternative fuels by shipping (FuelEU Maritime), the extension of the Emissions Trading System to shipping (EU ETS), amendments to the Renewable Energy Directive (REDIII), as well as an update of the Energy Taxation Directive.

The extension of the EU ETS to maritime transport, which may give rise to a flight of traffic, especially transshipment, to third countries, can have a significant impact in the port of Algeciras (and also Sines) given the presence of Tanger Med. The risks of deviations to third country ports without gains in terms of emissions (carbon leakage) requires finding solutions to minimise it.

Moreover, the energy crisis resulting from the Ukraine war places the Atlantic ports as important gateways for Europe. If our ports were already providing interesting examples of adaptation of liquid bulk terminals and/or coal terminals to new clean energy production, such projects are now being accelerated.

The Iberian ports, notably Sines and Huelva, are already important gateways for LNG from the United States and Algeria in North Africa and dispose of established pipelines with capacity to answer to new demands in an initial stage. It is thus of extreme importance that progress in the TEN-E cross border pipeline projects, particularly towards solving the crossing of Pyrenees, is accelerated. Both projects have plans for investments both hydrogen and Sines also plans for an increased capacity of the LNG terminal. The terminal still disposes of enough capacity for an immediate answer, but further investments will allow in two years to double its capacity.

A project of the Port of Bordeaux stands also as an interesting example. It stems from the fact that the port's activity is declining in tonnage, that its main clients are in the fossil-fuel related industries and that there are pipelines of gas and oil from production sites to the port. On that basis, the port is seeking to become an industrial hub for the production of clean and recycled hydrogen and related molecules (ammoniac, methanol, etc.) for various uses. It has been estimated that an initial investment of €26 million could trigger a 400 to 500 million-business development. The port is in discussion with potential investors to bring this project to life.

3.7.5 The impact of Brexit on the Atlantic Corridor

The UK's departure from the EU Single Market and the Customs Union on the 1st January 2021 has led to a reduction in freight traffic volumes on the Western Channel, but has also led to a diversion of traffic to direct ferry services between Ireland and continental Europe to avoid the landbridge across Great Britain.

On the Western Channel corridor between Great Britain and France, freight traffic volumes fell by 11% in the end of November 2021 compared to the same period in 2019²². This is likely to be mainly a result of a reduction in trade flows between the UK and the continental EU after 1st January 2021.

While several RoRo operators had already launched new direct RoRo services between Ireland and the European continental mainland before 1st January 2021, it was after the UK's departure from the Single Market and the Customs Union that there was a particular surge in new capacity on this Corridor, as RoRo operators developed their services to meet demand from hauliers and freight forwarders seeking to avoid the additional paperwork and potential delays involved in crossing Great Britain on the traditional landbridge route.

Based on data collated by the Irish Maritime Development Office, the direct Republic of Ireland to European continental mainland RoRo traffic increased by 104% compared to 2019. An additional 195,887 RoRo units were transported on direct services during 2021 compared to 2019, with capacity also doubling and the number of different route options rising from 6 to 11. Additional capacity and new direct routes were added on the Atlantic Corridor between Irish, Portuguese, French and Spanish ports.

With regards to France, Brexit has not had a significant impact on the ports of Le Havre and Nantes. Trans-Channel relations are in fact concentrated on other ports (Calais, Dunkerque, Cherbourg, Ouistreham, Roscoff). Moreover, it is difficult to measure the impact of Brexit, as it also amounts to the impacts suffered from COVID-19. Nonetheless, the traffic between Cherbourg and Ireland increased significantly in 2021. In addition, new transport offers have appeared between France and Ireland, namely the new maritime links between Dunkerque

²² Based on industry data provided by IRN Freightstat

and Rosslare (IE), with 6 round trips per week, and between Le Havre and Rosslare (IE) with one round trip per week.

Likewise, maritime transport operators are developing new connections with Ireland from Spanish ports. Already since 2020 new maritime links are operating the routes Bilbao-Rosslare and Santander-Dublin, with two round departures per week. In addition, the ports of Vigo and Cork are joining efforts to connect both ports. It is worth noting that maritime services with Ireland, at least from Spain, may be operated in lines calling UK as well to make the service economically and financially viable. In this regard, support to maritime connections with Ireland should not be conditioned to direct links.

4 The deployment plans of MoS, alternative fuels and development of urban nodes

4.1 Deployment plan of MoS

Maritime transport plays a key role for the European economy, transporting about 75% of its external trade and approximately 31% of its internal trade. Specifically, Short Sea Shipping (SSS) makes up a majority (up to 60%) of the total maritime transport of goods to and from the main EU ports. With its large network of maritime ports on the TEN-T, the European maritime sector forms an important part of the intra-European transport system. The Motorways of the Sea (MoS) programme is a key instrument in this setting, working towards the ultimate vision of a European Maritime Space (EMS) that is Sustainable, Seamless, Smart and Resilient.

In the Detailed Implementation Plan (DIP) for MoS, the aim is to provide a sound analysis of priority investment needs to achieve the EMS, centred around four thematic pillars:

1. Sustainable: Emphasising on the reduction of GHG emissions and pollution of air, noise and water;
2. Seamless: enhancing the connectivity with the rest of the TEN-T (the CNCs in particular), other transport modes, peripheral and outermost regions, islands and European neighbouring countries;
3. Smart: aligning maritime transport with the European digital agenda
4. Resilient: ensuring the EMS is capable of facing exogenous shocks

Maritime ports and their hinterland connections play a key role to achieve these goals. The port infrastructure including infrastructure related to offshore renewable energy and the hinterland connections must facilitate the transfer of the European economies to non-fossil fuels, providing appropriate handling and alternative fuels terminals, storage and hinterland infrastructure. Given that the future demand of new fuels is not yet known, investment plans need to be flexible and react quickly with regard to a developing demand and supply.

Due to its relatively high energy efficiency, maritime transport can also play an important role in reducing the climate impact of transport. Especially on long coastal routes, maritime transport should be considered as a serious alternative to road transport. Such coastal services with a reduced carbon footprint should be developed in cooperation with shippers and forwarders. Not to mention the contribution of maritime transport to modal shift, especially on the RoRo market, which is directly reducing socioeconomical impacts, such as accidents and congestions from roads. Furthermore, such services reduce the need to increase road capacity along the Corridor.

Ports and port communities are also natural digital hubs, exchanging data with seaborne and land-based transport from all parties involved in the transport chain. Simplifying procedures, harmonised data flows and a common approach to deploy interoperable ICT systems will further facilitate the use of maritime transport.

Finally, the resilience of maritime transport chains requires the cooperation of ship operators, ports and forwarders. Exogenous shocks such as extreme weather events may lead to a temporary breakdown of ports or parts of the hinterland transport chain. To address such possible shocks, alternative shipping routes should be identified for relevant transport flows. Such alternative shipping routes– may involve stakeholders along the TEN-T core network corridors with core and comprehensive network ports.

4.2 Plans for the deployment of alternative fuels infrastructure and innovative actions

The deployment of alternative fuels infrastructure

The European climate law requires the Union to reduce its net greenhouse gas emissions by at least 55% in 2030 and be climate neutral by 2050. The transport contribution is highly significant since the European Green Deal calls for a 90% reduction in greenhouse gas (GHG) emissions in transport, while also working towards a zero-pollution ambition.

The Commission's report on the application of Directive 2014/94/EU on the deployment of alternative fuels infrastructure highlighted that market maturity varies considerably, depending on the mode of transport. Although some Member States have raised their ambition, the EU still lacks a comprehensive and complete network coverage of easy-to-use alternative fuels infrastructure, for all modes of transport. The European Court of Auditors also stressed the significant differences between Member States in deploying charging infrastructure²³.

That is why the Commission proposed in July 2021 a new Regulation on the deployment of alternative fuels infrastructure, repealing Directive 2014/94/EU.

The proposal sets forth binding requirements for a sufficient amount of minimum recharging and refuelling capacity to ensure full cross-border connectivity of light and heavy-duty vehicles throughout the EU. For electricity, distance-based targets for fast-recharging infrastructure along the TEN-T network complement national fleet-based targets for recharging of light-duty electric vehicles.

For hydrogen, distance-based targets for the deployment of refuelling stations, including for each urban node, will also cater for light- and heavy-duty fuel cell hydrogen vehicles.

For ports, shore-side electricity supply should be provided in maritime and inland waterway ports and an appropriate number of refuelling points for LNG should be put in place at maritime ports. For airports, aircraft at airports and commercial transport operations should be able to make use of external electricity supply while parked at gates or at outfield positions at TEN-T airports.

The proposal for the revision of the TEN-T guidelines is providing cross-references the proposed new Regulation on the deployment of alternative fuels infrastructure.

Offshore Renewable Energy

To help meet the EU's goal of climate neutrality by 2050, in November 2020 the European Commission published the EU Strategy on Offshore Renewable Energy. The Strategy proposes increasing Europe's offshore wind capacity from its current level of 12 GW to at least 60 GW by 2030 and 300 GW by 2050. The Commission aims to complement this with 40 GW of ocean energy and other emerging technologies such as wave, tidal and floating solar by 2050. Under the Green Deal, the EU has raised its renewable targets to 40% by 2030 and sets legally binding targets to reduce net EU emissions by 55% by 2030, from 1990 levels, and eliminate them by 2050.

²³ Special Report 05/2021: Infrastructure for charging electric vehicles: more charging stations but uneven deployment makes travel across the EU complicated (europa.eu)

While the primary function of the ports is to facilitate maritime transport, ports are more than trading gateways to the world. They are also enablers of other activities. The significant role that ports can play in facilitating the development of the offshore renewable energy sector is widely recognised. Ports are a vital part of the supply and logistics chain that's needed for the installation, assembly, operation and maintenance of offshore wind farms.

Expanding offshore renewable energy requires upgrading port infrastructure in order to meet European targets. Sufficient renewable energy sources over the coming decade will be critical not only to achieving the EU's overall national climate targets but also, within that, to supporting the transport switch over from fossil fuel based fuels to clean energy. Ports on the Corridor have a significant role to play in this synergy between transport and renewable energy.

Deployment of alternative fuels infrastructure and innovative actions along the Atlantic Corridor

For the Atlantic Corridor, innovation projects targeting the deployment of alternative fuels, as well as those related with digital solutions for freight transport, are of utmost relevance to boost the maritime potential of the Corridor.

Within the Corridor's project list, several projects are addressing **wider environmental aspects**, with 56 projects referring to the deployment of clean fuels and 55 to sustainable freight transport services, accounting to over €3.7bn. It is also worth highlighting that the Corridor extensions contributed to a total of additional 24 projects on sustainable and future-oriented mobility, especially in Ireland, France and Spain. Noteworthy, the port of Huelva alone represents 8 additional projects (3 related to clean fuels and 5 on sustainable freight transport services).

Projects addressing environmental issues generally cover more than one of these aspects. These issues are covered in a variety of projects concerning infrastructure and services. Some significant projects are outlined below:

- **Improvement of local environment (pollutants):** "Improving the environmental performance of the Port System of APDL management and develop its clean fuels infrastructures/supply"; "Restoring the environmental continuity with the construction of fish passes on the downstream Seine (Seine-Scheldt inland waterway)"; "Shore-to-Ship Power Supply in the Eastern Terminals and the Lisboa Cruise Terminal"
- **Mitigation of Climate Change:** "Clean fuels stations along core network" in Portugal; "Implementing LNG fuel (LNGHIVE2 global project) and other clean fuels in all ports (Spain)"; "Action Plan for LNG in Portuguese Ports (study and pilots) and Further Implementing Actions"; "Alternative fuels facilities (bunkering/storage facilities)" in HAROPA ports; or "PEEPOS green transport: development of alternative fuel facilities (LNG/NGV/electricity) for ship bunkering and road transport" in the port of Bordeaux.

Moreover, it is worth highlighting several MoS projects addressing **LNG deployment** and studies related with onshore electric supply, as well as information systems (i.e. maritime and logistic single windows). Innovation projects targeting the deployment of clean fuels and simplification, such as those targeting LNG facilities and logistic single windows, are particularly relevant to boost the maritime potential as a highly efficient transport mode. Furthermore, these are also two issues where the Atlantic Corridor can be seen as the frontrunner of innovative solutions, which could be replicated by other Corridors.

In **Spain**, the development of the SIMPLE platform (SIMplification of Processes for a Logistic Enhancement), funded under the CEF programme and led by Puertos del Estado, Adif and

MITMA, started in the end of 2020 and aims to enhance the modal change and obtain more data about the logistic chain. It is an “open data” one-stop shop platform for logistics information exchange that contemplates the analysis, development, implementation and management for functionalities corresponding to the information flows related to the intermodal transport chain.

4.3 The development of urban nodes by 2030

Urban nodes represent most of the points of origin and destination of transport flows on the Corridors. The effectiveness of the Corridors is therefore impacted by the effectiveness of the first and last miles of the journeys in those urban nodes and it is important to ensure sufficient multimodal connections. Urban nodes can also contain bottlenecks and missing links on the Corridors. Conversely, they can be impacted by the negative aspects of traffic on the Corridors in terms of pollution, noise and safety.

Regarding the TEN-T Regulation, the Commission, in its proposal for a revised Regulation of 14 December 2021, more clearly defines the role of the urban nodes on the network and their constituting elements, and sets additional requirements that the Member States should ensure. Those additional requirements include the development of Sustainable Urban Mobility Plans (SUMPs), the use of sustainable urban mobility indicators and the development of multimodal passenger hubs and freight terminals. In addition, the proposal extends the list of recognised urban nodes from the previously limited list of 88 “network defining urban nodes” to all cities of at least 100,000 inhabitants and, for NUTS2 regions without such a large city, the capital of those regions.

However, in this Work Plan we are still referring to the current list of urban nodes and highlight the key points that still need to be addressed at their level.

Portugal

In **Lisboa**, investments have been made to promote multimodality and the deployment of a new advanced ticketing system - technological platform common to all mobility operators in the Lisboa Metropolitan Area (AML). This action has been particularly addressed by the study MOBIL.T project on Mobility and Ticketing for Multimodal Transport in Lisboa, which is expected to be concluded in December 2022. The PNI 2030 plan also foresees plans to strengthen the railway connection of the Linha de Cascais and of the port of Lisboa to the Linha de Cintura, with the development of a new station at Alcântara-Terra and future connection with the metro of Lisboa. This will enable a new access to the port of Lisboa, reducing bottlenecks and increasing rail capacity in the Lisboa metropolitan area. In addition, the plan anticipates studies for developing the third bridge over the Tagus River (a railway bridge), which is essential for the completion of the Lisboa-Madrid rail connection and to improve trip times to the south of Portugal. For Porto, the PNI 2030 also foresees improvements for the rail connection to the port of Leixões reducing existing bottlenecks and increasing capacity.

Another action laid down in the plan is the high-capacity development in road sections of the urban nodes of Lisboa and **Porto** (A5 / A28), in order to address last mile road bottlenecks in those cities. Another major bottleneck that needs to be addressed is the development of the high-speed passenger connection between both Portuguese urban nodes, which expects to reduce travel time between both cities to 1 hour and 15 min when completed in 2050.

Spain

As for the urban node of **Madrid**, the new Atocha - Chamartín high-speed tunnel built in standard gauge is foreseen to enter in operation during 2022. The ongoing enlargement of Madrid Chamartín-Clara Campoamor station, with the construction of four more tracks for high-speed rail services, will allow an increase of capacity for future traffics and the HS connection with Barajas airport.

There is a rail bottleneck in the access to **Bilbao** and in the line between Bilbao and its port, mainly due to the overlapping of commuters' trains and freight trains. It will be relieved by the new HS access to Bilbao within Y Basque and by a new direct connection to Bilbao Port through the existing Serantes tunnel, with both infrastructures built in European standard track gauge.

As for the urban node of **Sevilla**, the construction of a new rail access to the port has been approved. This new access will reduce the running times for freight trains in approximately two hours and thirty minutes, by avoiding the backtracking manoeuvre that they currently must do to access the port rail branch. The new road connection from the Port of Sevilla to SE-40 ring road will open to traffic, firstly in one direction, by the end of January 2022.

The development of maritime infrastructure and a new access to **Las Palmas de Gran Canaria** Port, attached to the urban node, is included as a specific project in the Project List in order to increase its capacity to be able to host future freight traffic.

The new shore quay to be constructed in the Port of Granadilla, included in the Port of **Santa Cruz de Tenerife** and currently mostly dedicated to fuel storage, ship repair and offshore business, will enable the creation of a hub for the emerging new energies, given its strategic location with respect to the wind resource. It is also important to highlight the current urban transformation of Santa Cruz de Tenerife due to the ongoing dismantlement of the oil refinery.

France

In **Paris**, the projects aiming to overcome bottlenecks and missing links concern rail projects. Particularly, two of the main missing links regard the Paris Southern bypass and the project of the flying junction in St-Lazare train station. The first project will enable to remove the two bottlenecks that affect long-distance region-to-region high-speed train between Massy and Valenton (15km). The first work phase on the Eastern sector of the line was achieved on 14th November 2021 and the commissioning of the whole Paris Southern bypass, through the completion of the works on the Western sector of the line, is expected for 2028. The project at St-Lazare station will allow reducing delays for trains coming from and going to Normandie region. Preliminary studies concerning the project have been presented and approved in November 2021. Commissioning is expected to be in 2030.

In **Bordeaux**, the main bottleneck is linked to the AFSB project, which consists in redesigning the tracks plan on the South of Bordeaux. The project will upgrade the capacity of Bordeaux node and will positively impact the Bordeaux-Toulouse/Dax railway project and also the Metropolitan railway network. This project is due to start in 2023-2024 and finish by 2030, under optimistic assumptions.

Germany

In **Mannheim**, besides the completion of the track plan change and platform F at the Mannheim junction in 2017, further projects are being planned in the remaining sections,

which are considered to be pre-requisite for compliance with the "Deutschland-Takt" (half-hourly service on the most important long-distance connections).

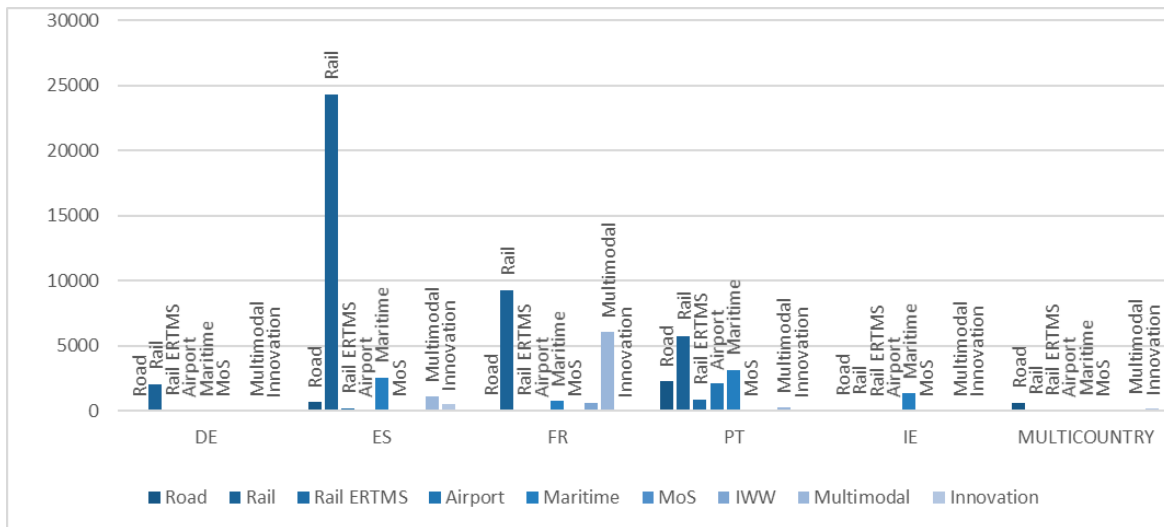
5 Funding and Financing tools

5.1 The Atlantic Corridor’s funding needs

The total official cost of the planned projects in the 2021 Atlantic project list amounts to 65,543 million euros (available cost data for 88% of the projects), representing an increase of €16.7bn compared to the previous project list (an upsurge of 34%).

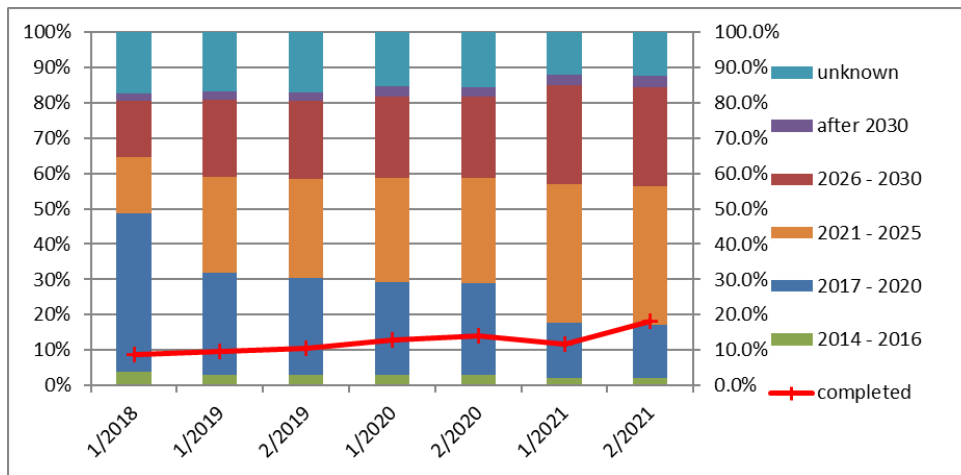
Rail (excluding ERTMS) represents 63% of the total costs. Over 10% of total costs refer to projects in the maritime sector, with 11.5% accounting for multimodal projects (notably inland connections to ports), 5.7% to road projects, 3.2% to airports, nearly 2% refer to inland waterway projects and 1.8% to ERTMS projects. Innovation represents about 1.3% of the costs and MoS less than 0.1% in the Atlantic CNC. The following figure shows the split per country and project category.

Figure 13 : Costs (M€) of projects in the Atlantic Corridor per country and category



Despite the increase in the number of projects completed since the reporting period of 2018, we have noted a continuous increase in the share of projects being shifted to later periods and or referred to as unknown completion dates, as shown in the figure below. This continuous delay and/or uncertainty in the project completion dates may compromise the deadline for completion of 2030, especially if projects are delayed until after this period, as already noted in the previous sections.

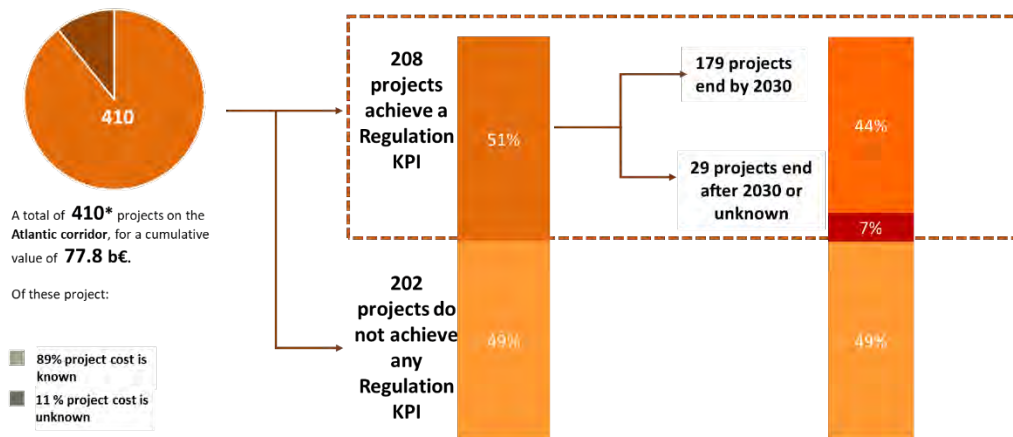
Figure 14 : Evolution of the share of expected completion time since the reporting period of 2018



After this initial assessment, the financial analysis enables to assess the maturity status of the project pipeline, summarised in **Figure 15**. As depicted in the diagram below, the vast majority (89%) of the projects have information on cost, and this high share is reflected through the three subcategories. It should be noted that the analysis does not consider projects ending before 30/06/2021 nor sub-projects (i.e. projects whose costs are included in bigger projects). Thus, a total of 410 projects are included in this analysis, amounting to a total cost of €77.8 bn (official plus estimated costs²⁴), covering 90% of the projects.

Figure 15 : Financial analysis

Share of projects (with end date after 30/6/2021) of which the cost value is known

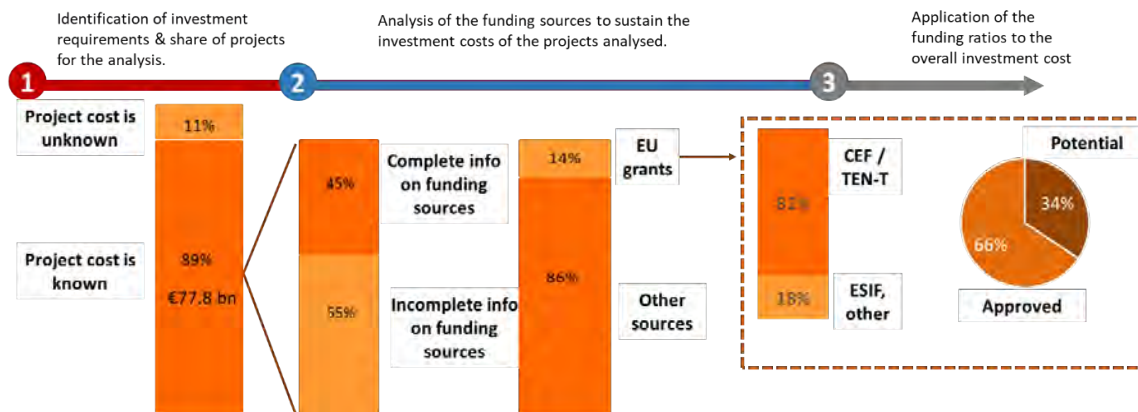


* Analysis does not consider projects ending before 30/6/2021

²⁴ This value includes the official costs as defined by the stakeholders and the costs estimated by the consultants upon a common methodology for the projects included in the project list without any cost indication.

For the projects with complete information (45%), 14% of the funding would need to come from EU grants (ERDF, CEF, etc.), of which 82% would originate from CEF/TEN-T grants. Of these, 66% account for approved funds and 34% potential. The value of EU grants approved so far is equal to €2.2bn, with an overall value of EU grants (including projects not yet approved) of €3.48bn.

Figure 16 : Funding and financing sources analysis for the Atlantic Corridor



We estimate that about 7.08 bn euros (available cost data for 90% of the projects) still needs to be invested on the Corridor in order to complete it. This can obviously not come from public budgets alone. Therefore, it is crucial that such projects are also supported by other funding sources.

It is worth reminding that there are several possible sources of financial support at EU level next to CEF grants. Such other sources include the Recovery and Resilience Facility Fund (RFF), for certain regions in Spain and in Portugal, the European Regional Development Fund (ERDF) and the Cohesion Fund in Portugal. The extent to which transport and more specifically TEN-T projects will be covered depends on the ongoing negotiations between the national authorities and the European Commission’s services in charge of those funds. One last important source of EU support is the EIB (European Investment Bank) and the National Promotional Banks, which can provide loans and guarantees, including under the so-called InvestEU financial products under its “Sustainable Invest Window”.

When public sources are not sufficient or cannot be obtained, project promoters should try to call upon the private financial market. A good entry point includes the countries’ national promotional bank (NPBs: Ireland: Ireland Strategic Infrastructure Fund (NTMA); Portugal: Banco Português de Fomento (BPF); Spain: Instituto de Crédito Oficial (ICO); France: Caisse des Dépôts et Consignations (CDC) and BPI France; Germany: KfW Bankengruppe).

Advisory support, including for financial structuring is available for TEN-T transport projects under the InvestEU Advisory Hub, the JASPERS advisory facility or ELENA for sustainable urban transport mobility.

In this context, it is important to follow the advice detailed in the last CBS report²⁵ of Prof. Secchi and Prof. Bodewig in terms of how to make the projects more attractive to private investors.

²⁵ https://transport.ec.europa.eu/document/download/b9e757a5-8d38-4bdb-adca-0bb63ffb9958_en

Last but not least, project promoters should take into account the new world of the Green Deal (the objective and the roadmap for the EU to become carbon-neutral by 2050) and the related instruments such as the Taxonomy Regulation. In other words, projects will stand a higher chance to receive financial support if they are prepared in a way that maximises their green value. In a number of cases, this will imply setting up projects that go beyond the area of transport alone and go into, for example, energy and industry.

In that context of the greening of transport, we would also like to re-iterate the importance of eco-incentives schemes. In the 4th Work Plan of May 2020, we already mentioned as an example the Med Atlantic Ecobonus project²⁶, which carried out a test on the Atlantic and West-Mediterranean regions, consisting of giving an incentive to trucks using, instead of road, a RoRo or ferry service, having demonstrated positive socio-environmental benefits. This scheme, which can be applied to all freight transport modes and can be transferred to other regions, is much more powerful than giving a subvention to the ship-owner, because it not only incentivises the ship-owner to invest into less emissions based on the expectation of having more clients, but also the clients to change mode, leading to a true modal shift and to a reduction of negative social-environmental impacts of transport.

5.2 The new CEF2

The CEF 2021-2027 Regulation entered into force on 14 July 2021, applying retroactively from 1 January 2021. The total **budget** for the CEF transport is EUR 25.807²⁷ bn and its division between the envelopes as follows:

- General envelope: EUR 12.830 bn
- Cohesion envelope: EUR 11.286 bn
- Military mobility envelope: EUR 1.691 bn

The **main priorities** of CEF are:

- Completion of the network: supporting the completion of the TEN-T, with particular priority to cross-border sections and missing links of the core network corridors (60% of general envelope and 85% of cohesion envelope).
- Modernisation of the existing infrastructure: tackle much more decisively the challenge of decarbonisation and digitalisation of the transport sector, to support the transition to smart, sustainable, inclusive, safe and secure mobility (40% of general envelope and 15% of the cohesion envelope) both on core and comprehensive networks.
- In line with the Action Plan on Military Mobility, for the first time, support the critical development of civilian-military dual-use transport infrastructure.

CEF will contribute at least 60% of its funding to the **climate objectives** (compared to 30% of the overall target of the MFF).

Building on the previous CEF blending facility, a dedicated Alternative Fuels Infrastructure Facility (AFIF) has been set up. It takes the form of a rolling call for proposals, including five cut-off dates until end of 2023. With a budget of EUR 1.575 billion (out of which approximately 20% are from Cohesion budget with higher co-funding rates), it funds alternative fuels infrastructure for renewable and low carbon fuels by the combination of CEF grants with financing from finance institutions to achieve a higher impact of the investment. The European

²⁶ <http://mae-project.eu/>

²⁷ All values correspond to 2021 figures.

Investment Bank (EIB) and other national promotional banks are implementing partners facilitating the combined operations.

The CEF2 allows the implementation of synergies between CEF transport, energy and digital sectors. It will be applied either as “synergetic elements” (it will be possible for each sector to accept as eligible cost ancillary elements pertaining to another sector) or through joint work programmes jointly financed from each sector involved with the possibility to apply the highest co-funding rate of the sectors concerned and 10% top-up. The Commission adopted the first multiannual work programme 2021-2027 on 5 August 2021. This specifies the funding objectives and the indicative budget of the calls for proposals for the years 2021-2023.

5.3 The inclusion of Military Mobility in the network’s development plans

As of 2021, military mobility will be taken into account in the Corridor work plans. The efforts addressing military mobility are based on 2018 EU Action Plan on Military Mobility which aims to improve military mobility in 3 key areas of action: transport infrastructure, regulatory and procedural issues, and other cross-cutting topics.

Concerning transport infrastructure, in 2019 the Council of the EU approved the Military Requirements for Military Mobility within and beyond the EU. These Military Requirements identify the geographical scope for military mobility as well as define transport infrastructure standards necessary for the military. The gap analysis performed in 2019 by the Commission services and the EEAS emphasises the synergies between TEN-T and military mobility: 93% of the military transport network is also part of TEN-T; and military transport infrastructure standards are mostly compatible with civilian transport infrastructure needs.

Owing to these synergies between civilian and military transport needs, actions aiming to complete TEN-T Corridors can also improve military mobility. The EU’s new long-term budget now includes a dedicated ~ 1.7 billion EUR military mobility envelope as part of the Connecting Europe Facility to co-fund such dual-use transport infrastructure projects. The first CEF call for proposals to improve dual-use transport infrastructure was launched on 16 September 2021. In order to be eligible, projects have to be on both the TEN-T and the military transport network, as well as to address dual-use transport infrastructure requirements identified in Commission Implementing Regulation (EU) 2021/1328²⁸. A second call for projects was launched in May 2022.

5.4 The Recovery and Resilience Facility

The Recovery and Resilience Facility (RRF) Regulation has made 672.5 billion euro in loans and grants available to support both reforms and investments undertaken by Member States in the framework of national recovery and resilience plans. The aim is to mitigate the economic and social impact of the coronavirus pandemic and make European economies and societies more sustainable, resilient and better prepared for the challenges and opportunities of the green and digital transitions.

The Annual Growth Strategy for 2021 (AGS) and the Commission RRF guidelines have identified the development of sustainable, smart and safe transport as a priority for the

²⁸ Commission Implementing Regulation (EU) 2021/1328 of 10 August 2021 specifying the infrastructure requirements applicable to certain categories of dual-use infrastructure actions pursuant to Regulation (EU) 2021/1153 of the European Parliament and of the Council C/2021/5859, *OJ L 288*, 11.8.2021, p. 37.

European recovery and mentioned the deployment of alternative fuel infrastructure among the 7 European flagship initiatives national recovery plans are also invited to contribute.

In this framework and considering the national plans already submitted, the Commission expects Member States to dedicate significant parts of the RRF funding to transport, placing it among the top sectors of the economy to benefit from investments under NextGenerationEU.

While the RRF will finance a large variety of projects, priority will be given to those contributing to the decarbonisation of the transport system in the framework of the European Green Deal. Investments in the rail sector, in particular on the TEN-T network, will therefore have a prominent place. Other priorities will include sustainable urban mobility solutions (including collective transport and active mobility), inland navigation and the electrification of road fleets. In addition, digitalisation of the European transport system will be accelerated by RRF support to investments in ERTMS, ITS or RIS.

For **Portugal**, the transport investments can be found under Component G.7 “Infrastructure”²⁹. However, most are not on the Corridor, except for, for example, improving the capacity of the road link between Sines and A2. It is also foreseen to install 15,000 publicly available recharging stations for electric vehicles. In fact, Portugal only included mostly road-related actions in its RRF national plan for transport, which would otherwise have not received other sources of EU financial support. TEN-T projects on the Corridor are left for CEF and/or ERDF co-funding.

For **Spain**, the relevant transport investments under the RRF can be found under Component 6 “Sustainable mobility, long-distance”³⁰. It is foreseen that a budget of at least €1.4 billion will be invested on both the Atlantic and Mediterranean Corridors. For the Atlantic Corridor, investments will be dedicated to completing the network on 1) the Y Basque, 2) the Valladolid/Palencia-León line, 3) the León-La Robla-Pola de Lena line, 4) the Zaragoza-Castejón-Pamplona line, 5) the Ourense-Monforte line, 6) the Talayuela-Plasencia-Cáceres-Mérida-Badajoz line, 7) the Alcázar de San Juan-Manzanares line and 8) the Madrid-Sevilla line. The exact works on each of those lines are not detailed as such in the plan but may involve works on 1) Platform: projects that shall enable to set up the infrastructure that can support the tracks and which includes embankments, clearance, viaducts, tunnels, etc.; 2) Restoration of existing services (light, irrigation, water, etc.), which are affected during the execution of the railway works; 3) Tracks: actions for the assembly and supply of track materials (ballast, sleepers, rail, switches and expansion devices) on new railway sections as well as the renewal of existing track; 4) Electricity: actions aimed at the electrification of lines including overhead contact line, traction substations, transformation centres, power remote control, high-voltage power lines, etc.; 5) Traffic signalling and control: projects aimed at the implementation of new signalling and traffic control systems (ERTMS, etc.); 6) Telecommunications: projects related to fixed and mobile telecommunications on railway lines (such as fibre optic, GSM-R); and 7) Stations: upgrading and rehabilitation of existing stations, as well as the construction of new stations.

For **France**, transport investments can be found under Component 3 “Infrastructure and green mobility”³¹. Nonetheless, most do not relate to TEN-T projects, namely subsidies to car-sharing schemes, subsidies to the purchase of alternative fuels vehicles, renewal of regional

²⁹ https://eur-lex.europa.eu/resource.html?uri=cellar:dfaa8c1c-ce9f-11eb-ac72-01aa75ed71a1.0001.02/DOC_2&format=PDF

³⁰ https://eur-lex.europa.eu/resource.html?uri=cellar:4f067743-ceb8-11eb-ac72-01aa75ed71a1.0001.02/DOC_2&format=PDF

³¹ https://eur-lex.europa.eu/resource.html?uri=cellar:4c3f0085-d433-11eb-895a-01aa75ed71a1.0002.02/DOC_2&format=PDF

rail lines or new metro lines. TEN-T related projects are only limited to digitalisation of river infrastructure.

For **Germany**, transport investments can be found under Component 1.2 “Climate-friendly mobility”³² and are focused on alternative fuels. A significant change at the national level is the adoption of the new climate protection law in the summer of 2021, which stipulates a greenhouse gas reduction in the transport sector of 48% by 2030 (compared to the level of 1990, which by coincidence is equivalent to the level of 2019) and comprehensive climate neutrality by 2045. As part of the climate package of 2019, a CO₂ emissions trading system was introduced, which commenced in 2021, applying a CO₂-price of 25 Euro/tCO₂ for fossil fuels used in the buildings and transport sector. This price shall increase up to 55 Euro/tCO₂ until 2025.

For **Ireland**, transport investments can be found under Component 1 “Advancing the green transition”³³ and include electrification of Cork’s commuter rail. Nevertheless, these are not relevant for the Atlantic Corridor.

5.5 National plans and strategies

Portugal’s PNI 2030 and Ferrovias 2020 plans

Due to budget constraints, Portugal is implementing its rail network upgrade and extension in several stages. A few elements are already being addressed under Ferrovias 2020, while a new phase of works is planned under PNI 2030.

A new high-speed section is being built between Évora and Elvas, close to the border with Spain, on the future line Lisboa-Madrid. It will be completed by the end of 2023 and will already allow reducing travel time on the Portuguese side from the current 4h55 to 2h.

The Beira Alta line upgrade between Pampilhosa and the border Vilar Formoso-Fuentes de Oñoro with Spain via Guarda and Vilar Formoso (to connect to Salamanca and Medina del Campo) is already under construction with completion date expected by the end of 2023.

For the 2020-2030 time horizon, as foreseen under PNI 2030, Portugal will first develop most of the new high-speed line between Lisboa and Porto (Carregado – Porto), the first stretch of the new high-speed line between Aveiro and Fuentes de Oñoro (Aveiro-Mangualde) and finally the first stretch of the new high-speed line between Porto and the border with Spain (Braga-Valença) towards Vigo, as well as the new link between Porto and Porto airport. There will also be works to upgrade the section Poceirão-Bombel (construction of double track) on the Lisboa-Caia line towards Badajoz and Madrid. The new conventional line between Sines and Grândola should also be constructed. This will reduce the travel times between Lisboa-Porto from 2h50 to 1h20 and between Porto and the border from 1h50 to 1h.

For the 2030-2040 time horizon, Portugal plans to construct the remaining part of the new high-speed line between Porto and the border with Spain, as well as between Aveiro and the border with Spain. It also plans to construct the last high-speed stretch between Elvas and the border with Spain at Caia and the stretch Lisboa-Pinhal Novo with a new bridge over the Tagus River. This will further reduce the travelling times from 1h to 45 minutes on Porto-border and from 1h50 to 1h25 on Lisboa-Caia.

³² https://eur-lex.europa.eu/resource.html?uri=cellar:246dfab8-d34a-11eb-ac72-01aa75ed71a1.0002.02/DOC_2&format=PDF

³³ https://ec.europa.eu/info/sites/default/files/com-2021-419_annexe_en.pdf

In terms of gauge, Portugal is upgrading and building its new lines with polyvalent sleepers. This will ensure that track gauge can be switched from Iberian to European standard track gauge when circumstances allow, based on the coordinated “European standard track gauge upgrading plan”, which is being developed by both Spain and Portugal.

Spanish planning instruments

Regarding transport investment planning in Spain, with PITVI 2012-2024 coming to an end, several planning documents and initiatives have been recently developed:

- The **Strategy for Safe, Sustainable and Connected Mobility 2030**³⁴ of the Ministry of Transport, Mobility and Urban Agenda (MITMA) responds to a paradigm shift in the transport sector that points to the need to apply a new approach in the policies and planning of the transport that incorporates mobility as a broader concept that encompasses not only what is inherent to transport from a traditional perspective, but also includes all those conditioning factors, needs, motivations and perceptions of individuals, placing the citizen and user in the centre of the whole system.
- In line with Axis 6 of the previous Strategy, called "Intermodal and Intelligent Logistics Chains", **Freight 30**³⁵ initiative has been launched with the aim of promoting rail freight transport as the backbone of multimodal logistics chains, from the dual perspective of the post-COVID-19 economic recovery and the achievement of the decarbonisation and transport sustainability objectives.
- The **Indicative Railway Strategy** of MITMA³⁶, currently under public information process and with 24.2 billion euros in investments between 2021 and 2026, embodies a reform included in the Recovery, Transformation and Resilience Plan (PRTR) to strengthen the development, maintenance and renovation of the railway infrastructure, establishing a financial and priorities framework to meet future mobility needs and the sustainability of the system, together with the achievement of a single European railway area.

France’s new national plan for rail freight

The “Stratégie nationale pour le développement du fret ferroviaire” was released by SoS Djebbari in September 2021. It includes an analysis of the current situation and of the issues that need to be addressed. It also sets out objectives to double the modal share of rail for freight from the current 9% to 18% by the end of 2030 at a national level. The strategy lays down 72 specific measures, many of them to be implemented already by the end of 2022 or 2023. Some of them are highlighted to fall under the scope of the French national plan under the RRF.

As far as the Atlantic Corridor is concerned, it should be noted that the future rolling motorway between Lille and Vitoria is not part of the plan, consistent with the late timings for the works on most (19 out of the 22) of the tunnels that need to be enlarged. However, one of the specific measures is the increase of the loading gauge of tunnels, including those along the Atlantic façade. It is thus important that such measure be leveraged to try to advance the timings - to before the end of 2030 - for the enlargement of the 19 tunnels.

³⁴ <https://esmovilidad.mitma.es/>

³⁵ <https://www.mitma.gob.es/ferrocarriles/mercancias-30>

³⁶ <https://www.mitma.gob.es/ferrocarriles/estudios-en-tramite/estudios-y-proyectos-en-tramite/estrategia-indicativa>

The plan also foresees to dedicate specific financing to lowering or mitigating closures of lines during the night for works. It is crucial that this measure is applied to the works on the conventional line between Bordeaux and Hendaye **Spain's PITVI 2012-2024 and its successor**

6 The European Coordinator's recommendations and priorities

6.1 Introduction

The world significantly changed with the Russian invasion in Ukraine. This new geopolitical dimension will be changing Europe, as much as it will impact our transport system. The current crisis reminds us all on a daily basis how fragile, but also how essential a high quality infrastructure system is for our internal market and for the cohesion of our Union. It calls upon us to make even more efforts to ensure a seamless, multimodal, interoperable and resilient trans-European transport network.

At the same time, enormous challenges in terms of climate change are to be faced. The European Green Deal therefore calls for climate neutrality by 2050. We owe this to our next generations.

We are now at a crucial moment in the journey towards the completion of the Atlantic Corridor by 2030, about halfway between the start of our work in 2014 and the deadline of 2030. We can acknowledge the important progress reached so far. Nevertheless, the consecutive crises urge us to complete the Corridor.

Our Corridor evolves, a first extension has become effective as of June 2021 focusing in particular on the maritime and inland waterways dimensions. I am confident that the Corridor, including its extensions, will reach full compliance on the current TEN-T technical parameters by the end of 2030 on the existing network.

In addition, the proposal for a revised TEN-T Regulation, which the Commission adopted on 14 December 2021 and that is now under discussion at the Council and the European Parliament, will also reinforce the Corridor. It foresees additional and more ambitious technical parameters and will further extend the alignment of the Corridor, especially in adding the Porto-Vigo cross-border railway stretch with a specific completion deadline of 2040, it will connect the core port of Brest and include a number of railway extensions on the extended core network from the proposed merge with the Rail Freight Corridor.

The progress of the Atlantic Corridor has always greatly relied on a good collaboration between our Member States. It is essential to continue such effective bilateral cooperation through the various instances that have been set up, including the high-level working group between France and Spain for the cross-border rail connections, AVEP for rail interoperability between Spain and Portugal and all the relevant regional European Economic Interest Groups.

I would like to dearly thank all the Atlantic Corridor stakeholders, including the Atlantic Rail Freight Corridor and our consultants, for their valuable contributions and input which have helped steer my coordination work. Many challenges are still ahead, in particular in this new geopolitical context, and the cooperation of all stakeholders is crucial.

6.2 Challenges

Despite the good progress so far, it is my duty to underline the challenges and risks that I see in meeting the 2030 deadline and the proposed 2040 deadline. They are posed by 3 main factors:

1. The delays of the works, for which the situation might deteriorate with the war in Ukraine and the supply shortages of some raw materials;
2. The non-alignment of some national investment plans with the TEN-T and in particular on the following cross-border sections for high-speed rail:

- Lisboa – Madrid, that is planned to be completed between 2040 and 2050;
- Bordeaux – Madrid, that is planned to be completed between 2040 and 2050.

3. The differentiated track gauges between the Iberian Peninsula and the rest of the EU.

The delays regarding the projects implementation are evidenced by the update of the Project List where we observe a shift in time of both the remaining investments and the remaining projects' completion dates. The earlier the TEN-T parameters are implemented along our Corridor, such as the 750m siding and ERTMS deployment, the earlier the conditions offering competitive advantages to the rail sector will accelerate the modal shift.

Equally important is the late planning of the above mentioned high-speed rail cross-border connections. The positive impact of such investments in terms of modal shift from air to rail on similar distances, for instance looking at "Barcelona-Madrid" or "Milan-Rome" is self-explanatory.

Finally, the required time and costs for transshipment in Irún or for changing bogies in Hendaye, as the recomposition of trains due to different train lengths, are also important factors that negatively affect the competitiveness of rail. In addition, it could even become a significant bottleneck, if as called by the European Green Deal, a substantial part of the 75% of inland freight today carried by road should shift onto rail and inland waterways. By installing polyvalent sleepers on most of their networks, Spain and Portugal are laying down the foundations for a migration. In this context, I welcome the initiative launched this year to develop a National strategy by the Spanish government for track gauge changing. In addition, as a measure to support transition, I also welcome the projet for the construction of a new variable-gauge axle changer for freight transport at the Irún station, allowing adapted freight trains to run on both networks without transshipment or changing bogies. As regards the high-speed rail network, the Spanish strategy has aimed since its beginning to be fully connected to the EU network, with their entire high-speed network being in European standard track gauge, except for the parts of the network that are connected to Portugal, such as Galicia and Extremadura. In my opinion, the high-speed network of the Iberian Peninsula, i.e. both for Spain and Portugal, should be as a first step envisaged in European standard track gauge.

So, here are in my view the main challenges on the Corridor and therefore also the main priorities for the upcoming period country per country. It is important to note that this section can be read in parallel to chapter 3.7 for further details and that it is not exhaustive:

Portugal

- The new high-speed line between Porto-Lisboa is a priority for the Corridor, and European standard track gauge should be considered for its connection with the rest of Europe, in order to ensure future connectivity with Spain and France and the rest of the European rail network.
- The completion of the high-speed line between Lisboa and Caia-border, in particular "Lisboa- Pinhal Novo", "Elvas-Caia border" and "Pinhal Novo – Évora" should be ready prior to the high-speed line connecting Aveiro to Villar Formoso and a migration to European standard track gauge should also be considered in the same timing. There are up to forty daily flights both ways between Lisboa and Madrid, we cannot afford to wait until 2050 to shift this traffic to rail.
- Regarding the high-speed rail connection between the airport and the city of Lisboa, it seems advisable to first wait for clarity about the second airport and how the traffic will be distributed between the two. However, in line with the TEN-T guidelines and the European Green Deal's objectives, it seems to me important to highlight that any new airport, and in particular in a capital, should have a direct high-speed rail connection.

- The completion of the new high-speed line between Évora-Elvas together with the upgrade to double-track by the end of 2022 of the section Poceirão-Bombel, will considerably improve the time to connect the port of Sines to the Spanish hinterland. Also in this respect, as foreseen by Implementing Decision C(2018) 2356, the modernisation of the line Sines-Ermidas-Grândola, will also significantly reduce the time of the freight flows from the port of Sines to Spain.
- Portugal is not yet in a good situation regarding its RRTs, nor in the areas of 750 m rail sidings that are certainly amongst the priorities of the Corridor.
- The capacity improvements in the node of Lisboa are also important, in particular the upgrade of the rail access to the port of Lisboa to the Cintura line.
- In terms of ports, I would like to underline in particular the need to improve rail connections and to enhance capacity for terminals and storage areas in the ports of Leixões and Lisboa.
- Finally, I would like also to stress the needed interventions to meet the TEN-T requirements regarding the navigability of the Douro River.

Spain

- The Y Basque high-speed lines and their connections to Madrid, with also new stations in Vitoria and Bilbao, are expected to be ready by 2028/2029. It is important that timings do not slip after 2030. Hence, interventions that would be necessary to ensure that the 2030 deadline is met are also a priority on the Corridor.
- The same goes for the new high-speed line between the border with Portugal at Caia-Badajoz and Madrid via Caceres, which should also be envisaged in European standard track gauge.
- The same goes as well for the rail connection between the airport of Barajas and the city of Madrid.
- Regarding the rail line between Algeciras, the largest Spanish port, and Madrid, given the poor state of the existing line, all investments aiming at bringing its technical parameters in line with the requirements of the TEN-T Regulation are also a priority on the Corridor.
- Spain is not yet in a good situation regarding its RRTs, nor in the areas of 750 m rail sidings that are certainly amongst the priorities of the Corridor.
- The enlargement of tunnels in view of the rolling motorway services between Huelva/Algeciras and Zaragoza is important for boosting the modal shift in Spain and then to be continued to France.
- The electrification of the line Salamanca towards the Fuentes de Oñoro border is also important for the cross-border traffic between Spain and Portugal.
- While encouraging Portugal to consider a deployment of the European standard track gauge on the new high-speed line Lisboa-Porto-border, a coordinated migration of the high-speed network in Galicia to this European standard track gauge should be also considered to ensure a fully interoperable European high-speed network by the same time horizon.

France

- The GPSO has been delayed, especially for its branch towards Spain until “after 2037”, even if the situation may improve according to the latest developments. The approval of the financial plan in November 2021 and the creation of the GPSO public project company (société de projet) in March are very positive, although it would be important to integrate the branch of the GPSO connecting to Spain in the scope of their discussion. A realistic

time horizon for this important branch connecting to the Spanish Y Basque, which will be ready by 2030, is very central.

- Pending such decision, the existing conventional line requires to be upgraded. This line is the only line in operation that connects the West of France to Spain, and it requires a significant increase of its operating speed and capacity. That includes not only the renewal of the tracks, track beds, catenaries and the enlargement of its tunnels but also the complete “banalisation” of the line. This would provide signalling in both directions and hence relieve the capacity issues when maintenance or works are performed. Considering that this conventional line will continue to be used for freight after the new high-speed line is built, such investments will always be highly valuable.

Rail interoperability

- I would also like to highlight under the priorities of the Corridor, the rail interoperability between Portugal and Spain and between Spain and France. Under this item, we certainly need amongst others a detailed coordination plan between Spain and Portugal regarding the upgrade to European standard track gauge in priority on the high-speed network and then, within a medium-long term a time horizon for the conventional network. The network in Spain seems to be fully ready for a migration, since it is almost fully equipped with polyvalent sleepers. The latest developments in the area of variable axle gauge rolling stock should help in defining a time horizon for a swap. I very much welcome the launch of a working group in April to prepare a Spanish National strategy for the track gauge changing.
- In addition, an acceleration of the ERTMS deployment should facilitate the competition on the railway market, both for high-speed passengers and for freight traffic, and hence increase the modal shift.
- Obviously, next to infrastructure, operational and administrative barriers to rail interoperability must also be addressed.

Ports

The destruction brought by the war in Ukraine and the packages of sanctions against Russia have serious consequences on the freight flows of our economy.

The Atlantic Corridor is the one furthest away from Ukraine, but, with its many important ports, it will play a very important role in the energy sector, e.g. by facilitating imports of LNG and other energy sources (i.e. “REPowerEU”) and in many other ways. The trends in de-globalisation and the shortening of value chains will pose an important challenge to logistics and transport, and in particular to ports and to rail with the expected intensification of trade flows within EU. Many challenges are ahead, and I am looking forward to discuss them with the Atlantic ports community.

6.3 Financing

The climate crisis together with the war in Ukraine do not allow much margin of manoeuvre. The way forward has been paved the goals are set in the European Green Deal, we must transform our transport system.

Several EU funding programmes have been launched in 2021 with the EU multi-financial framework, where in particular a support for the TEN-T development is provided. The CEF – EUR 25 billion - is exclusively used for the TEN-T, the European Regional Development Fund and the Cohesion Fund are shared managed with the Member States and include many other priorities and, importantly, the new NextEUGeneration and its Recovery and Resilience Facility that is also shared with many other priorities, brought significant additional amount of EU

funding, i.e. it will almost double what was dedicated to transport with the EU funding programmes during the previous period 2014-2020. On the Corridor, Portugal, France and Spain cumulate some 23 billion euros dedicated to Transport³⁷ from their Recovery and Resilience Plans. Among the Member States of the Corridor, Spain is the most ambitious for using these funds to develop the TEN-T and to contribute developing our Corridor. EU funding is by far insufficient, it aims to incentivise and bring closer the national investment with the European priorities. Hence, I do invite our Member States and the other project promoters on the Corridor to do their utmost best to also attract private sources of financing.

Member States must play their part in building the capacity of project promoters in addressing other sources of financing and project promoters must dedicate time and effort in making their projects more attractive to private investors. We will not succeed if that is not addressed. I would here also encourage project promoters to use all the advisory assistance that is now available under the InvestEU Advisory Hub ([Central-Entry-Point](#)).

As already done³⁸, we will also try to cover these matters in our Corridor activities and in interacting with our stakeholders, in order to support a successful implementation of the Atlantic Corridor as originally foreseen and further extended by the CEF2 Regulation and by the forthcoming revised TEN-T Regulation.

Contacts



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Useful links

https://transport.ec.europa.eu/transport-themes/infrastructure-and-investment/trans-european-transport-network-ten-t/atlantic_en

³⁷ Portugal: 1 553, 6 million euros; Spain: 13 020 million euros; and France: 8 650 million euros.

³⁸ Action Plan Enabling the uptake of the TEN-T project pipeline by the financial market: https://transport.ec.europa.eu/document/download/b9e757a5-8d38-4bdb-adca-0bb63ffb9958_en



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