



European
Commission



CEF support to

North Sea - Baltic Corridor

May 2020

*Innovation
and Networks
Executive Agency*

Table of Contents

1. Introduction	3
2. Action portfolio: State of play.....	4
2.1.1. Inland Waterways.....	5
2.1.2. Maritime	9
2.1.3. Rail.....	11
2.1.4. Road.....	15
2.2. Financial Progress	20
3. Challenges affecting the implementation of Actions.....	21
4. Conclusion and Outlook.....	23
5. Statistical Annex	25
6. List of actions on the North Sea Baltic Corridor.....	26

1. Introduction

This is the second INEA report presenting the contribution of CEF Transport funded Actions to the development of the North Sea-Baltic Core Network Corridor (NSBC) and implementation of the NSBC Work Plan under the leadership of Ms Catherine Trautmann, the European Coordinator. It highlights the achievements, challenges as well as the ongoing and planned activities implemented under the current CEF programme.

The Corridor is located in the northern part of Europe and it is connecting eight Member States (four Cohesion and four non-Cohesion funding eligible countries): Finland, Estonia, Latvia, Lithuania, Poland, Germany, the Netherlands and Belgium. The Corridor joins the Baltic Sea region with the Low Countries and the main ports of the North Sea region. It links east and west via around 5,000 km of railways, 4,000 km of roads and 2,000 km of inland waterways. It crosses or has common sections with the Baltic-Adriatic, Scandinavian-Mediterranean, Orient East-Med, Rhine-Alpine and North Sea-Mediterranean Core Network Corridors.

The objective of the Corridor is to link some of the most important ports in Europe not only by sea but by all available transport modes including rail, roads, inland waterways and air, ensuring multi-modal links including relevant traffic and information management systems.

In general, the main challenges of the Corridor remain: (1) the existing technical condition and performance divergences in transport infrastructure between the eastern and western parts of the Corridor; (2) the different traffic patterns with strong traffic in the western end of the Corridor which lessens towards the eastern part of the Corridor; (3) the development of the interconnectivity and multimodality of key urban nodes located at the junction with other Corridors; (4) the creation of new traffic flows in a north-south direction feeding in the well-established East-West transport flows.

The third Corridor Work Plan identified the priorities to be addressed for the functioning of the Corridor and ways to tackle the above mentioned challenges. These priorities are:

- the timely implementation of the missing cross-border railway link - at the Corridor's north-eastern end – the Rail Baltica project;
- the interoperability of the railway network in close cooperation with the "North Sea – Baltic" Rail Freight Corridor;
- the hinterland connections – rail, road and inland waterways – of the main ports;
- the implementation of innovative solutions by using the Corridor approach (ITS, alternative fuels, digitalisation, etc.);
- the efficiency of the main urban nodes, and the development of their transport interconnectivity .

So far, the North Sea-Baltic Corridor has been very successful in securing CEF funds, especially considering the high oversubscription in the CEF calls for proposals. Between 2014 and now, over €2.73 billion of CEF funding was allocated to 96 Actions on the Corridor.

As it will be presented in the report, the CEF programme makes a significant contribution to the implementation of the Work Plan along the aforementioned priorities, and it is contributing to a large extent, to the implementation of this transport infrastructure Corridor planned by 2030.

Action portfolio: State of play¹

The CEF Transport Programme has so far awarded grants worth €21.1 billion with a total investment in the European economy of €45 billion. The current portfolio of Actions in the North Sea Baltic corridor comprises 96 grant agreements allocating €2.7 billion of actual CEF Transport funding (corresponding to 12% of total number of CEF Transport Actions and 13% of total actual CEF Transport funding). So far, two grant agreements have been terminated and 17 have been closed, i.e. the Actions are completed.

Operational Implementation

For the North Sea Baltic Corridor, the Core Network Corridor priority (under Funding Objective 1²) represents 84% of CEF Transport funding. Other priorities, such as ERTMS (Funding Objective 1), Innovation (under Funding Objective 2³) and Motorways of the Sea (under Funding Objective 3⁴) also contribute to the development of the Corridor. Due to its location most of the funding for the North Sea Baltic Corridor portfolio is coming from the Cohesion envelope. The portfolio is dominated by national Actions, which absorb around 69% of the grants allocated to this Corridor. 66% of the CEF Transport funding is linked with works Actions, while the rest is covering studies or mixed Actions. Most of the funding in this Corridor is allocated to sections on the Core TEN-T network (€2.6 billion), while Nodes receive €150 million. See the Statistical Annex for more details.

The highest number of Actions is under the road transport mode, while rail Actions receive most of the actual funding (74%). This reflects the strong focus of CEF on the more sustainable transport modes.

The two Actions listed under 'air transport' mode in Figure 1 relate to the multimodal transport hub at Helsinki Airport:

- (1) a study in the urban node of Helsinki aiming to develop seamless multimodal transport connection between the long distance, urban and airport traffic at the Helsinki Airport Travel Centre.
- (2) a second Action, selected in the 2017 blending Call, will further enforce the above efforts by contributing to the works of the Helsinki Travel Centre.

Once completed, the Travel Centre will serve both the North Sea-Baltic and Scandinavian-Mediterranean Corridors.

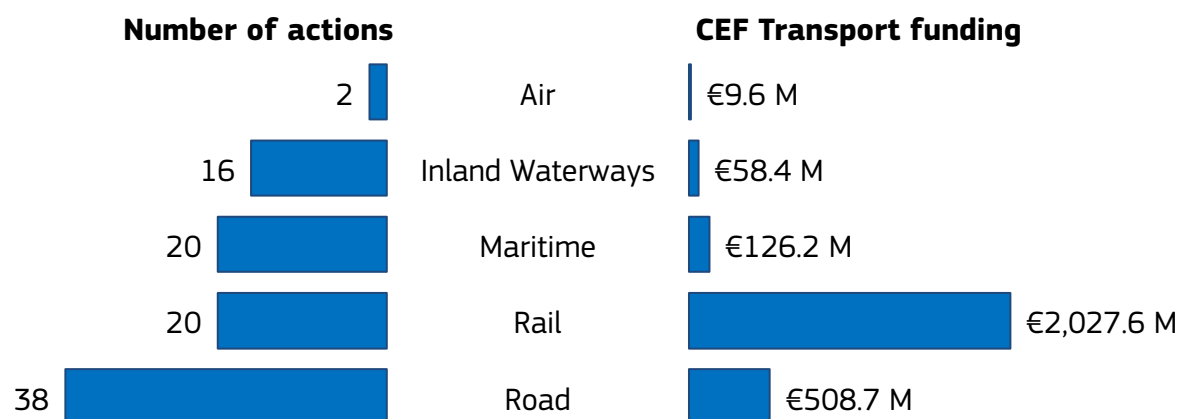
Figure 1: Statistics by transport mode

¹ As of May 2020.

² Removing bottlenecks and bridging missing links, enhancing rail interoperability, and, in particular, improving cross-border sections

³ Ensuring sustainable and efficient transport in the long run

⁴ Optimising the integration and interconnection of transport modes and enhancing interoperability, safety and security of transport



1.1.1. Inland Waterways

The inland waterway portfolio in the North Sea Baltic Corridor is composed of 16 Actions, receiving €58.4 million in CEF Transport funding. The Actions are located in The Netherlands, Germany and Belgium. The locations of the supported inland waterway works Actions are represented on the map below:



Concerning their progress, five out of these 16 Actions have already been successfully closed while 1 Action was terminated.

Out of the six German inland waterways Actions mentioned in the previous NSBC report four have been successfully closed:

- as regards the removal of bottlenecks on the Rhein – Herne Kanal (at the bridge of Gartroper-Straßen-Brücke) and on the Wesel – Herne Kanal (at the bridge of Hervester Brücke) the objective to increase height clearance for vessels and enable double-stacked container transport was well achieved.
- in the port of Köln, the sheet pile walls in Hansekai basin and reinforcement of the harbour floor in Niehl basin were fully completed.
- on the Mittelland kanal, a 1.4 km section was deepened and widened. The completion of the Action removed the last bottleneck on this canal and allowed the canal to be opened for bidirectional traffic as a Class Vb (for 2.8m draught) European Inland Waterway.
- the construction of the second ‘Zerben lock’ was completed on the Elbe – Havel Kanal, so that large motor freight vessels with a full load draught or push tows are able to pass through it.

The fifth closed IWW Action concerned implementation of River Information Services (RIS) in Belgium, with the objective to provide Belgium with an updated, more robust and extended RIS environment. The main achievements of the Action are: the production of the VISURis tool (IT applications available through internet portal and mobile devices) which enabled the visualisation of RIS related information for the RIS operators and to waterway users; inland ENC (electronic navigational charts) level 7; RIS Index for Belgium; AIS shore infrastructure in Wallonia.

As for the one terminated Action, concerning zero-emission IWW ships in the Netherlands selected under the 2017 Blending Call, the condition of ‘financial close’ was not reached due to lack of investors’ financial support.



Extension of the Mittelland canal (MLK) from km 302.377 to km 303.800 is completed (Source: INEA)

On the progress of the ongoing IWW Actions, we can report a particularly good technical progress. The bulk of these Actions are in their final phase, close to completion. Furthermore, they were implemented in line with the time plan of the respective Grant Agreement (or amended Grant Agreement):

- the Amsterdam sea lock's preparatory works are technically completed, and the Action is expected to absorb fully the allocated CEF support with the pending final payment;

- with the exception of the Sacrow-Paretzel canal, the German Actions are 100% technically completed;
- the upgrading of Flemish RIS infrastructure was fully implemented (100%) by the planned date, i.e. end 2019. The objective of the Action, the implementation of final steps to achieve a regional (Flemish) basis for corridor management, was achieved;
- in the Dutch-German pilot Action aiming to facilitate large scale implementation of LNG in inland navigation, the full (revised) scope was achieved: the first LNG bunkering station for IWW was inaugurated in 2019 in Köln, and 3 vessels were equipped with LNG installations (2 new ones and one retrofitted).

As already highlighted in the previous report, Germany, The Netherlands and Belgium are all participating in a very large and ambitious project (supported through two 'twinning' Actions, in which Member States eligible and non-eligible for Cohesion Funds are collaborating): the River Information Services Corridor Management (COMEX). This project started in February 2016 and joins the forces of 13 countries to improve cross-border cooperation with a view to achieving a service for navigation corridors with common data quality, equal service level and unique access. Significant progress has been achieved so far for an Action of such complexity and with so many beneficiaries. For example: the setup of the VisuRIS COMEX system and interfacing with national RIS infrastructure + the interconnection of national AIS infrastructure in order to provide the national vessel position data to the VisuRIS COMEX is successfully realised by 9 countries already and soon to be followed by the others. Still an additional year of implementation is needed to implement the activities fully. In this respect, an amendment will be prepared to grant the extra time.

Only two Actions face delays compared to the actual Grant Agreements: (1) the Action aiming to optimise inland waterway and multimodal transport in the Euregio is delayed by approximately 7 months because additional studies were necessary to launch the procurement for works to upgrade the Twente Canal; (2) the Action concerning study and deployment of LNG for inland waterway shipping in Germany is delayed by some 6 months. This delay is mainly due to a change of the design of the LNG stations, which entailed a new and lengthy permitting process.

Finally, one Action started recently in 2019 and so far advances as planned. It aims to develop the Masterplan Digitalisation of Inland Waterways that will be a joint, uniform and integral digitalisation strategy under the responsibility of the participating fairway authorities (of AT, BE, DE, FR, NL), ready for the execution in the period 2022 - 2032.

Based on the above it can be concluded that the actual IWW portfolio of NSBC advances well, the bulk of Actions being close to completion or completed. The ongoing Actions have limited delays of maximum one year so far, compared to the actual Grant Agreements' timing.

The related Actions are improving already or will improve the navigability of NSBC IWW by eliminating bottlenecks or increasing the traffic class. A set of ambitious Actions are contributing to the implementation or improvement of RIS, while lately we have an Action preparing for the next step, the digitalisation of IWW.

As a result of CEF Transport funding in inland waterway Actions on the North Sea - Baltic Corridor, six inland ports receive CEF support (Antwerpen, Almelo, Hengelo, Moerdijk, Köln, Duisburg), and two inland ports are expected to be equipped with alternative fuel (LNG) supply points: the Port of Duisburg and the Port of Köln (already completed).

1.1.2. Maritime

The maritime portfolio in the North Sea Baltic Corridor counts 20 Actions, receiving €126.2 million in CEF Transport funding (see map below).

Six of these Actions, covering Motorways of the Sea (MoS) were successfully closed and led to tangible results, contributing to the 'greening' of maritime transport by promoting the use of alternative fuels (LNG) or upgrading/introducing of more environmental friendly vessels, helping therefore the carriers to comply with the EU sulphur regulations for maritime transport.

In this context, the ports of Rotterdam and Lübeck (the latter located on the Scan-Med Corridor) were equipped with Liquefied Natural Gas (LNG) bunkering facilities and a LNG bunker vessel was put in operation, promoting therefore environmentally friendly fuel for short-sea shipping.

Another Action, aiming at developing a LNG network within the Baltic Sea region, resulted in an onshore LNG reloading station at Klaipeda port, enabling the direct bunkering to vessels and to LNG auto-trailers, so to further transport LNG downstream from Klaipeda Port.

A new technology for cleaning of ships' exhaust gas through new hybrid scrubber technology was successfully tested, mainly consisting of neutralising the SOx emissions by a water treatment system and a chemical absorption reaction. The scrubbers were installed in 12 vessels.

Furthermore, within the environmental and capacity upgrade of the MoS link of Lübeck - Helsinki, wet type hybrid-ready scrubbers as well as more energy efficient propellers and rudders were installed in four vessels.

Similarly, through a MoS Action concerning five Core Network Corridors, wet type hybrid ready scrubbers were installed in 3 Finnlines RoPax vessels. Ship energy governance system (industrial computer to improve navigation) was installed as well. In the Port of Antwerp digital upgrades were implemented, improving operational capacity in the logistic chain and simplifying administrative procedures.

Amongst the remaining 14 ongoing Actions, 3 came to an end in 2019, while 4 will be finalised in the course of 2020. Some examples:

- the Twin-Port2 Action at the northern end of the Corridor (receiving an almost €30 million CEF grant) is advancing well. All the port developments in Helsinki are close to completion and no delays are expected in Tallinn. Besides, an environmental friendly and efficient new generation RoPax ferry fuelled by LNG ("Megastar") has been already put in operation since 2018.
- the DOOR2LNG Action is ongoing and it is expected to be 100% completed by the planned end date of June 2020. The Action will environmentally upgrade two MoS container transport links between the TEN-T core ports of Helsinki (Finland), Rotterdam (The Netherlands) and Teesport (United Kingdom) and will ensure their compliance to the environmental regulation. Under the Action:
 - 4 newly built vessels were equipped with LNG engine technology and energy efficiency measures
 - the cargo handling capacity has been improved in the NSBC ports of: (a) Helsinki - 1 new crane is already operational and the second one will be operational by the end of May 2020; (b) Port of Rotterdam - 2 new cranes are purchased, installed and fully operational.



Developments in the T2 passenger terminal of Port of Helsinki were supported through CEF (Source: INEA)

Only two of the 14 ongoing Actions encountered delays of one year or more, so far. These larger delays were mainly due to (1) delays in investments and slow take-off, and (2) a new national environmental policy on nitrogen emissions and depositions, namely in the Netherlands.

The progress of the maritime portfolio is evident and it can be concluded that the bulk of the Actions under the current programme will be completed by end 2020. All closed Actions so far have reached their objective with a 100% technical completion rate, and only very few maritime Actions face considerable delays.

As a result of CEF Transport funding in maritime Actions, the development of 8 maritime ports of the NSBC is supported. Furthermore, the Ports of Bremen, Helsinki, Klaipeda and Tallinn are expected to be equipped with alternative fuel (LNG or onshore power) supply points, while Bremerhaven and Wilhelmshaven are participating in IT pilot actions for greening port activities.



LNG bunkering facility and on shore station in the Port of Klaipeda (Source: INEA)

1.1.3. Rail

In total the rail portfolio in the North Sea - Baltic Corridor is composed of 20 Actions receiving an impressive €2 billion in CEF Transport funding, i.e. around 74% of the total NSBC CEF financing. The number of Actions includes, besides the railway infrastructure projects, the Actions dedicated for the implementation of the European Rail Traffic Management System (ERTMS) and of the Rail Freight Corridor North Sea-Baltic.

In particular, and in line with the Corridor Work Plan, the rail Actions are focusing on the Cohesion countries. Nevertheless, there are also important port hinterland connection developments ongoing in the Western part of the Corridor: in Bremerhaven, in the context of a maritime Action, the connection of the port to the railway network is improved by doubling the capacity of the shunting yard at "Imsumer Deich"; the Oldenburg-Wilhelmshaven line is upgraded, while the Theemsweg railway section will improve the hinterland connection for the Port of Rotterdam.

This is also evident from the map below highlighting the location of the NSBC rail works funded under the 2014-2018 CEF calls.

NORTH SEA - BALTIC CORE NETWORK CORRIDOR

CEF funded Rail and Maritime Actions (excluding ERTMS)



Progress achieved:

In the railway portfolio, one Action has been closed successfully so far. It concerns the ERTMS deployment on the 29.5 km long double-track rail Ans-Angleur section in Belgium, which was equipped with ETCS Level 1, Baseline 2, release 2.3.0d. The Action is a success story: not only it achieved its objective, but was completed 4 months ahead of schedule.

One ERTMS Action concerning the Kijfhoek- Roosendaal- Belgian border railway line was terminated due to changes in the priorities of the national ERTMS Deployment Programme of The Netherlands. The project was postponed to a later stage.

Two further rail Actions are completed with the final payments still pending: a railway study in The Netherlands and the railway of Oldenburg-Wilhelmshaven is upgraded with electrification, track, and construction of new subsections.

Concerning the progress of the ongoing Actions:

The large works for the upgrade of the Warsaw-Poznan section, receiving almost €400 million in CEF support, are very advanced too, with an estimated actual 70% technical completion rate, and are expected to be fully completed by the end of 2021.

Rail Baltica

Currently seven Actions are dealing with the upgrade or construction of Rail Baltica, one of the priorities identified by the Coordinator in the Corridor Work Plan.

In Poland the related upgrade works are progressing well on the Warsaw - Czyzew section, where the main bottleneck (that of the outdated single track railway bridge across the river Bug) was eliminated in 2019.



Bridge over river Bug in Poland, double track construction (Source: PKP-PLK SA)

On the Czyzew - Białystok section the Action was adjusted to the increased design speed of up to 200 km/h and the works contract is close to be signed. On the Białystok - Elk section the design is ongoing and advances well, considering that the speed was increased as well on this section, up to 200 km/h. This increased speed allows for a better technical coherence and interoperability with the Rail Baltica new railway line of the Baltic States, for which the maximum design speed is 249 km/h.

The Rail Baltica cross-border project in the three Baltic States is progressing as well and gained valuable technical maturity in these last years. The global project, which is aiming to build a new, 870 km long, fast, EU gauge, double track railway in the Baltic States from Tallinn to the LT/PL border, is planned to be completed by 2026. Due to its cross-border aspect the global project is very complex and engages a high number of stakeholders coordinated by the Joint Venture RB Rail AS.

The project is in the design phase, while further studies (e.g. about its implementation and post-construction management) and land acquisition are ongoing in parallel. The detailed technical design is currently ongoing on 640 km of the alignment, in all of Estonia, Latvia and in two sections of Lithuania. In addition, the project coordinator RB Rail is also developing plans to prepare for the large-scale construction works.

Construction works of the double track line are ongoing in Kaunas node and started in Estonia. The large-scale works are expected to roll-out after the permitting phase is completed in 2020-2022, depending on the progress in each country and section.

ERTMS

There are 7 Actions fully or partly dedicated to the deployment of the European Rail Traffic Management System (ERTMS) in Belgium, Germany and Poland. These Actions are expected to deliver almost 930 km of ERTMS equipped railway tracks.

From the Corridor perspective, the most relevant ERTMS Actions are in Poland. The first, with a CEF grant of €160.6 million, is the Action covering the deployment of ERTMS/ETCS, Level 2, Baseline 2 on some 658 km double track equivalent sections. The second is a Rail Baltica Action in Poland including some 106 km ERTMS track-side deployment activity.

RFC

The North Sea-Baltic Rail Freight Corridor (RFC) is supported by one Action covering the functioning and the extension of the RFC to Latvia and Estonia. A dedicated European Economic Interest Grouping (EEIG) has been set up to manage and run the RFC. The Action is on track and two study phases (including a revised transport market study) are already completed.

Delays

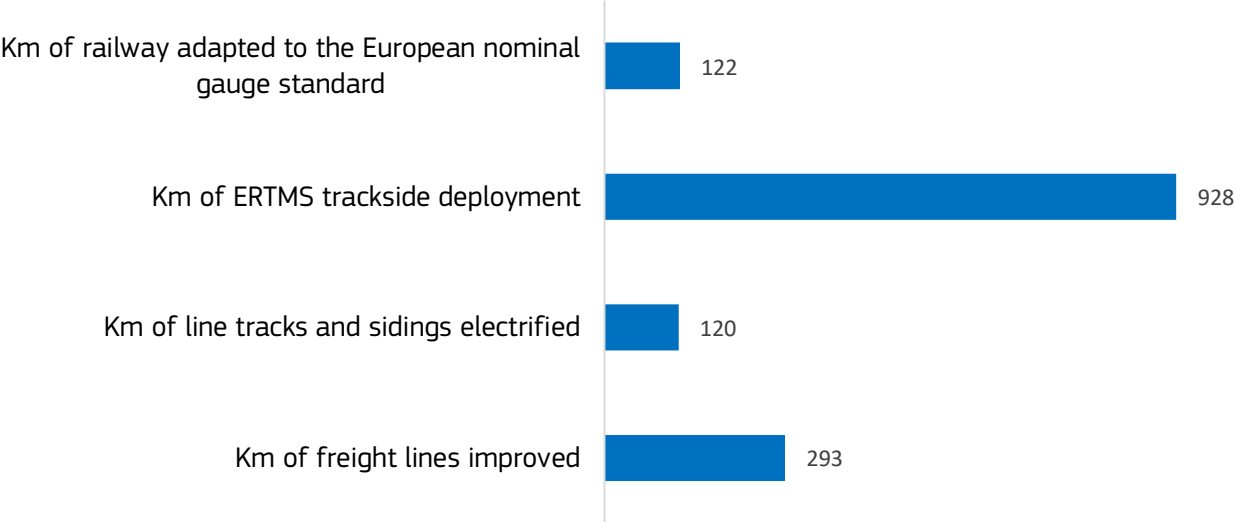
Despite the complexity and magnitude of the railway Actions, there are limited cases (5) with significant delays of two or more than two years compared to the Grant Agreement, or its amendment. The reasons are varied: for instance, in an ERTMS Action the delay is caused by change in the ERTMS deployment strategy (DE), while for certain Rail Baltica Actions the delays are due to long decision-making processes, organizational issues or slow permitting procedures.

As a result of CEF Transport funding in rail actions, it is expected that the Rail Baltica in the Baltic States will deliver the completed tram-link between Tallinn Airport and Rail Baltica terminal at Ulemiste; the completed EU gauge railway line of some 10 km between Kaunas station – Palemonas; around 66 km of

railway embankment on Kaunas-Panevezys section and in Estonia; 23 grade-separated crossings and 3 ecoducts in Estonia; the first phase of works at Ulemiste terminal, Parnu station, Riga Central station, Riga Airport terminal.

Furthermore a number of km of railway lines is expected to be improved, in detail:

Figure 2: Improved railway lines (number of km)



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1.1.4. Road

In total the road portfolio in the North Sea – Baltic Corridor is composed of 38 Actions receiving €508.7 million in CEF Transport funding.

The large majority of the road Actions (27 out of 38) are in fact innovation Actions targeting the deployment of alternative fuels infrastructure in the framework of the Directive 2014/94/EU.

There are only two road construction Actions in the road portfolio as presented in the map further below. However, by their nature, these two CEF grants amount to some 80% of the total CEF grant attributed to the North Sea-Baltic Corridor road Actions: €403 million. The two Actions are located in Cohesion countries (Poland and Lithuania) and concern the upgrade/construction of the strategic artery "Via Baltica" connecting Warsaw and Tallinn.

Four CEF Actions in the field of Intelligent Transport Services (ITS) on roads account for an actual total corridor funding share of more than €11.5 million and focus on the implementation of the priorities of EU Directive 2010/40/EU and its delegated regulations. The ITS services are aimed to be harmonised, interoperable and deployed at Corridor level by 2030, so that the European driver can use ITS services seamlessly across several Member States.

Four road Actions and one Action listed under the maritime portfolio concern the horizontal priority of 'safe and secure infrastructure', supporting the construction of certified parking areas with secure parking spaces

⁵ ERTMS first deployment means equipping a railway line section which was not equipped with the system before.

for trucks, but also improving road alignments by eliminating black spots or level crossings with the railways in The Netherlands and Belgium.

NORTH SEA - BALTIC CORE NETWORK CORRIDOR

CEF funded Road and Maritime Actions (excluding ITS and Innovation)



Progress achieved

Four innovation Actions are closed by now. Three of them have a 100% technical completeness, leading to the following achievements:

- 23 multi-standard fast-charging stations for electric vehicles were deployed in Belgium (within the UNIT-E project, a network of stations deployed through the collaboration of UK, France and Italy);
- in Finland four pilot LNG/L-CNG stations have been built and put in operation supporting the overarching aim to set-up a LNG/L-CNG network in the country. Studies on business and technology studies were also carried out. Based on result of this pilot Action, the beneficiary successfully prepared a follow up CEF Action, currently ongoing;
- The Action deployed 10 multi-standard fast charging stations (FCHS) for electric vehicles in Slovakia and 75 in Poland, three of them including battery storage (BAFCS) to cover peak demand. Part of these Polish stations are located on the North-Sea Baltic Corridor. This project was the first step towards the massive rollout of the fast charging points' network to enable long distance driving along the TEN-T roads in Poland and Slovakia. The beneficiary is currently implementing the second phase through Action NCEAdvancedEvNet, which includes not only fast chargers and battery storage but also ultra-fast chargers and normal chargers in Poland and Slovakia.



Fast-charging station deployed in the UNIT-E project (Source: INEA)

One less successful closed Action in Poland dealt with studying the development of LNG, while the pilot was not implemented due to very large delays.

Besides the closed Actions, 10 others are already completed or close to completion, for example: the Action on pilot deployment of a smart (bio-)LNG/CNG network in Flanders; the ULTRA-E project or the large scale ITS project Crocodile 2 implementing harmonised and synchronised ITS applications and provision of EU-wide real-time traffic information services in line with EU regulation and policy.

Concerning the progress of the road infrastructure construction, both Actions are well advanced:

The construction of S61 expressway Szczuczyn – Budzisko (LT border) in Poland has already overcome major problems such as initial delays with tenders, change of a contractor for the longest and most sensitive section. The implementation schedule is tight but possible within the granted extension of the Action by two years, until 2022.

The Lithuanian Action 'Panevezys bypass' is close to completion: the road has been widened according to the plans, except for a viaduct. This last bottleneck is in the design phase, the related works are expected to be concluded by mid-2021.



(1) Suwalki bypass of S61 expressway in Poland is completed (Source GDDKiA) (2) Panevezys bypass enlarged to 3 lanes in Lithuania (Source: INEA)

Delays: One third of the road portfolio is facing delays of one year or more, with only 6 Actions reporting delays of two years or more. There are multiple causes of the larger delays, such as: change of beneficiary; issues with securing own financing sources by the beneficiary; delays caused by unforeseen circumstances in the site selection process, regulatory procedures, market barriers, integration of (Bio-) LNG in the LNG value chain; technical issues with the implementation of a new system for traffic management.

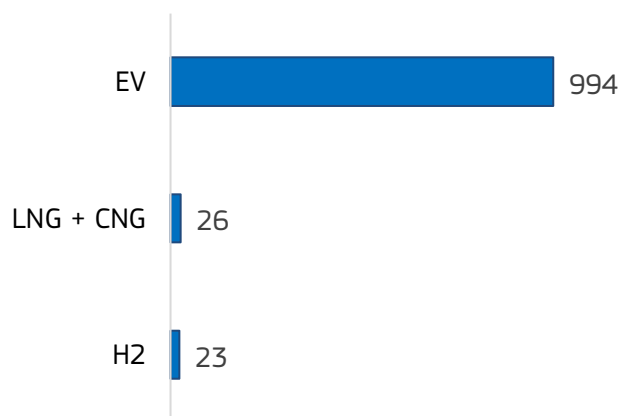
Some specific difficulties encountered by some innovation Actions can be noted:

- strong competition for contracting good/advantageous sites
- suppliers having difficulties delivering hardware and software that can meet the requested quality standards
- long lead times for securing grid connection and required permits
- concerning the deployment of multi-modal charging hubs in metropolitan areas, the complexity of these facilities and the public-private cooperation required has proven very difficult.

As a result of CEF Transport funding in road actions:

- 970 parking spots are expected to be built or improved in 7 parking areas in Belgium and The Netherlands
- 1,043 supply points for alternative fuel for road transport are expected to be installed, in detail:

Figure 3: Number of supply points for alternative fuel for road transport

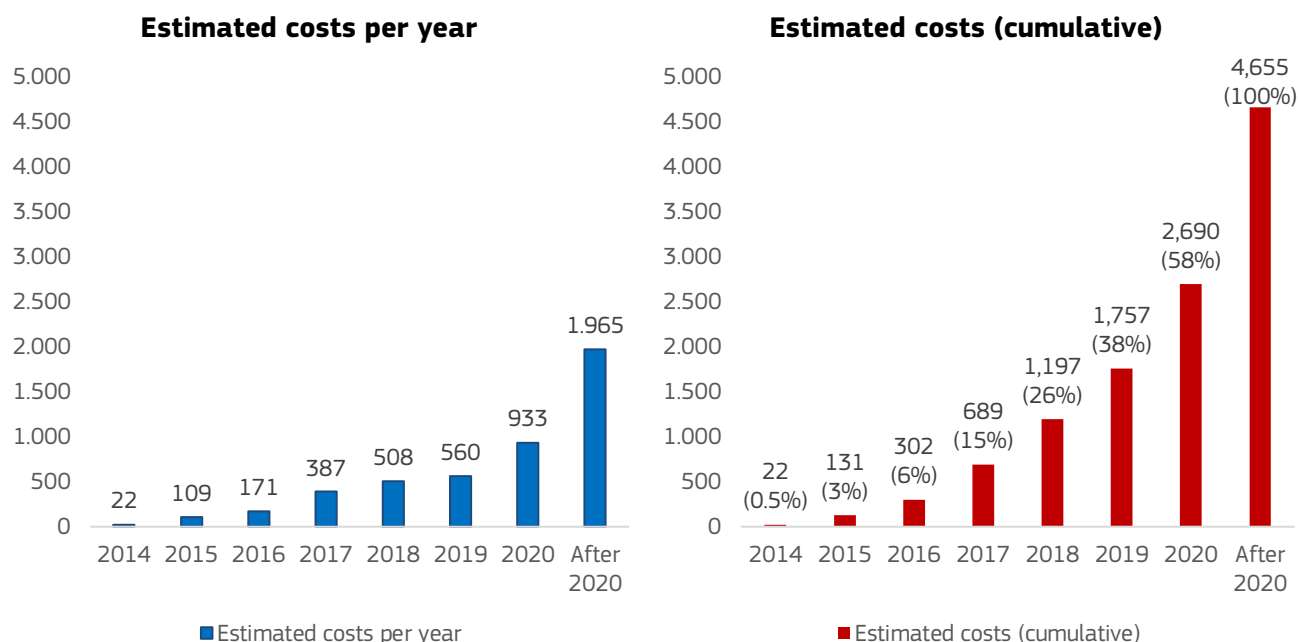


1.2. Financial Progress

CEF Transport funding for Actions in the North Sea Baltic Corridor was initially⁶ €3.3 billion, corresponding to €5.4 billion in eligible costs. Following amendments and closures, the actual funding going to this Corridor is €2.7 billion, corresponding to €4.6 billion in eligible costs. It is important to note that the major part of the reductions is re-injected in the last CEF Transport calls of the current programming period.

When taking into account the latest information available⁷, the costs necessary to implement CEF Transport actions are estimated at €4.65 billion⁸. The figures below give an overview of the respective financial progress (in terms of estimated costs) of the overall Corridor portfolio. By the end of 2019 the financial progress reached was 38%.

Figure 4: Estimated budget implementation (€ million)



⁶ i.e. grant agreement signature stage

⁷ i.e. action status reports and received but not yet approved final payment claims.

⁸ Higher estimated costs with respect to the initial or actual eligible costs are typically due to cost overruns reported in the ASRs.

Whilst the above financial progress charts are based on cost estimates provided by the beneficiaries (updated annually in Action status reports), the budgetary absorption of the allocated funding can also be analysed by assessing the payments made and interim/final costs claims processed. In fact, out of the €2.7 billion of CEF Transport funding:

- 30% or €823.5 million has already been paid (including pre-financing)
- 18% or €503.2 million of contribution has already been accepted (following the introduction of interim/final cost claims by beneficiaries).

2. Challenges affecting the implementation of Actions

During their implementation, the NSBC Actions encounter a series of challenges and issues which led to late implementation and in limited cases even to the termination of the Action.

The most frequent challenges identified already in the previous report are still valid for the majority of transport infrastructure projects:

- Procurement issues. The transposition into national legislation and application of the new EU public procurement rules might lead to slower public procurements. Also, inadequate terms of reference are inherently leading to appeals. In some cases, the public procurements had to be repeated due to no sufficient interest from bidders to place offers. Finally, lengthy appeal processes by bidders have a direct impact on the Action's timeline.
- Design issues, such as: i) the geological analysis is not sufficiently thorough leading to unexpected difficulties with the earth works at a later stage; ii) not sufficiently accurate cost estimations for the subsequent works phase causes unnecessary repeated procurements for works; iii) delays occurred in the design phase have a direct impact on start of the subsequent procurements and works, jeopardising the timely completion of the Actions.
- Environmental issues. For instance, environmental mitigation measures requested by the environmental authorities might add to the Action's complexity and to additional unforeseen implementation time.
- Land acquisition and permitting issues. Often the land acquisition process takes more time than originally planned. Similarly, due to administrative difficulties the time necessary for permitting is often underestimated by the beneficiaries, hence land acquisition and permitting might cause delays in the timely start of works.
- Unexpected archaeological findings can cause delays or even keep on hold the execution of works.

With the advancement of the implementation of the Actions, INEA identified new, additional challenges which led to delays in certain cases, such as:

- Strategical decisions at political level, e.g.:
 - change in ERTMS deployment strategy in The Netherlands and Germany;
 - a new national environmental policy on nitrogen emissions and depositions, namely in The Netherlands
- Sectoral challenges in the innovation sector. As already mentioned under the road transport mode, because of facing a very competitive and new market, and featuring normally a larger number of smaller beneficiaries, some innovation actions encounter specific challenges such as: securing locations of charging points/refuelling stations as much as possible closer to the alignment to the Corridor; change of beneficiary; issues with securing the own financing sources by the beneficiary; suppliers having difficulties

delivering hardware and software that can meet the requested quality standards; market barriers, integration of (Bio-) LNG in the LNG value chain.

Concerning the peculiar challenges identified in the first NSBC report for the construction of the new railway line Rail Baltica in Estonia, Latvia and Lithuania, several developments can be observed:

- The coordinator Joint Venture RB Rail AS was reinforced in the past years with additional staff and experts in order to fulfil its tasks under the Grant Agreements and for the Global Project. The coordinator is present in all three Member States and has by now a close cooperation with the implementing bodies and relevant Ministries;
- Due to the combined and repeated efforts of the European Coordinator, the three Member States, the European Commission, INEA and the coordinator the cross-border cooperation between the stakeholders has improved and it is much more structured;
- The adoption and implementation of common design guidelines, and applying harmonised design processes form a good and solid basis for the Global Project to be a technically coherent and interoperable product fulfilling or even going beyond the requirements of the TEN-T Guidelines.

Still, due to the complexity of this project a set of challenges remain to be addressed.

- From the project governance perspective, although a first revision of the governance structure was carried out in 2018, the changes did not bring the expected results, i.e. to clarify and simplify the roles and responsibilities and accelerate/streamline decision taking. The actual structure is indeed not ideal and results in slow decision taking and conflict of interest situations between the stakeholders. It is expected that the recommendations of the European Coordinator are followed and the organisation structure of the Global Project is revised in the first half of 2020.
- From the project management point of view, a global risk management, a robust change management and clear time plan are necessary in the very short term. It is positive that the project coordinator is currently working on these aspects and more robust project management is expected by the end of 2020, by the time the works will be starting to roll-out on a larger scale.
- A decision is also pending on the joint management of the built infrastructure, and the project costs should be revised once the detailed design of the whole line is in place.
- As the project is entering the construction phase, it is more than ever necessary to seize every opportunity to optimise the costs, inter alia through the potential savings generated by consolidated procurements for construction materials and infrastructure components, through sound and integrated construction logistics, or by using innovative technologies and digital solutions for the implementation and maintenance of the railway.

The challenges above may be considered at the same time as opportunities. Given the actual planning to complete the Rail Baltica project by 2026, the mentioned challenges are also offering solutions on how to reach the ambitious time-target.

3. Conclusion and Outlook

Despite the challenges and difficulties detailed above, the 96 NSBC Actions show significant progress by now. Indeed, more than one third of the 96 Actions can be considered as 'implemented': 15 are already closed, some 20 Actions are completed or close to completion and 2 Actions are terminated.

The progress across the modes of transport is quite balanced, as there is at least one closed Action in each mode of transport. It is obvious that large multi-annual infrastructure constructions in railways or roads need several years to be completed. Considering as well that some 25 Actions started in 2017-2018 only, it is not a surprise that some 32 Actions are having their actual end date in the 2021-2023 period, but out of these, only 10 Actions are currently planned to be completed in 2023.

The financial progress on NSBC confirms the above technical progress: out of the actual of €4.58 billion costs, some €2 billion were incurred by the end of 2019. A peak of €1.05 billion is expected for the year 2021, then gradually decreasing towards 2023, with only €51 million expected in 2023. Having the bulk of the costs incurred or expected for the years 2020-2021-2022 means that there is a good chance for the NSBC Actions to be indeed implemented by end 2023.

Still, several Actions, e.g. Actions related to Rail Baltica, have a considerable budget to invest in the next couple of years, which remains a challenge considering that in some cases the design is not completed and building permits are not in place yet. In such cases the beneficiaries are expected to draw and implement acceleration plans in order to make sure that the Actions can be fully completed and consequently the CEF support consumed in full.

The challenges and delays are primarily tackled by the beneficiaries, but inherently in many cases lead to amendments/adjustments of the Grant Agreements with the support of INEA. For the NSBC portfolio, some 51 out of 96 Actions were amended at least once. This includes amendments as follow up to the 2018 Mid-term review of CEF Actions. To note that amendments are only granted in well-justified and exceptional cases, and when there is evidence that the Action can be implemented. The aim is to allow the Actions to absorb the maximum of CEF grant possible. Currently, based on latest estimations and Action Status Reports, it is expected that by end 2023 the actual CEF contribution (as indicated in the Grant Agreements and their latest amendments) shall be almost fully absorbed by the NSBC Actions.

To implement by 2030 the North Sea – Baltic Corridor, the fourth Corridor Work Plan identified some 657 infrastructure projects proposed by the Member States, with an investment need of around €110 billion. This is a very serious and long-term investment need, where the Connecting Europe Facility remains one of the EU instruments established to financially support the Member States in implementing these Corridors.

Efforts are made in the context of CEF to find new and innovative modes of financing in order to bridge the funding gap of the projects: blending of grants and loans is a new mechanism under the CEF to leverage public grants for key priority projects. So far, four innovation and one maritime Action on the NSBC have been selected in the blending Calls published by INEA, with an actual contribution of €31,7 million for the Corridor. This is a promising start for this scheme, which is expected to be rolled-out in the next multiannual financial framework of the EU.

From the progress and examples presented under each transport mode it is clear that most of the Actions are specifically targeting the priorities and recommendations of the European Coordinator Ms Trautmann. For instance: the missing link Rail Baltica; several maritime and inland waterway port developments and

their hinterland connection; the Rail Freight Corridor North Sea-Baltic, developments in the urban node of Helsinki or the impressive number of alternative fuel stations already deployed along the Corridor.

With the last Calls of this programming period the remaining CEF budget is to be distributed to the most advanced and mature proposals which can be completed in a relatively short time. The CEF programme will continue supporting new projects in the next financing period on the one hand aiming to complete the Core Network Corridors by 2030, on the other hand being a strong and efficient support for the economies facing difficulties in the global economic slowdown caused by the current pandemic. Naturally, INEA will be there to assist the European Coordinator, DG MOVE and the beneficiaries in the implementation of these important transport infrastructure projects.

4. Statistical Annex

CEF Transport funding in the North Sea-Baltic Corridor: €2.7 billion	
Corridor funding per priority € million	Corridor funding per type € million
Pre-identified projects on the Core Network corridors 2.302 European Rail Traffic Management System... 174 New technologies and innovation 98 Motorways of the Sea (MoS) 94 Multimodal logistics platforms 14 Intelligent Transport Services for road (ITS) 12 Nodes of the Core Network 11 Safe and secure infrastructure 9 Synergy 7 Rail interoperability 4 Projects on the Core and Comprehensive Networks 3 River Information Services (RIS) 3	Works 1.800 Mixed 858 Studies 72
	Corridor funding per envelope - € million
	Cohesion 2.327 General 404
CEF Transport funding in Nodes: €150 million	CEF Transport funding in Sections: €2.6 billion
Corridor funding per TOP 5 Nodes € million	Corridor funding per Mode of Section € million
Maritime Ports (Helsinki) 49,1 Maritime Ports (Rotterdam) 30,3 Maritime Ports (Tallinn - old city harbour) 22,2 Maritime Ports (Klaipeda) 11,4 Airports (Helsinki - Vantaa) 9,6	Rail Sections 2.027,6 Road Sections 506,1 Inland Waterways Sections 46,2

5. List of actions on the North Sea Baltic Corridor

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Air	2015-FI-TM-0127-S	The Helsinki Multimodal Urban Node	Ongoing	Nodes of the Core Network	Studies	01/06/2016	31/12/2020	100%	2,250,000	4,500,000
Air	2017-FI-TM-0031-W	The Multimodal Travel Centre of Helsinki Airport	Ongoing	Nodes of the Core Network	Works	12/12/2018	31/07/2021	100%	7,380,000	36,900,000
Air Total									9,630,000	41,400,000
Inland Waterways	2014-BE-TM-0238-M	Implementation of RIS in Belgium	Closed	River Information Services (RIS)	Mixed	01/06/2014	20/12/2017	65%	1,054,681	2,109,362
Inland Waterways	2014-DE-TA-0113-M	Safeguarding and adaptation of waterway access to the Rhine-Alpine and North Sea-Baltic corridors from the port of Cologne	Closed	Projects on the Core and Comprehensive Networks	Mixed	01/01/2014	31/12/2017	100%	1,911,879	9,167,575
Inland Waterways	2014-DE-TM-0048-W	Extension of the Mittelland canal from km 302.377 to 303.800 - Removal of the last bottleneck	Closed	Pre-identified projects on the Core Network corridors	Works	01/07/2015	31/05/2018	100%	5,050,421	25,252,107
Inland Waterways	2014-DE-TM-0076-W	Bridges and culverts in the city section of Münster, Dortmund-Ems Canal	Ongoing	Pre-identified projects on the Core Network corridors	Works	01/03/2014	31/12/2019	100%	3,346,460	16,732,300

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Inland Waterways	2014-DE-TM-0077-W	Removal of bottlenecks at bridges in the Western German canal system, Gartroper-Straßen-Brücke and Hervester Brücke	Closed	Pre-identified projects on the Core Network corridors	Works	01/05/2014	31/10/2017	100%	1,575,946	7,879,732
Inland Waterways	2014-DE-TM-0278-W	Construction of the second lock Zerben, Part 2	Closed	Pre-identified projects on the Core Network corridors	Works	01/04/2014	31/12/2018	100%	4,473,752	22,368,760
Inland Waterways	2014-DE-TM-0374-W	Upgrade of the Sacrow-Paretzer Canal in the km 21.00 - km 32.61 section emptying into the Havel Canal at km 33.80 - km 34.90	Ongoing	Pre-identified projects on the Core Network corridors	Works	15/05/2014	31/07/2019	100%	8,000,000	40,000,000
Inland Waterways	2014-NL-TM-0241-W	Preparatory activities and project management for the new large Amsterdam lock	Ongoing	Pre-identified projects on the Core Network corridors	Works	01/01/2014	31/12/2019	100%	11,095,628	27,739,070
Inland Waterways	2014-NL-TM-0394-S	Breakthrough LNG deployment in Inland Waterway Transport	Ongoing	New technologies and innovation	Studies	01/01/2016	31/12/2019	70%	3,461,329	6,922,657
Inland Waterways	2015-BE-TM-0024-W	Upgrading Flemish RIS Infrastructure	Ongoing	River Information Services (RIS)	Works	16/02/2016	31/12/2019	30%	352,500	705,000

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Inland Waterways	2015-DE-TM-0376-M	LNG for shipping and logistics in Europe	Ongoing	New technologies and innovation	Studies	01/03/2016	31/12/2020	50%	2,028,000	4,056,000
Inland Waterways	2015-EU-TM-0038-W	River Information Services Corridor Management Execution (General Call)	Ongoing	River Information Services (RIS)	Works	15/02/2016	31/12/2020	12%	1,186,401	2,372,803
Inland Waterways	2017-DE-TM-0040-W	LNG Rollout in Central Europe - for a greener transportation sector	Terminated	New technologies and innovation	Works	01/01/2018	30/06/2021	50%	-	-
Inland Waterways	2017-EU-TM-0024-W	Optimizing Inland Waterway- and Multimodal Transport in the Euregio, along the North Sea Baltic Corridor.	Ongoing	Pre-identified projects on the Core Network corridors	Works	14/07/2017	31/05/2022	100%	10,873,127	56,422,015
Inland Waterways	2018-EU-TM-0020-S	Masterplan Digitalisation of Inland Waterways	Ongoing	River Information Services (RIS)	Studies	01/07/2019	02/12/2022	20%	292,000	584,000
Inland Waterways	2018-NL-TM-0096-W	Upgrade of the Combined Cargo terminal rail infrastructure at the Port of Moerdijk	Ongoing	Multimodal logistics platforms	Works	01/11/2018	31/12/2020	100%	3,688,711	18,443,557
Inland Waterways Total									58,390,836	240,754,939
Maritime	2014-EU-TM-0087-M	TWIN-PORT 2	Ongoing	Motorways of the Sea (MoS)	Mixed	01/01/2014	31/12/2020	100%	29,300,000	97,600,000

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Maritime	2014-EU-TM-0095-W	RealNG: Turning LNG as marine fuel into reality in the North Sea-Baltic region	Closed	Motorways of the Sea (MoS)	Works	01/01/2014	30/09/2017	97%	12,204,363	37,375,728
Maritime	2014-EU-TM-0120-W	HEKLA – Helsingborg & Klaipeda LNG Infrastructure Facility Deployment	Closed	Motorways of the Sea (MoS)	Works	01/01/2015	30/06/2018	98%	4,610,178	15,100,356
Maritime	2014-EU-TM-0379-M	Back from Black -Study and deployment of the affordable scrubber retro fitting technology for SME shipowners	Closed	Motorways of the Sea (MoS)	Mixed	01/01/2014	30/06/2017	34%	1,897,883	5,050,641
Maritime	2014-EU-TM-0391-M	Upgrading and sustaining the competitive core Baltic MoS link Helsinki-Lübeck	Closed	Motorways of the Sea (MoS)	Mixed	01/01/2014	31/03/2017	58%	4,513,447	15,044,823
Maritime	2014-EU-TM-0437-M	Upgrading and sustaining competitive sea-based transport service on Baltic MoS Klaipeda-Karlshamn	Closed	Motorways of the Sea (MoS)	Mixed	01/01/2014	31/12/2017	57%	1,667,450	5,496,107
Maritime	2014-EU-TM-0451-M	Scrubbers: Closing the loop	Ongoing	Motorways of the Sea (MoS)	Mixed	21/04/2014	31/12/2018	50%	3,172,200	10,041,500

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Maritime	2014-EU-TM-0487-M	Biscay Line - Multiple port Finland-Estonia-Belgium-Spain long distance MoS, relevant to many core network corridors	Closed	Motorways of the Sea (MoS)	Mixed	01/01/2014	31/12/2016	46%	1,992,592	6,641,974
Maritime	2014-EU-TM-0503-S	Planning, construction, demonstration and market roll-out of small-scale liquefaction and supply facility for Liquefied Biogas (LBG) as alternative fuel for the transport sector	Ongoing	New technologies and innovation	Studies	01/06/2014	30/06/2019	100%	6,836,750	13,673,500
Maritime	2015-DE-TM-0050-W	Quality and capacity upgrade of the railway system in the seaport of Bremerhaven (Imsumer Deich Plus)	Ongoing	Multimodal logistics platforms	Works	16/02/2016	31/12/2019	100%	3,307,620	16,538,100
Maritime	2015-EU-TM-0098-M	DOOR2LNG - Upgrade of the maritime link integrated in the multimodal container	Ongoing	Motorways of the Sea (MoS)	Mixed	16/02/2016	30/06/2020	64%	10,792,087	35,674,957

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
		transport routes								
Maritime	2015-EU-TM-0179-W	Blue Baltics – LNG infrastructure facility deployment in the Baltic Sea Region	Ongoing	Motorways of the Sea (MoS)	Works	01/03/2016	31/12/2020	38%	5,120,097	16,120,789
Maritime	2017-EE-TM-0079-W	EG LNG bunker vessel	Ongoing	New technologies and innovation	Works	01/08/2018	30/09/2020	100%	5,423,000	27,115,000
Maritime	2017-EU-TM-0135-W	TWIN-PORT 3	Ongoing	Motorways of the Sea (MoS)	Works	01/06/2018	31/12/2023	100%	18,357,255	61,190,850
Maritime	2017-FI-TM-0027-W	Vuosaari Fairway - Improvement of the maritime access of the Port of Helsinki, Vuosaari Harbour	Ongoing	Pre-identified projects on the Core Network corridors	Works	01/01/2018	31/12/2021	100%	6,720,000	33,600,000
Maritime	2018-BE-TM-0139-M	Secure Parking Opportunities for Trucks (SPOT) in Flanders	Ongoing	Safe and secure infrastructure	Mixed	01/11/2018	30/05/2021	50%	2,094,086	10,147,930
Maritime	2018-EU-TM-0117-S	Green and Connected Ports (GREEN C PORTS)	Ongoing	New technologies and innovation	Studies	01/04/2019	31/03/2023	9%	322,007	644,014

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Maritime	2018-EU-TM-0135-S	Application of Industry 4.0 Technologies towards Digital Port Container Terminals – iTerminals 4.0	Ongoing	New technologies and innovation	Studies	01/03/2019	31/12/2021	13%	481,033	962,065
Maritime	2018-NL-TM-0007-W	Upgrade of the combined transport RSC terminal Rotterdam	Ongoing	Multimodal logistics platforms	Works	24/10/2018	31/12/2022	100%	1,759,550	8,797,750
Maritime	2018-NL-TM-0144-W	Upgrade of combined transport Rotterdam World Gateway terminal	Ongoing	Multimodal logistics platforms	Works	25/10/2018	31/12/2022	100%	5,589,000	27,945,000
Maritime Total									126,160,596	444,761,083
Rail	2014-BE-TM-0660-W	Deployment of ETCS Level 1 on the rail section Ans - Angleur	Closed	European Rail Traffic Management System (ERTMS)	Works	01/07/2015	01/05/2018	100%	2,367,500	4,735,000
Rail	2014-DE-TM-0368-M	Upgraded Line Oldenburg – Wilhelmshaven with electrification, track and subsurface strengthening and construction of new subsections	Ongoing	Pre-identified projects on the Core Network corridors	Mixed	01/01/2014	31/12/2020	100%	35,132,094	100,095,086

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Rail	2014-EU-TM-0217-S	Establishment of Rail Freight Corridor „North Sea – Baltic“ and its further development aiming at improving conditions for international rail freight transport	Ongoing	Rail interoperability	Studies	01/01/2015	31/12/2020	100%	4,131,250	8,262,500
Rail	2014-EU-TMC-0560-M	Development of a 1435 mm standard gauge railway line in the Rail Baltica (RB) corridor through Estonia, Latvia and Lithuania	Ongoing	Pre-identified projects on the Core Network corridors	Mixed	01/03/2015	31/12/2022	100%	442,230,615	536,720,094
Rail	2014-LT-TMC-0109-M	Rail Baltica - works in Kaunas node and preparation for the section Kaunas - LT/LV border	Ongoing	Pre-identified projects on the Core Network corridors	Mixed	24/07/2015	31/12/2021	100%	75,454,843	88,770,403
Rail	2014-NL-TA-0680-S	3EUStates2cross (Study, Rail, Limburg S-E Netherlands)	Closed	Projects on the Core and Comprehensive Networks	Studies	16/11/2015	15/11/2018	15%	713,625	1,427,250

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Rail	2014-NL-TM-0233-W	Removing the bottleneck on the rail freight corridor between mainport Rotterdam and the European hinterland by realising the Theemsweg railway section.	Ongoing	Pre-identified projects on the Core Network corridors	Works	01/10/2015	31/03/2021	100%	59,892,117	199,640,390
Rail	2014-PL-TMC-0182-W	Works on the E75 railway line Sadowne – Czyżew section, along with the remaining works on the Warszawa Rembertów – Sadowne section	Ongoing	Pre-identified projects on the Core Network corridors	Works	15/11/2016	31/12/2020	100%	179,200,409	235,171,141
Rail	2014-PL-TMC-0185-W	Works on the E 20 railway line, Warsaw – Poznań section – remaining works, Sochaczew – Swarzędz section	Ongoing	Pre-identified projects on the Core Network corridors	Works	31/10/2015	31/12/2020	100%	347,816,102	462,706,002
Rail	2015-DE-TM-0363-W	Design and equipment of ERTMS for six border crossing corridor sections as well as two	Ongoing	European Rail Traffic Management System (ERTMS)	Works	16/02/2016	31/12/2020	36%	8,969,204	18,627,578

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
		gap closings on German TEN core network corridors								
Rail	2015-EU-TM-0347-M	Development of a 1435 mm standard gauge railway line in the Rail Baltic/Rail Baltica (RB) corridor through Estonia, Latvia and Lithuania (Part II)	Ongoing	Pre-identified projects on the Core Network corridors	Mixed	16/02/2016	31/12/2020	100%	130,193,541	153,168,872
Rail	2015-NL-TM-0264-W	Deployment of ERTMS level-2 (only) trackside at the railway line Kijfhoek-Roosendaal-Belgian border	Terminated	European Rail Traffic Management System (ERTMS)	Works	01/08/2017	31/12/2020	100%	-	-
Rail	2015-PL-TM-0002-W	Works on the E75 railway line, Czyżew - Białystok section (phase I)	Ongoing	Pre-identified projects on the Core Network corridors	Works	13/09/2016	31/12/2022	100%	283,249,774	371,718,863
Rail	2015-PL-TM-0007-W	Works on the E 20 railway line, Siedlce - Terespol section, stage III - LCS Terespol	Ongoing	Pre-identified projects on the Core Network corridors	Works	28/12/2016	31/12/2022	50%	42,256,962	50,546,605

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Rail	2016-BE-TM-0298-W	ETCS L2 track-side deployment on 2 cross border sections of the Core network Corridors	Ongoing	European Rail Traffic Management System (ERTMS)	Works	06/03/2017	30/06/2020	23%	541,650	1,083,300
Rail	2016-EU-TA-0108-W	2EUStates2cross	Ongoing	Projects on the Core and Comprehensive Networks	Works	07/02/2017	31/12/2020	1%	286,800	717,000
Rail	2016-EU-TMC-0116-M	Rail Baltica - 1435 mm standard gauge railway line development in Estonia, Latvia and Lithuania (Part III)	Ongoing	Pre-identified projects on the Core Network corridors	Mixed	06/02/2017	31/12/2023	100%	110,471,837	129,966,867
Rail	2016-PL-TMC-0135-W	Works on the E75 railway line, Białystok – Suwałki – Trakiszki (state border) section, Stage I Białystok – Ełk section	Ongoing	Pre-identified projects on the Core Network corridors	Works	01/06/2017	29/12/2023	100%	142,142,823	167,226,851
Rail	2016-PL-TMC-0136-W	Deployment of ERTMS/ETCS on the TEN-T core network lines	Ongoing	European Rail Traffic Management System (ERTMS)	Works	19/05/2017	31/12/2023	86%	160,693,685	189,051,394
Rail	2018-BE-TM-0101-W	ETCS L2 track-side deployment on 4 sections of the Core	Ongoing	European Rail Traffic Management System	Works	07/12/2019	30/11/2022	54%	1,849,500	3,699,000

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
		Network Corridors		(ERTMS)						
Rail Total									2,027,594,330	2,723,334,196
Road	2014-BE-TM-0170-S	Pilot deployment of a smart (bio-)LNG/CNG network in Flanders, investigating an innovative 'mobile CNG pipeline' concept	Ongoing	New technologies and innovation	Studies	01/01/2015	31/12/2019	50%	733,250	1,466,500
Road	2014-BE-TM-0694-S	Safe and secure infrastructure in Flanders	Ongoing	Safe and secure infrastructure	Studies	01/01/2014	31/12/2020	100%	1,310,099	2,620,198
Road	2014-EU-TM-0196-S	FAST-E (DE/BE)	Ongoing	New technologies and innovation	Studies	01/09/2014	30/09/2018	4%	350,394	700,788
Road	2014-EU-TM-0318-S	Connecting Hydrogen Refuelling Stations (COHRS)	Ongoing	New technologies and innovation	Studies	01/09/2015	31/12/2020	25%	3,244,447	6,488,894
Road	2014-EU-TM-0563-W	CROCODILE 2	Ongoing	Intelligent Transport Services for road (ITS)	Works	01/01/2015	31/12/2019	20%	1,651,400	8,257,000
Road	2014-EU-TM-0579-M	UNIT-E	Closed	New technologies and innovation	Mixed	01/07/2015	30/06/2018	31%	537,369	1,074,738

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Road	2014-EU-TM-0643-S	H2Nodes – evolution of a European hydrogen refuelling station network by mobilising the local demand and value chains	Ongoing	New technologies and innovation	Studies	01/03/2014	30/06/2020	100%	14,503,000	29,006,000
Road	2014-FI-TA-0119-S	Development of LNG/L-CNG network in Finland	Closed	New technologies and innovation	Studies	27/01/2015	29/12/2017	21%	556,197	1,112,394
Road	2014-LT-TMC-0258-W	Development of Transeuropean Road Network Road E67 (Via Baltica) section from Lithuanian-Latvian border to Panevezys city	Ongoing	Pre-identified projects on the Core Network corridors	Works	28/06/2016	30/06/2020	100%	23,437,909	38,817,338
Road	2014-PL-TMC-0214-W	Construction of S61 expressway Szczuczyn - Budzisko (state border)	Ongoing	Pre-identified projects on the Core Network corridors	Works	01/01/2015	31/12/2022	100%	379,583,347	742,824,553
Road	2014-PL-TMC-0220-S	Study optimizing the functioning and deployment of alternative fuel stations of the TENT-T core network	Closed	New technologies and innovation	Studies	01/04/2015	30/06/2018	100%	176,367	207,491

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Road	2015-BE-TM-0244-W	Elimination of level crossings on the Core Network Corridors in Belgium in order to increase safety and remove bottlenecks for both rail and road	Ongoing	Safe and secure infrastructure	Works	01/03/2016	31/12/2020	4%	286,000	1,430,000
Road	2015-EU-TM-0316-S	Models for Economic Hydrogen Refuelling Infrastructure	Ongoing	New technologies and innovation	Studies	01/07/2016	31/12/2020	54%	2,975,130	5,950,260
Road	2015-EU-TM-0367-S	ULTRA-E	Ongoing	New technologies and innovation	Studies	01/03/2016	31/12/2019	12%	785,118	1,570,236
Road	2015-EU-TM-0422-S	LNG motion: Fuelling trucks with LNG/CNG along the core network	Ongoing	New technologies and innovation	Studies	16/02/2016	30/06/2021	10%	1,241,141	2,482,282
Road	2015-PL-TM-0093-W	National Road Traffic Management System on the TEN-T network - Phase I	Ongoing	Intelligent Transport Services for road (ITS)	Works	01/11/2016	31/12/2022	6%	7,392,695	8,697,288
Road	2015-SK-TM-0320-S	NCE-FastEvNet	Closed	New technologies and innovation	Studies	01/03/2016	30/03/2019	28%	912,492	1,073,520
Road	2016-DE-TM-0332-S	LNG4Trucks	Ongoing	New technologies	Studies	07/02/2017	31/12/2020	36%	3,450,651	6,901,303

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
				and innovation						
Road	2016-EU-SA-0012	TSO 2020: Electric "Transmission and Storage Options" along TEN-E and TEN-T corridors for 2020	Ongoing	(blank)	Studies	13/02/2017	31/12/2020	100%	7,063,700	11,772,833
Road	2016-EU-TM-0023-M	North European cross-border ITS phase 3 – NEXT-ITS 3	Ongoing	Intelligent Transport Services for road (ITS)	Mixed	01/01/2018	31/12/2020	6%	584,064	2,832,576
Road	2016-EU-TM-0121-W	High speed electric mobility across Europe	Ongoing	New technologies and innovation	Works	01/07/2017	31/12/2020	12%	1,220,160	6,100,800
Road	2016-EU-TM-0175-S	H2Benelux	Ongoing	New technologies and innovation	Studies	07/02/2017	31/12/2020	63%	4,547,891	11,015,266
Road	2016-EU-TM-0277-S	BENEFIC	Ongoing	New technologies and innovation	Studies	01/07/2017	31/12/2020	66%	5,002,800	24,519,000
Road	2016-NL-TM-0339-S	BIOLNG4EU	Ongoing	New technologies and innovation	Studies	07/02/2017	31/12/2022	37%	3,034,000	6,068,000
Road	2016-PL-TM-0281-S	LEM project – pilot implementation of electromobility along the TEN-T base network	Ongoing	New technologies and innovation	Studies	20/11/2017	22/12/2020	20%	80,095	160,191
Road	2016-SK-TMC-0317-S	NCE-AdvancedEvNet	Ongoing	New technologies and innovation	Studies	01/03/2017	30/06/2020	28%	1,726,339	2,030,987

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
Road	2017-DE-TM-0064-W	EUROP-E: European Ultra-Charge Roll Out Project - Electric	Ongoing	New technologies and innovation	Works	15/07/2017	31/12/2021	10%	3,910,538	19,552,689
Road	2017-DK-TM-0083-W	H2Bus Europe	Ongoing	New technologies and innovation	Works	01/05/2018	31/12/2023	33%	13,078,098	65,390,490
Road	2017-EU-TM-0068-W	MEGA-E: Metropolitan Greater Areas - Electric	Ongoing	New technologies and innovation	Works	01/08/2017	31/12/2021	17%	4,981,056	24,905,281
Road	2017-EU-TM-0080-W	BioLNG EuroNet	Ongoing	New technologies and innovation	Works	12/04/2018	31/12/2023	12%	3,049,152	15,245,760
Road	2017-NL-TM-0060-W	REMETBUS2 Rotterdam	Ongoing	Nodes of the Core Network	Works	01/01/2018	31/12/2021	34%	1,110,637	14,220,704
Road	2017-NL-TM-0143-W	Zero emission public transport services for Schiphol Amsterdam Airport and along the core corridors.	Ongoing	New technologies and innovation	Works	15/04/2018	31/03/2022	35%	4,739,850	23,699,251
Road	2017-PL-TM-0157-W	PURE H2 - Hydrogen Purifying Unit and Filling Infrastructure	Ongoing	New technologies and innovation	Works	12/04/2018	05/11/2021	50%	991,752	4,958,760
Road	2017-PL-TM-0164-W	Building a charging infrastructure for electric vehicles in order to decarbonize public transport	Ongoing	New technologies and innovation	Works	08/04/2019	30/12/2022	100%	1,135,103	5,675,517

Transport Mode	Action code	Title	Status	Priority	Type	Actual start date	Actual end date	Actual Corridor Share	Actual funding	Actual costs
		in Warsaw								
Road	2018-BE-TM-0068-M	Improving Road Safety in Flanders	Ongoing	Safe and secure infrastructure	Mixed	24/10/2018	31/12/2023	56%	3,531,584	9,257,920
Road	2018-EE-TM-0029-M	Dynamic traffic and truck parking management	Ongoing	Intelligent Transport Services for road (ITS)	Mixed	01/06/2019	31/12/2023	100%	1,900,000	5,000,000
Road	2018-NL-TM-0036-W	Innovative and digital bike storage solutions in urban nodes for efficient passenger transfer and last-mile connections	Ongoing	New technologies and innovation	Works	24/10/2018	31/12/2023	74%	2,088,650	10,443,250
Road	2018-NL-TM-0091-W	Secure Truck Parking on the Topcorridors in the Netherlands (SecureNL)	Ongoing	Safe and secure infrastructure	Works	01/11/2018	31/12/2022	48%	1,809,146	9,086,621
Road Total									508,711,621	1,132,616,678

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Pdf: EF-02-20-573-EN-N - ISBN: 978-92-9208-096-9 - DOI: 10.2840/427079