Green Bonds Annual Report 2019

INTERACTIVE DOCUMENT

adif ALTA VELOCIDAD

LETTER

FROM THE CHAIRWOMAN

Commitment to sustainable development, environmental protection and the fight against climate change

During the financial year 2019, Adif Alta Velocidad has performed its third issuance of green bonds, strengthening its commitment to sustainable development, protection of the environment and the fight against climate change.

This commitment has led us to make the environment one of the priorities of our business strategy, which appears in the Strategic Plan 2030. This Plan has been reviewed and updated during the financial year 2019 with the aim of aligning its time horizon with the Agenda 2030 of the United Nations and of responding to the challenges the Entity faces, among which climate change and energetic transition occupy a privileged position.

Within this context, during the first quarter of the financial year 2019, the initation and implementation of the **Master Plan to Combat Climate Change 2018-2030 of Adif and Adif Alta Velocidad** was approved, which intends to go beyond energy efficiency, considering action measures within the field of decarbonization of the railway system and the increase of the use of renewable energies. Similarly, it includes a line of action related to the adaptation field to climate change, aiming to improve the resilience of the railway infrastructures managed by both administrators.

In the strictly financial field, Adif Alta Velocidad has renewed its green funding framework during the financial year 2019, with the aim of being able to use, in addition to the green bonds, any other tool which allows to finance environmentally respectful projects.

As a result, this new framework is aligned not only with the Green Bond Principles of ICMA (International Capital Market Association) but also with the Green Loan Principles of LMA (Loan Market Association) and, as its predecessor, has received the maximum qualification of “dark green” from the supplier of Second Opinion CICERO, who in addition has granted the qualification of “Excellent” to the government procedures of the Entity, detailed in the document.

Nowadays, Adif Alta Velocidad has been incorporated as a reference investor in the sustainable funding market in our country, with a clear commitment shown by its third issuance of green bonds studied in this document, and its fourth and most recent issuance in February of this same year. In addition this commitment has been awarded in February 2020 with the Award to Adif Alta Velocidad due to its path and leadership granted by the Spanish Observatory of the Sustainable Funding (OFISO).

The green bonds market in which Adif Alta Velocidad is involved is experiencing a significant increase in the past years. In 2019, these issuances entailed 5.7% of the total issuances in euros (when in 2015 they hardly entailed 1%). This growth is even more relevant in the Spanish market which, although it has been incorporated with a certain delay, has achieved the issuances of green bonds entailing already 7.5% of the total of 2019.

The third issuance of Adif Alta Velocidad, studied in the present report, represents more than 6% of the total volume of green, social and sustainable bonds issued in our country in 2019. The overall funds obtained have been assigned to eligible projects according to our framework; from the funds received, 45% come from socially responsible investors and 66% from international participation.

Therefore, in line with our transparency commitment and to the obligations acquired in our "framework", we offer below the report regarding the issuance of green bonds of the year 2019, which includes the information regarding the same, investments carried out with the funds obtained, and indicators of foreseen impacts, with disaggregated data for each one of the financed projects.

Finally, I do not want to miss this opportunity to mention the impact which COVID-19 has had on the **market of sustainable funding**.

Although the temporary shock of demand could have led to a collapse of the financial market during the first weeks of the pandemic, the truth is that thanks to the different measures and stimulus of monetary policy this has not occurred, and between the months of January and April, 64,000 million euros of green and sustainable bonds have been allocated, a 21% increase compared to the previous financial year.

From this success we can draw two great conclusions. On one hand, the commitment of the ESG (environmental, social and good government) aspects of entities such as Adif Alta Velocidad and other sustainable issuers have played a vital role.

This must not go unnoticed for those who defend the integration of the social responsibility within the management of companies, with existing studies which compare the behavior of shares and bonds of companies with high ESG rating during these months and conclude its better behavior regarding comparable companies with lower ratings.

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Therefore, it seems the time has come for these financial instruments, which allow combining their social nature and search of solutions for a world population punished by the virus. Many things have changed during these months and they will continue to do so during the following months, but, undoubtedly, sustainable financing will have a key role in it all.

Isabel Pardo de Vera Posada

Chairwoman of Adif and Adif Alta Velocidad

INTRODUCTION

Adif Alta Velocidad is a state-owned public entity ("public business entity") with legal personality, management autonomy and own resources, which operates under the supervision of the Ministry of Transport, Mobility and Urban Agenda, being responsible for the construction and management of the high-speed railway network of Spain.

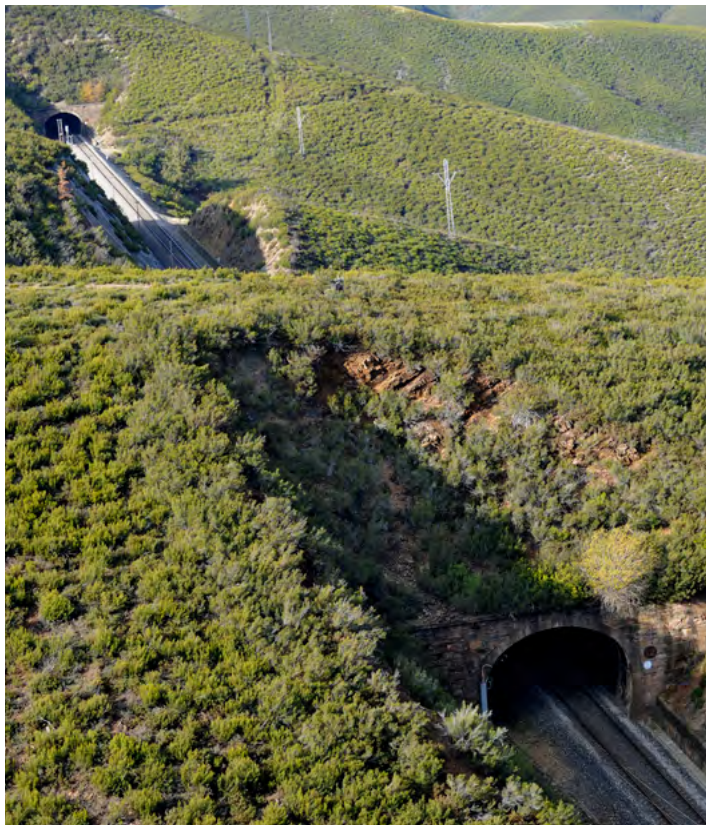
As a public service company, we understand that our responsibility towards society is to guide our strategy to improve people's life, and this implies facing different challenges which affect us all, both globally and locally. From the global point of view, such challenges are summarized in the Sustainable Development Goals (SDG) formulated by the United Nations in 2015, particularly in those which are more relevant for our organization, answering to the contribution we can make to the same according to our nature and activity.

When it comes to the local challenges, the demands and expectations of our interest groups are summarized in that we must contribute to a safe, efficient and sustainable transport system. From this point of view, Adif Alta Velocidad has a Strategic Plan available for the next years which has the United Nations SDG as high-level reference.

Said Plan is based on three cornerstones: the security, the service and the sustainability; likewise, it also has three levers to accelerate the process of transformation: people, digitalization and innovation. These cornerstones and levers are found in different strategic objectives around which all the organization is aligned.

In this strategic framework, Adif Alta Velocidad maintains a strong commitment to the SUSTAINABILITY, since the whole strategy is aligned with the United Nations Sustainable Development Goals, as well as contemplating on the Plan specific strategic objectives which seek to improve our impact in society from an economic, social, environmental and good corporate governance point of view. Thus, for example, the strategic Objective designated "Environment and climate" of the Strategic Plan of Adif Alta Velocidad seeks to "contribute to transportation that is respectful to the environment and responsible in the use of resources".

In order to achieve this, initiatives have been designed to fight against climate change, adding projects of circular economy, applying criteria of ecologic purchase and strengthening the system of environmental vigilance.



More specifically, regarding our contribution to the SDG, **the construction and maintenance of High-Speed lines, as well as the projects intended to improve the energetic efficiency of the railway system and to promote its sustainability, to which the resources obtained with the green bonds issues have been assigned**, have a positive impact on the following Goals and Targets of Sustainable Development of the Agenda 2030 of the UN:

"Resilient infrastructures, inclusive and sustainable industrialization, innovation. **Goal 9.1: "Develop reliable, sustainable, resilient and quality infrastructures, included regional and cross-border infrastructures, to support the economic development and human well-being, supporting in particular the affordable and equitable access for everyone"**. The high-speed railway lines are built with the highest standards of quality to ensure its resilience and reliability; in addition, strict criteria of sustainability and respect to the environment are applied for their construction and maintenance, establishing environmental vigilance measures which ensure the preservation of natural, cultural and archeological heritage.

"Sustainable cities and communities". **Goal 11.a: "To support the economic, social and environmental positive links between the urban, peri-urban and rural areas, strengthening the planification of national and regional development"**. The high-speed railway lines improve substantially, in a planned manner, the connection between the urban, peri-urban and rural areas, facilitating the generation of economic and social links, ensuring opportunities of growth and well-being. On the other hand, the projects which lead to improve the environmental sustainability of the infrastructures, such as for example those which contribute to minimize the impacts of noise in populated areas, allow as well to contribute to achieve this SDG.

"Fight climate change and its effects". **Goal 13.2: "Add measures related to the climate change in the policies, strategies and national plans"**. The development of the high-speed network will lead to significant quantities of road and air traffic transferring to the railway, being this one the mode of transport which generates the least emissions of CO_2 and other greenhouse gas effects, thus fighting climate change through a better contribution of the transport sector to the fight against this phenomenon. Likewise, the projects intended to improve the energetic efficiency are associated with a decrease of emissions of CO_2, in such a manner that they are also a tool for the fight against climate change.

As a following step within this strategic approach, Adif Alta Velocidad has approved the **MASTER PLAN TO COMBAT CLIMATE CHANGE 2018-2030**, which has as main objective to increase the contribution of the entity to this environmental challenge, as well as the one of the railway system within the whole national transport field.

Thus, the main landmarks to be achieved with the Plan are embodied in three fields:

- In the field of mitigation, with the main objective of improving the energetic efficiency and to decrease the greenhouse gas emissions (GGE):

  - To reduce the energetic consumption of the railway system to 2.900 GWh accumulated in the term 2018-2030.

  - To reduce the GGE to about 9.000 ktCO2eq accumulated in the term 2018-2030, with the implementation of the projects included in the Plan, plus the emissions avoided by the modal transfer.

  This reduction would achieve 12.000 ktCO2eq if the purchase of green electric energy is taken into account.

  - To reduce the Adif and Adif Alta Velocidad carbon footprint by at least more or less than 25% in 2030, in relation to the value in 2016, and up to 86% if the purchase of green electric energy is taken into account.

- In the field of adaptation, with the aim of improving the resilience of the railway infrastructures:

  - To include the evaluation of vulnerability on the adverse effects of climate change in 100% of the great railway projects since 2020.

- In the field of culture and sensibilization, seeking to increase awareness of the groups of interest both internal and external through different actions, such as for example:

  - To include clauses related to climate change in 100% of the procurement specifications since 2025.

In order to achieve these targets, the Plan is structured around five main lines of action: energy management, energetic efficiency, decarbonization and renewable energies, improvement of resilience and culture and sensibilization which, at the same time, involve different programs and specific projects with different scopes.

It is a living document which will be reviewed periodically in order to update its content and to adjust the established targets.

This Plan of Fight against Climate Change of Adif Alta Velocidad is aligned with the international, European and national policies and objectives in the field of climate change, as well as the mentioned United Nations Sustainable Development Goals, particularly number 13, and with the objectives established by the European Union to try to achieve the Agreement of Paris by 2030, as well as in the search of a carbon-neutral economy by 2050.

FRAMEWORK

Adif Alta Velocidad updated its green financing framework in September 2019. This document is an update of the one established in June 2017, which was created aligned with the Green Bonds Principles (GBP) of ICMA, with the aim of guaranteeing the transparency, disclosure and integrity of its issues of Green Bonds. The mentioned framework is available on the web page of Adif Alta Velocidad.

The biggest change is that the new framework is not only aligned with the GBP of ICMA, but also with the Green Loan Principles of the LMA (Loan Market Association). This shows the commitment and readiness of Adif Alta Velocidad for the use of bonds, loans or any other source of financing for environmentally respectful projects and the requirements to be eligible, in a manner that fulfills the provisions in the document.

Regarding this renewed framework, Adif Alta Velocidad has also gathered a Second Opinion issued by CICERO, maintaining its qualification as “DARK GREEN”, granting at the same time a classification of “Excellent” to the procedures of government detailed in the framework.

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This Opinion is also available on the web page of Adif Alta Velocidad.

The framework includes the five components included in the GBP:

- Use of proceeds
- Eligible green projects
- Selection process
- Management of proceeds
- Reporting

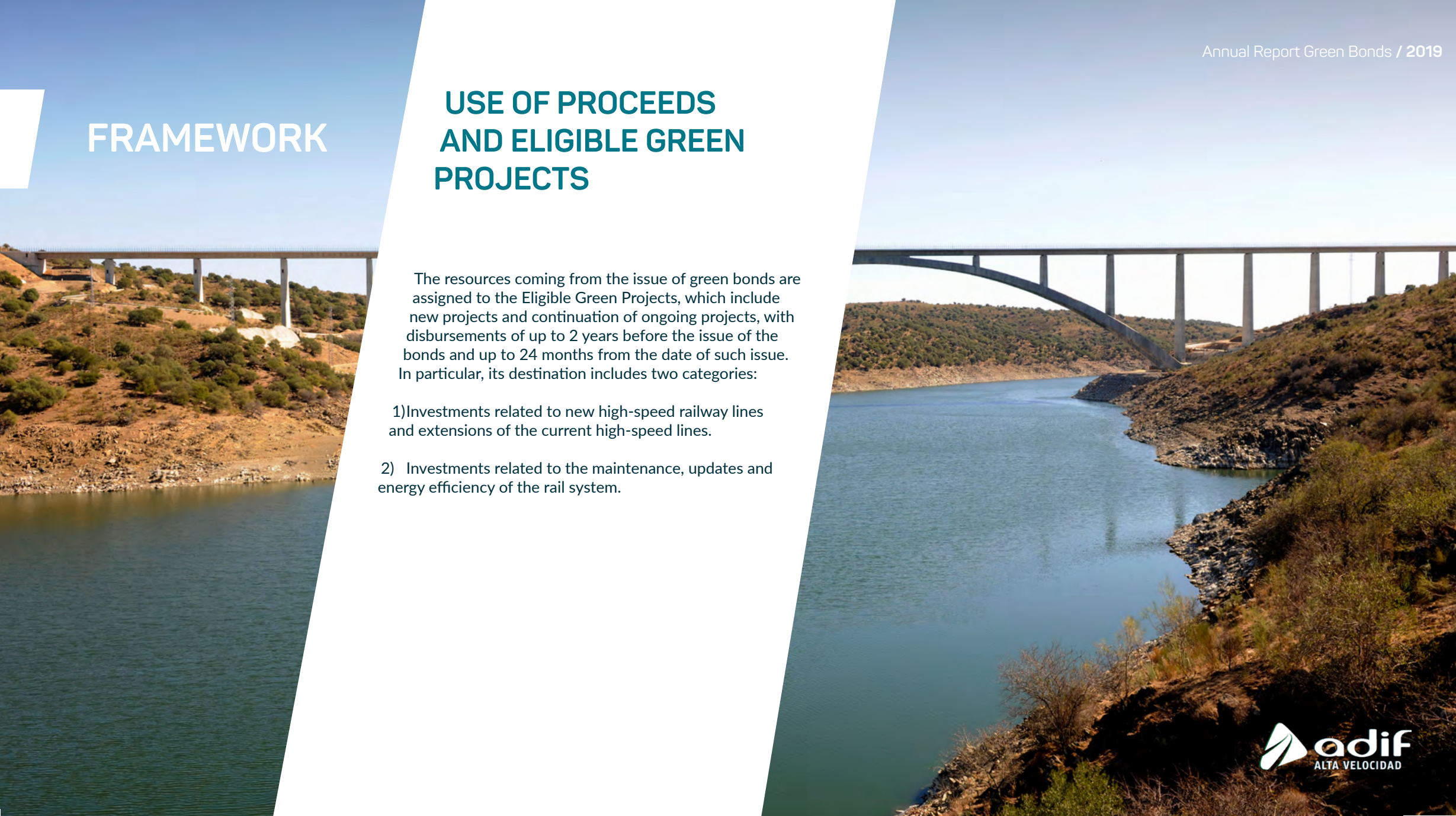
FRAMEWORK

USE OF PROCEEDS AND ELIGIBLE GREEN PROJECTS

The resources coming from the issue of green bonds are assigned to the Eligible Green Projects, which include new projects and continuation of ongoing projects, with disbursements of up to 2 years before the issue of the bonds and up to 24 months from the date of such issue. In particular, its destination includes two categories:

1) Investments related to new high-speed railway lines and extensions of the current high-speed lines.

2) Investments related to the maintenance, updates and energy efficiency of the rail system.



FRAMEWORK

SELECTION PROCESS

From the funds obtained by the **third green issue**, performed on 25th April 2019, 99.74% has been allocated to projects of category 1) and 0.26% to projects of category 2).

Particularly, the funds have been assigned to the following projects:

PROJECTS OF CATEGORY 1

MADRID-LEVANTE HIGH-SPEED LINE

ANTEQUERA - GRANADA HIGH-SPEED LINE

VALLADOLID - BURGOS - VITORIA HIGH-SPEED LINE

MADRID - EXTREMADURA HIGH-SPEED LINE

MADRID - GALICIA HIGH-SPEED LINE / OLMEDO - LUBIÁN - ORENSE - SANTIAGO SECTION

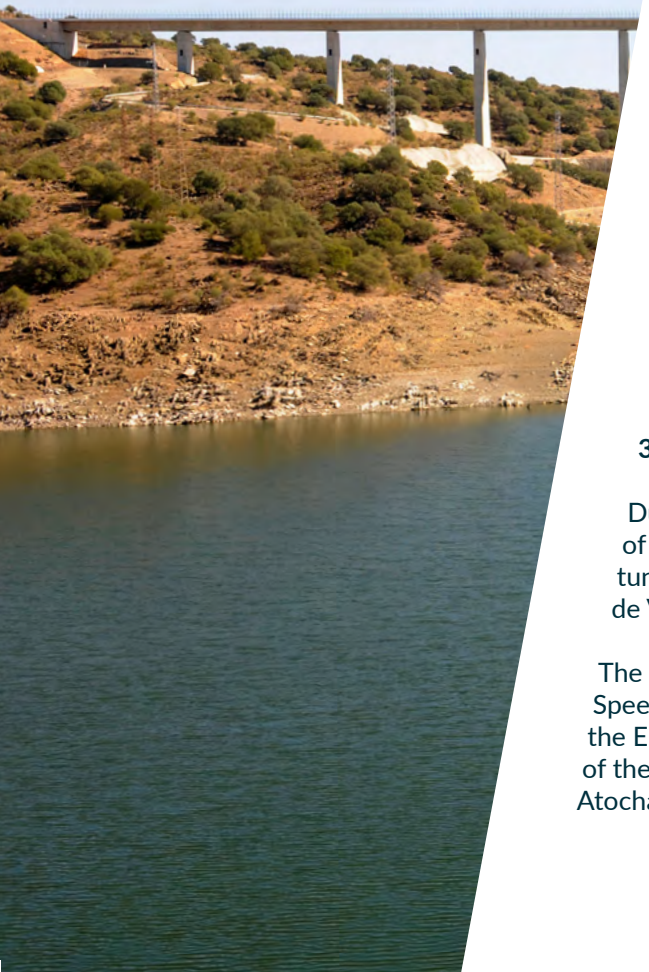
ATLANTIC AXIS HIGH-SPEED LINE / SANTIAGO - VIGO SECTION

PROJECTS OF CATEGORY 2

REVERSIBLE SUBSTATIONS

FRAMEWORK

PROCESS OF SELECTION



MADRID - LEVANTE HIGH-SPEED LINE

Nowadays the high speed line to Valencia and to Alicante is in operation.

The implementation of the entire line will entail being able the perform the connection of the lines of the South and Levante of Spain with the ones of the North and vice versa, without the travelers needing to transfer (the line Madrid-Barcelona-French Frontier will not use, at least for the time being, these accesses to Madrid). In order to be used, a new connection branch will be needed. Likewise, the inclusion of two new routes in the accesses of the corridors of high-speed Madrid-Levante and Madrid-Andalucía will allow to expand the capacity of the infrastructure.

The works consist of:

1. **The execution of the double-track tunnel with standard width UIC** (7.3 km).

2. **The connection of the tunnel with the quadrupling of the stretch Atocha-Torrejón de Velasco through a provisional tunnel of single track** (0.9 km). This tunnel goes under the current station of Atocha, and is used as a provisional connection between the tunnel and the new platform while there is no definitive tunnel which hosts the new underground station of Atocha.

3. **New platform between Atocha and Torrejón de Velasco with capacity for two new tracks.**

During 2019, the works of expansion have continued according to the plans, from two to four tracks of the High-Speed Line between Madrid (Atocha) and Torrejón de Velasco, and the works inside the tunnel Atocha-Chamartín, highlighting the implementation of the third and fourth track of Torrejón de Velasco and Valdemoro in April 2019.

The electrification works have continued, expanding them to the tracks 19 to 21 of Chamartín High-Speed. The required modifications have been performed in Torrejón de Velasco in order to carry out the ERTMS and LZB tests and the test phase has continued, which will allow the implementation of the line, which will be done simultaneously with the new high speed connection tunnel between Atocha and Chamartín.

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FRAMEWORK

PROCESS OF SELECTION

Similarly, works on the branches of Monforte del Cid-Murcia and La Encina-Xátiva-Valencia have continued.

The section Monforte del Cid-Murcia consists of 65 Km. The execution of these works will allow high speed transport of travelers until Murcia.

During the year 2019 the works in the section Monforte del Cid and Beniel were concluded, starting the test phase which will allow the implementation of the high speed to Elche and Orihuela. Finally, the works of execution of phase I of the accesses to Murcia have continued and the corresponding actions to phase II have been initiated (which include the burying of the station).

As main cornerstones in 2019 we highlight the following ones:

- Implementation of the new interlocking between the stations of Murcia del Carmen and El Reguerón
- Entry into service of the new station of El Reguerón (entry into service of a facility (PAET) in El Reguerón, intended to train overtaking and parking and improvement of the management of the railway circulation).
- Remodeling of the head of tracks in the station of Murcia del Carmen (Alicante side).
- Entry into service of the double track of the path between stations of Murcia and El Reguerón. The station of Murcia del Carmen maintains the railway detour in a single-track built-in order to be able to execute the burying of the access tracks to the city of Murcia.
- Closing of the level crossing of the km 460/168 designated as Santiago el Mayor.
- Implementation of the walkway in the surroundings of the level crossing of Santiago el Mayor of Murcia.
- Progress in the construction of the access tunnel to the station of Murcia.
- Start of the works corresponding to the burying of the station, Barriomar and Nonduermas.
- Progress in the Implementation of Monforte-Beniel Line.

Likewise, the works in the sections Monforte del Cid-Murcia and La Encina-Xátiva-Valencia continue.

The ongoing works in the section La Encina-Xátiva-Valencia will allow high speed transport of travelers, maintaining a conventional network line on which the freight traffic will pass, as well as medium distance and commuters. In 2019 the implementation of the conventional width line took place between Alcudia de Crespins and Mogente in Valencia, which is part of the conventional width line Xátiva-La Encina.

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FRAMEWORK

PROCESS OF SELECTION

ANTEQUERA - GRANADA HIGH-SPEED LINE

During 2019 the ERMTS N2 tests finished, concluding with the implementation of the line in summer 2019.

The achievement of these works will allow the traffic of travelers in high speed from the line Córdoba-Málaga, in service, until Granada.

Likewise, several works continue taking place in order to complete this infrastructure:

Access in Conventional Width to the High Speed Station of Antequera – Santa Ana: the action consists in a branch of 2.3 km length which, starting in the current track of the line Bobadilla-Granada through a detour, goes on in parallel and very near to the High Speed platform, until arriving to the southern platform of the High Speed Station of Antequera. The solution adopted allows travelers from the trains who circulate through the conventional line to be able to change and circulate through the High Speed Line performing a transfer in the Station of Antequera. Under execution since March 2019.

Station of Antequera: Under execution since March 2019.

Project Platform. Section: Viaduct over Railway Bobadilla-Granada – Variante de Loja. Río Frío: 1.7 Km of platform designed for double track which goes along the municipality of Loja. Under execution since October 2019.

Transport Interchange of Granada: its execution started in 2019.

Almódovar Bypass: Awarded in 2019.

FRAMEWORK

PROCESS OF SELECTION

VALLADOLID - BURGOS - VITORIA HIGH-SPEED LINE

The section between Valladolid and Venta de Baños is in service, having performed in 2019 the implementation of the Level 2 of ERMTS between Valladolid and León, under construction between Venta de Baños and Burgos and without having started the works between Burgos and Vitoria.

Infrastructure, track assembly, electrification and remote control, as well as security and communication installations works have continued and they are almost being concluded, with the exception of the section Estépar-Burgos variant. The conclusion of this section will entail the high speed connection of Burgos for travelers.

FRAMEWORK

PROCESS OF SELECTION

MADRID - EXTREMADURA HIGH-SPEED LINE

In the year 2019 the platform works were concluded between Plasencia and Badajoz (with the exception of the Bypass of Mérida), likewise the track assembly between Plasencia and Badajoz has finished. According to the foreseen program, the platform works between Talayuela and Badajoz continued (with the exception of the Bypass of Mérida). Between Talayuela and Plasencia the platform sections Casatejada – Toril, Toril – Rio Tiétar and Río Tiétar – Malpartida de Plasencia have been awarded. The section Malpartida de Plasencia – Plasencia Station – Platform has been tendered. The remaining projects still continue. The track assembly between Talayuela and Casatejada (with the exception of Navalmoral) has been awarded.

The projects of track renewal, adaptations and links between Monfragüe and Plasencia are still in drafting stage, as well as the renewal of accesses to the stations of Cáceres, Mérida, Aljucén and Badajoz; and in addition, the project of duplication of tracks between Cáceres and Mérida has started.

Likewise, in this year 2019 the execution of the contract of the electric substations of traction and transformation centers in the section Plasencia Badajoz has started; areas of Cañaveral, Carmonitas and Sagrajas and catenary in phase I.

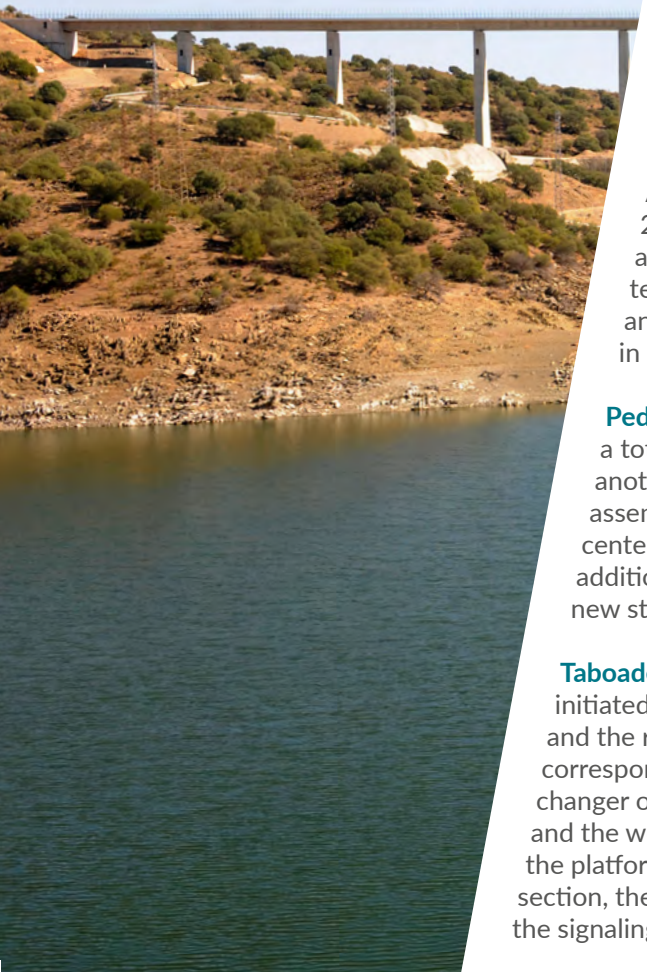
Regarding installations, the execution of the installations of civil protection and security in tunnels continues, as well as the ones of the installations of security and communications, and the GSMR between Plasencia and Badajoz.

The projects of architectonic actions in the stations of Cáceres, Mérida, Plasencia and Badajoz are under execution.

This line has been designed so that the traffic that circulates along the same is apt for travelers and freight.

FRAMEWORK

PROCESS OF SELECTION



MADRID - GALICIA HIGH-SPEED LINE
Olmedo-Lubián-Orense-Santiago Section

The section between Olmedo and Zamora is in service, and the sections Zamora-Pedralba and Pedralba-Ourense are under construction. The implementation by sections has been foreseen, being the following the corresponding one to Zamora-Pedralba. The line has been designed for passenger traffic.

Olmedo-Zamora: This section of 99 km was implemented on 17th December 2015 (as most representative elements of this section, 20 viaducts stand out, which add a length of 4.66 km). During 2018, the remodeling works of the station of Zamora were concluded.

Zamora-Pedralba de la Pradería: 110 km length, the route comprises five subsections, all of them concluded and received during 2019, the most characteristic singular works being: 7 tunnels (4.5 km) and 14 viaducts (4 km). Also, during 2019 the works corresponding to the track assembly, overhead contact line, substations and remote control, as well as security installations, Maintenance and Assembly of the Base, and fixed and mobile telecommunications have been concluded. At the end of 2019, the tests ERTMS level 2 with train started. The work of Civil Protection remained pending of the authorization of Ministry of Industry in order to perform the due electricity supply and to perform the tests of integration of equipment in the CPS of León. At the end of 2019, tests of structural monitoring and the procedures to put the line at the disposal of Circulation started in the area built. In 2019 works in the Station Puebla de Sanabria were carried out.

Pedralba de la Pradería-Ourense: It has 22 subsections. The tunnels predominate in the layout, reaching a total length of 125 km, with 9.4 km of viaducts. Before 2019 12 subsections were concluded, and another 4 in 2019; in the remaining 6 subsections its execution has continued. Likewise, works on assembly bases, track assembly, overhead contact line and associated systems, selftransformation centers and remote control energy, protection and security facilities in tunnels have been initiated. In addition, the execution of the contract of the Signalling Facilities continues. Finally, the execution of the new station of high speed of the station Puerta de Galicia has been initiated.

Taboadela-Ourense (14 km along current corridor + 2 km of connection branch): During 2019, the works initiated in 2018 have continued corresponding to the works of the connection branch in Taboadela and the remodeling of the station of Ourense (adaptation to the tracks and platforms); the works corresponding to the implementation of the third rail and infrastructure Taboadela-Ourense and the changer of Taboadela, track assembly in connection branch and remodeling of the station of Taboadela and the works corresponding to the supplementary actions Taboadela-Ourense which end up adapting the platform. On the other hand, and with the contracts in common with the ones in the previous section, the installations of overhead contact line and associated systems, selftransformation centers and the signaling facilities have been initiated.

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FRAMEWORK
PROCESS OF SELECTION

ATLANTIC AXIS HIGH SPEED LINE
Santiago de Compostela-Vigo Section

This line is in service.

The investment performed corresponds mainly to platform works and to the update of the signaling system. The line is apt for traffic of passengers and freight.

INDICATORS

Below, a summary of the indicators studied for each of the chosen projects:

SAVINGS

	External costs Thousand euros	Time Thousand hours		Modal transfer Thousand travelers KM Transferred		Tons of CO_2 Tons	
	30 years	30 years	Annual average	30 years	Annual average	30 years	Annual average
Madrid - Levante HSL	16,247,439	283,178	9,439	95,507,061	3,183,569	3,898,322	129,944
Antequera - Granada HSL	2,283,881	56,478	1,883	26,727,956	890,932	1,360,089	45,336
Valladolid - Burgos - Vitoria HSL	4,733,151	114,677	3,823	60,397,188	2,013,240	2,625,652	87,522
Madrid Extremadura HSL	4,832,143	123,826	4,128	46,031,797	1,534,393	4,270,103	142,337
Madrid-Galicia HSL Olmedo-Zamora-Ourense-Santiago de Compostela Section	5,580,692	202,905	6,763	38,502,437	1,283,415	3,839,225	127,974
Madrid-Galicia HSL Santiago de Compostela-Vigo Section	2,265,564	84,509	2,817	7,508,705	250,290	711,214	23,707
TOTAL	**35,942,870**	**865,573**	**28,853**	**274,675,144**	**9,155,839**	**16,704,605**	**556,820**

FRAMEWORK
PROCESS OF SELECTION

PROJECTS OF CATEGORY 2
Reversible Substations

Implementation of a recovery system of the energy coming from the regenerative braking of the trains in six substations. This system will allow the return of the braking energy to the distribution network and the use of this energy for the functioning of railway installations. Particularly, the contract authorized includes the works for the installation of a converter that recovers energy of the regenerative braking in the substations of Alcorcón, Guarnizo, Olabeaga, Getafe, Martorell and Arenys de Mar.

This system that recovers the energy generated by the braking of trains and not exploited by other circulations improves the energetic and environmental performance of railway transport, reducing its energy needs and gaining in competitivity as sustainable transport system, and at the same time it helps reducing CO_2 emissions to the environment and, therefore, helps fighting climate change.

During 2019 the necessary works to perform the implementation of the recovery system have continued.

FRAMEWORK

MANAGEMENT OF PROCEEDS

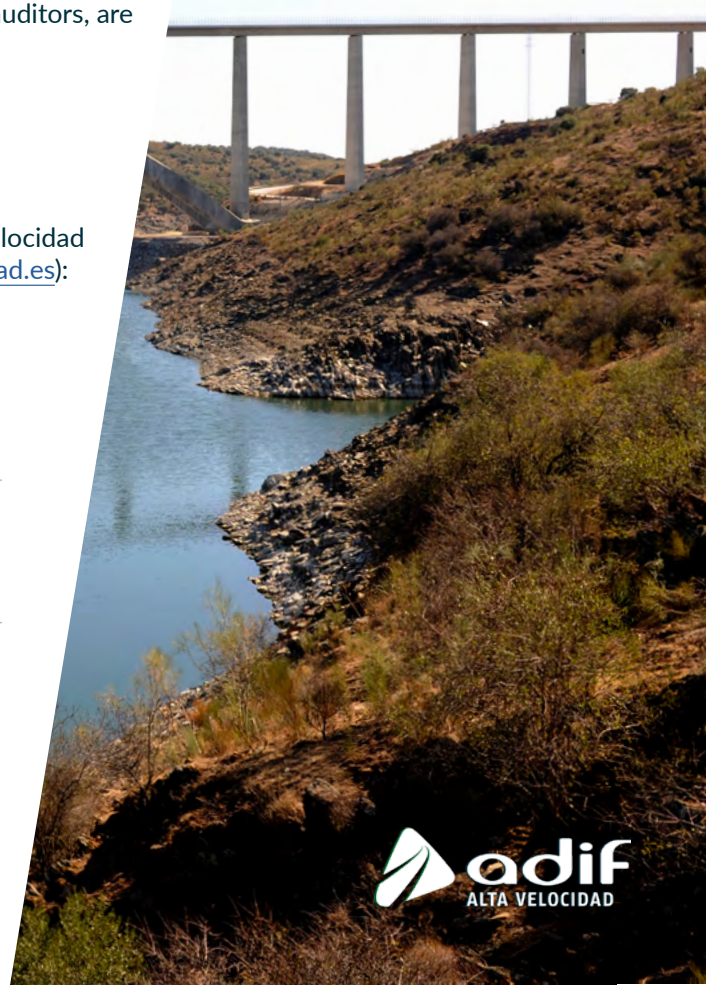
Until the total allocation of the net amount of the issue performed 25th April to Eligible Green Projects, Adif Alta Velocidad maintains temporarily invested the non-allocated funds in remunerated bank accounts.

The audit firm Grant Thornton, contracted by Adif Alta Velocidad, has verified the method of internal monitoring and the allocation of the funds to Eligible Green Projects. The reports of the auditors, are attached to this document.

REPORTS

Up to the full allocation of the proceeds obtained from the Green Bonds issued, Adif Alta Velocidad will publish the following information on its web page each year (http://www.adifaltavelocidad.es):

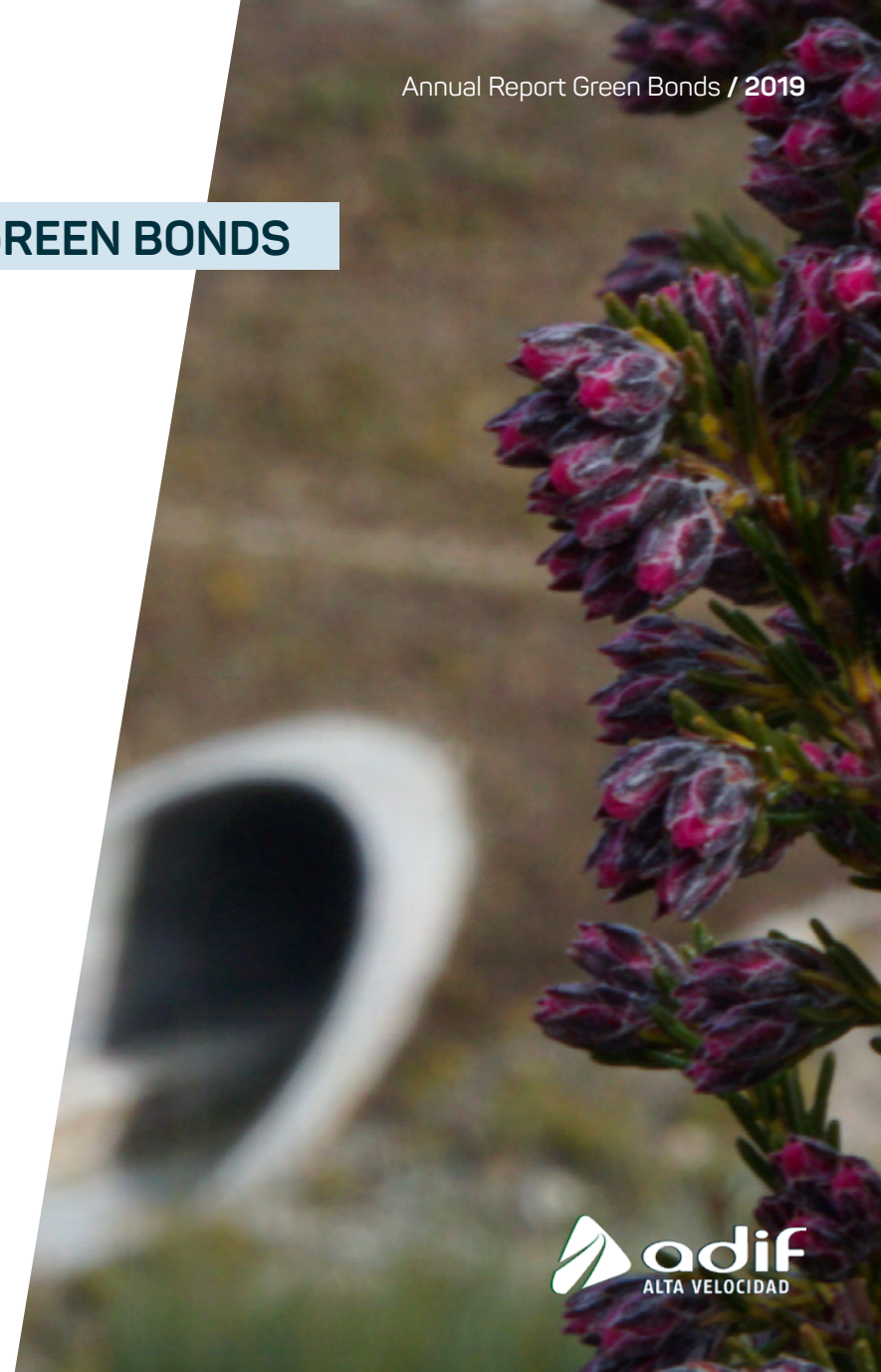
- **Annual update of the proceeds allocated during the period to Eligible Green Projects.**
- **Indicators of foreseen impact.**
- **Annual report of auditors or a third party which verifies the internal method of traceability and the placement of funds in Eligible Green Projects.**



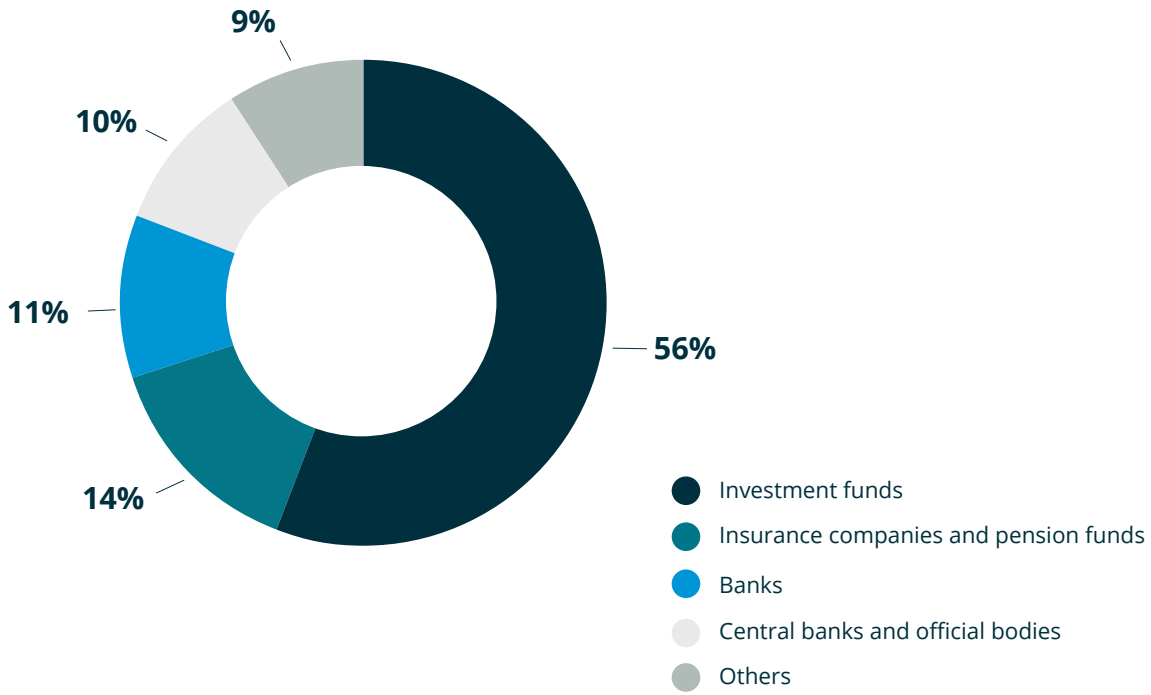
2019 ISSUANCE

THIRD ISSUE OF GREEN BONDS

Issuer:	Adif Alta Velocidad
Amount:	600,000,000 EUR
Ratings (Moody's/Fitch):	Baa2/A-
Pricing Date:	11 April 2019
Settlement date:	25 April 2019
Maturity:	30 April 2027
Ranking:	Senior Unsecured
Format:	Fixed Type
Coupon:	0.95% annual, ACT/ACT
Benchmark:	SPGB 1.50% 04/27
Reoffer Spread:	+28 p.b.
Reoffer yield:	0.97%
Reoffer price:	99.846%
Net amount:	598,176,000 EUR
Documentation:	AIAF / English Law
Use of proceeds:	Finance and/or refinance Eligible Green Projects



CATEGORY OF INVESTOR



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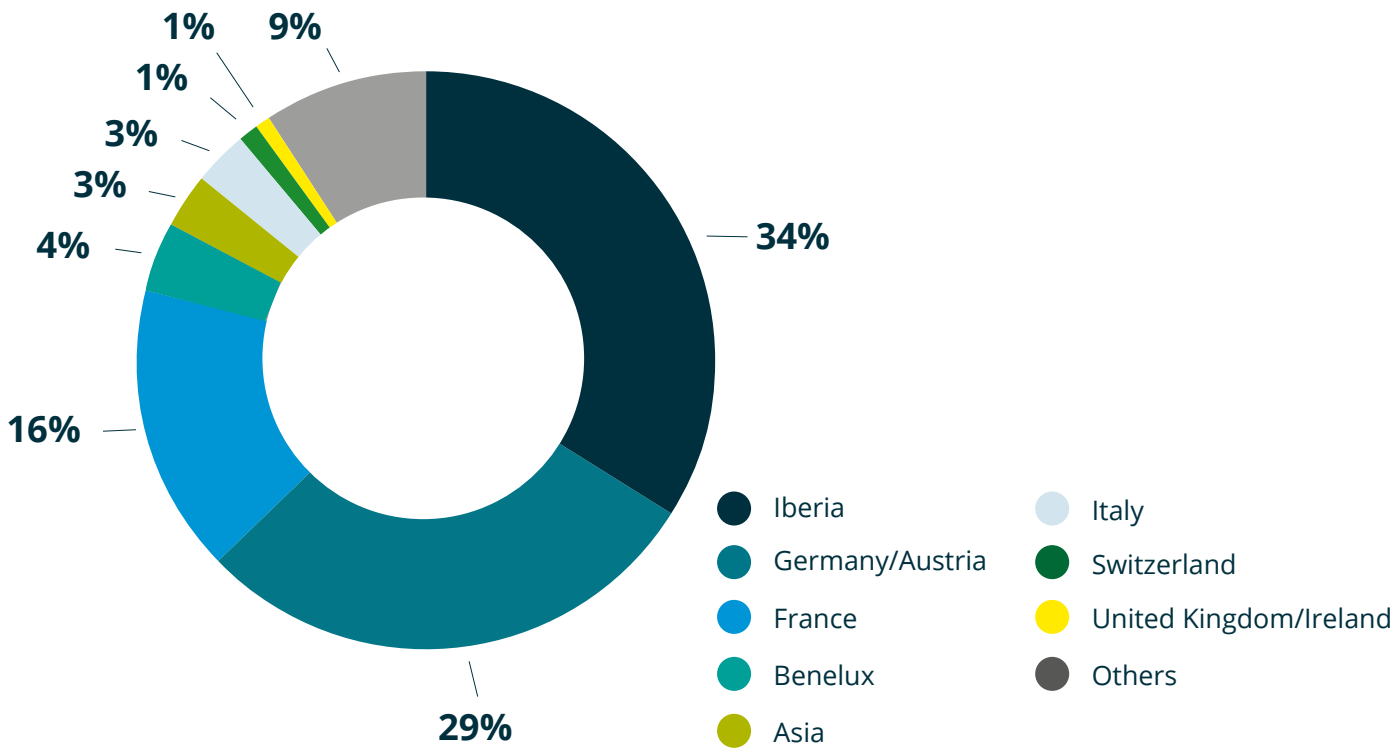
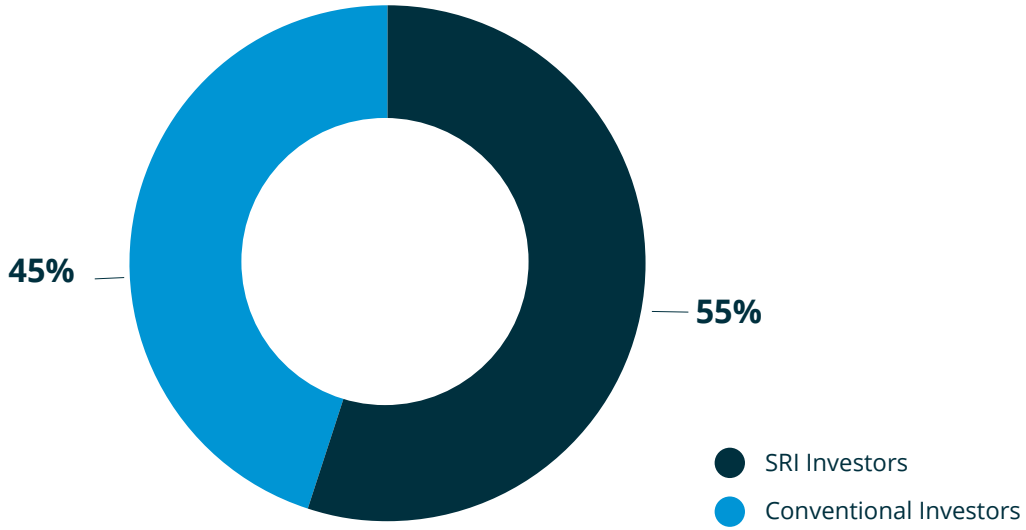


SOCIALLY RESPONSIBLE INVESTORS VS CONVENTIONAL INVESTORS



ISSUE PERFORMED IN 2019

We present below the report corresponding to the issue performed in 2019.

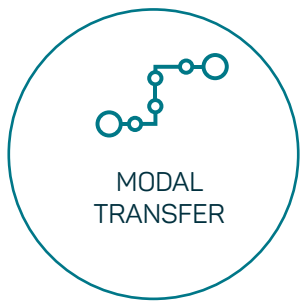
Projects Category 1

Investments related to new rail lines and rail lines extensions

JUN 2020

INDICATORS OF FORESEEN IMPACT

BROKEN DOWN BY LINES



adif ALTA VELOCIDAD

INTRODUCTION

This document presents the socio-economic savings indicators established in the high-speed projects which are involved in the issuance of green bonds performed by Adif Alta Velocidad.

These indicators, which are defined in a chapter below, are the following ones:

A. Saving of External Costs, expressed in thousands of euros.

B. Time Saving, expressed in thousands of hours.

C. Modal Transfer, expressed in thousands of travelers km transferred from the different modes of transport to the high-speed railway mode.

D. CO_2 Tons Savings.

The high-speed lines analyzed as green projects are the following:

- Madrid – Levante High-Speed Line.
- Antequera – Granada High-Speed Line.
- Valladolid-Burgos-Vitoria High-Speed Line.
- Madrid – Extremadura High-Speed Line.
- Madrid – Galicia High-Speed Line: Olmedo-Zamora-Ourense-Santiago de Compostela Section.
- Atlantic Axis High-Speed Line. Santiago de Compostela-Vigo Section.

PREVIOUS CONSIDERATIONS

The estimation of the indicators of socio-economic savings of each high-speed railway project **is based on studies of profitability or cost-benefit analysis** performed by Adif Alta Velocidad in each of the lines analyzed, which follow the methodology and criteria established by the European Commission of Regional Policy in the document "Guide to Cost-benefit Analysis of Investments Projects. Economic appraisal tool for Cohesion Policy 2014-2020", published in 2014.

These analysis cost-benefit are based, in turn, on previous studies which provide the needed data for the estimations of socio-economic profitability, which without being exhaustive are:

- Demand (of travelers and in the case of high-speed lines of mixed traffic, also of freight) both of the situation without project and of the situation with project, both needed for the differential calculation of the savings.
- Modal split within the transport system.
- Transfer of passengers/freight to the railway in the situation of project (in this case the new high-speed line), for each one of the existing means in the field of the project.
- Flows of traffic generated/induced: additional traffic caused by the improvement of transport after the implementation of the analyzed project, in this case, the high-speed railway line.
- Travel times in each means of transport based on the relationship Origin-Destination, as well as the time saving caused by the modal change.

Demand variables

The demand variables needed for the estimation of the indicators subject of this report are the ones below:

Travelers km transferred (thousands)
- from private vehicle
- from bus
- from conventional train
- from airplane

Travelers km AV (thousands)
- Captured
- Induced

Hours saved (thousands)
Time savings (thousands of hours)
- Obliged
- Not Obliged

Tons km (thousands)
- Transferred from truck (ton*km in truck)
- Captured (ton km railways)

The cost-benefit analysis uses a 30 years period since the implementation of the high-speed line, a period that meets the one mentioned in the document “Guide to Cost-benefit Analysis of Investments Projects. Economic appraisal tool for Cohesion Policy 2014-2020” for railway projects.

EUROPEAN COMMISSION’S REFERENCE PERIODS BY SECTOR

TABLE 2.1

Sector	Reference period Years
Railways	30
Roads	25-30
Ports and airports	25
Urban transport	25-30
Water supply / sanitation	30
Waste management	25-30
Energy	15-25
Broadband	15-20
Research and Innovation	15-25
Business infrastructure	10-15
Other sectors	10-15

Source: ANNEX I to Commission Deelegated Regulation (EU) No 480/214

DEFINITION OF THE INDICATORS

SAVINGS OF EXTERNAL COSTS

The indicator "Saving of external costs" shows the socio-economic benefits monetized which are calculated in each study of profitability, arising from the improvement of the transport conditions thanks to the project and the savings that the users experience.

In this indicator of external costs saving, the following concepts are grouped in a single value:

A. TIME SAVINGS

Time savings are calculated for the travelers attracted (flow Origin/Destination (O/D) of travelers) by the new railway services, as a difference between the time in situation without project (or of reference) for a displacement in the means of transport used in such scenario, and the time in railway used in the scenario with project.

As a result, the savings of time are differentiated depending on the O/D and on the means of departure of each traveler attracted by the railway.

The savings of time are obtained, therefore, directly from the results of modelling of the situation of reference and from the one of the project.

The monetary valuation of the time is performed in each study of profitability from the values of €/hour of the European project "Developing Harmonized European Approaches for Transport Costing and Project Assessment (HEATCO)", differentiated according to the reason for travel (Obliged/work and not obliged/remaining reasons).

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

DEFINITION OF THE INDICATORS

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | SAVING OF TONS OF CO_2

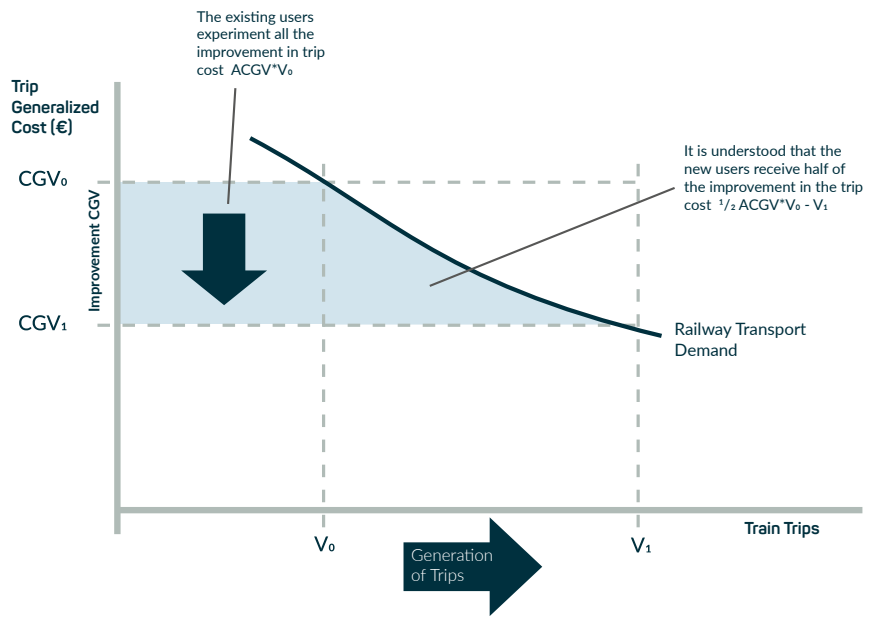
B. NET SURPLUS OF THE CONSUMER OF NEW TRAVELERS

GENERATED/INDUCED TRAFFIC

As it has been previously described, generated or induced traffic is understood as the new users who perform their travel thanks to the improvement made by the implementation of the project of new railway infrastructure, and which in the situation of reference, where the transport does not improve, do not perform the travel.

In order to estimate the monetary valuation of the consumer surplus of these new travelers in each Origin-Destination relation, the methodology established in the Guide of Analysis of Cost Benefit of Projects of Investment, published by the European Commission of Regional Policy in 2014 - known as the rule of the half, is used.

CALCULATION OF THE NET SURPLUS OF THE CONSUMER OF NEW TRAVELERS. "RULE OF THE HALF"



Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

DEFINITION OF THE INDICATORS

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | SAVING OF TONS OF CO_2

C. SAVINGS OF RUNNING OR OPERATION COSTS OF OTHER MEANS (DIFFERENT TO THE RAILWAY ONES)

The collection of travelers coming from other means by the new railway services causes a global decrease of running or operation costs in these means.

The monetization of this saving is obtained through the product of the number of travelers transferred from the different means of transport to the railway, by the unit operation cost by traveler in its mode of origin.

D. SAVING OF ACCIDENTS

The variation of accident cost comes from the different probability of suffering accidents between the railway in the project and the means of origin of the travelers captured or transferred to the railway.

For the monetization of this saving, the product of the number of travelers transferred from the different means of transport to the railway, by the unit cost of accidents by traveler in their means of origin, is calculated.

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

DEFINITION OF THE INDICATORS

SAVINGS OF EXTERNAL COSTS

TIME SAVINGS

MODAL TRANSFER

SAVING OF TONS OF CO_2

E. SAVING OF ENVIRONMENTAL COSTS

It comprises the ensemble of the environmental savings caused by the project, and includes:

- **Saving in net costs by impact in the climate change**. This corresponds to the costs in order to prevent the negative effects of the climate change caused by the emissions of Greenhouse Gases (GHG). For the sector of transports the pertinent emissions are carbon dioxide, nitrogen dioxide and methane.

- **Saving in net costs by impact on the atmospheric pollution**. Refers to the costs by the adverse effects of atmospheric pollution (mainly particles, nitrogen oxides, sulphur dioxide, volatile organic compounds and ozone): effects on health, buildings and materials, and harvests.

- **Saving in net costs by impact on the noise or acoustic pollution**. For this type of projects, the incidence of the global impact can be very low or almost negligible. Its main incidence is in the sections of transit along cities affected by the project, and its effect is usually reduced by corrective measures, such as acoustic screens.

- **Saving in net costs by indirect environmental impacts**. Related to indirect effects of the transport activity, such as the production of energy (fuels and electricity), of vehicles and of infrastructure.

- **Saving in net costs by impact on the loss of biodiversity**. Both the atmospheric pollution, and the fragmentation of habitats by infrastructures can negatively affect the biodiversity.

- **Saving in net costs by impact in soil and water pollution**, derived from the negative impacts on soil and water pollution of the transport infrastructures, as well as pollution by heavy metals or hydrocarbons.

- **Saving in net costs by impact on nature and landscape**. It refers to the costs estimated necessary to improve the existing infrastructures according to the needs of the environment. They are repair and balancing costs.

- **Saving in net costs by urban effects**. Related to the cost caused by traffic in urban areas, particularly for non-motorized transport due to the lack of space and the time lost by citizens who go walking due to barrier effects.

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

DEFINITION OF THE INDICATORS

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | SAVING OF TONS OF CO_2

For the estimation of these environmental savings and their monetization, unit costs are used from the "Study of External Costs of the Transport in Europe" performed by CE Delft, INFRAS and Fraunhofer in November 2011, (hereinafter Study of External Costs) elaborated on request of the European Commission, and whose scope of reference is the EU-27, together with Switzerland and Norway.

In this Study of External Costs, it appears the average unit costs of the EU for each one of the concepts involved in the environmental costs, as well as the cost of accidents, expressed in euros per 1,000 travelers-km and in euros by 1,000 tons km in the case of freight.

In the following tables appears the value of the study:

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

DEFINITION OF THE INDICATORS

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | SAVING OF TONS OF CO_2

TOTAL UNITARY EXTERNAL COSTS IN THE UE-27 DUE TO TRANSPORT MEANS FOR TRAVELERS AND FREIGHT

Source: Study of External Costs of the Transport in Europe. CE Delft, INFRAS and Fraunhofer 2011.

Total costs per cost category (Mio €/a)

Total external costs 2008 for EU-27 by cost category and transport mode - Table 2*

	Road					Rail		Aviation	Waterborne (freight)
	Passenger cars	Buses & coaches	Motorcycles & mopeds	LDV	HDV	Passenger transport	Freight transport	Passenger transport (cont.)	Inland waterways
Accidents	157,105	6,839	22,584	18,677	19,604	238	71	223	0
Air pollution	26,636	3,347	1,696	5,933	12,995	1,092	483	426	782
Climate change high scen.	84,135	5,060	1,597	14,787	18,845	630	413	22,166	516
Climate change low scen.	14,407	866	273	2,532	3,227	108	71	3,796	88
Noise	8,201	865	2,076	2,094	3,537	477	476	457	0
Up & downstream Proc. high scen.	27,679	1,568	523	4,765	5,802	3,354	1.947	3,356	194
Up & downstream Proc. low scen.	16,621	855	325	2,777	3,270	1,633	1,078	1,849	113
Nature & landscape	3,008	149	75	284	1,293	75	21	296	64
Biodiversity losses	1,152	212	20	208	893	1	1	40	69
Soil & water pollution	1,582	485	40	601	1,629	220	164	0	0
Urban effects	4,814	232	116	1,035	965	229	59	0	0
Total (high scenario)	314,310	18,757	28,727	48,384	65,564	6,318	3,636	26,964	1,625
Road congestion (delay costs): min.	98,416	4,836	2,439	13,827	26,695	:	:	:	:
Road congestion (delay costs): max.	161,331	7,729	3,841	27,633	42,660	:	:	:	:

Data include the EU-27 with the exemption of Malta and Cyprus, but including Norway and Switzerland; Total excluding congestion costs.

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

DEFINITION OF THE INDICATORS

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | SAVING OF TONS OF CO_2

UNITARY EXTERNAL COSTS BY MEANS OF TRANSPORT FOR TRAVELERS AND FREIGHT

Average Costs per Cost Category €/(1,000 pkm*a)

Total external costs 2008 for EU-27 by cost category and transport mode - Table 2*

	Passenger Transport							Freight Transport					
	Road				Rail	Aviation	Total	Road			Rail	Waterborne	Total
	Passenger cars	Buses & coaches	Motorcycles & mopeds	Total road passenger transport	Passenger transport	Passenger transport (cont.)		LDV	HDV	Total road freeight transport	Freight transport	Freight transport	
Accidents	32.3	12.3	156.6	33.6	0.6	0.5	29.0	56.2	10.2	17.0	0.2	0.0	13.4
Air pollution	5.5	6.0	11.8	5.7	2.6	0.9	5.2	17.9	6.7	8.4	1.1	5.4	7.1
Climate change high scen.	17.3	9.1	11.1	16.3	1.5	46.9	17.6	44.5	9.8	14.9	0.9	3.6	12.1
Climate change low scen.	3.0	1.6	1.9	2.8	0.3	8.0	3.0	7.6	1.7	2.6	0.2	0.6	2.1
Noise	1.7	1.6	14.4	2.0	1.2	1.0	1.9	6.3	1.8	2.5	1.0	0.0	2.1
Up & downstream high scen.	5.7	2.8	3.6	5.4	8.1	7.1	5.7	14.3	3.0	4.7	4.2	1.3	4.4
Up & downstream low scen.	3.4	1.5	2.3	3.2	3.9	3.9	3.3	8.4	1.7	2.7	2.4	0.8	2.5
Nature & landscape	0.6	0.3	0.5	0.6	0.2	0.6	0.6	0.9	0.7	0.7	0.0	0.4	0.6
Biodiversity losses	0.2	0.4	0.1	0.2	0.0	0.1	0.2	0.6	0.5	0.5	0.0	0.5	0.4
Soil & water pollution	0.3	0.9	0.3	0.4	0.5	0.0	0.4	1.8	0.8	1.0	0.4	0.0	0.8
Urban effects	1.0	0.4	0.8	0.9	0.6	0.0	0.8	3.1	0.5	0.9	0.1	0.0	0.7
Total (high scenario)	64.7	33.8	199.2	65.1	15.3	57.1	61.3	145.6	34.0	50.5	7.9	11.2	41.7
Total (low scenario)	48.1	24.9	188.7	49.4	9.8	15.0	44.3	102.8	24.6	36.1	5.3	7.7	29.7

Data include the EU-27 with the exemption of Malta and Cyprus, but including Norway and Switzerland; Total excluding congestion costs.

Source: Study of External Costs of the Transport in Europe. CE Delft, INFRAS and Fraunhofer 2011.

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

DEFINITION OF THE INDICATORS

SAVINGS OF EXTERNAL COSTS | **TIME SAVINGS** | MODAL TRANSFER | SAVING OF TONS OF CO_2

TIME SAVING

This indicator is the saving, expressed in thousands of hours, experienced by the travelers attracted to high-speed railway. The estimation is made as difference between the time of the travel in situation of project (time of travel of each user between an origin and a destination in the railway mean with the new high-speed line), and the time in situation of reference or without project (time of travel of each user between an origin and a destination in the means of transport used originally).

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

DEFINITION OF THE INDICATORS

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | **MODAL TRANSFER** | SAVING OF TONS OF CO_2

MODAL TRANSFER

This indicator is the result of the travelers captured and generated/induced by the high-speed railway as difference between the demand between the situation without project (or similar) and the situation with the project, in all transport means.

This indicator of modal transfer shows the travelers-km (in thousands) who change of means of transport, changing to the railway as a result of the improvement of the transport that the users experience because of the new high-speed railway line.

In the situation of project, the travelers in high speed railway include the travelers generated/induced, who have already been previously defined.

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

DEFINITION OF THE INDICATORS

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | **SAVING OF TONS OF CO_2**

SAVING OF TONS OF CO_2

For the estimation of this indicator the factors of emission of CO_2 obtained in the Study of External Costs have been used. These factors, measured in grams of CO_2 by vehicle km, have been calculated for each country, differencing by transport means, both for freight and for travelers.

In the table below the values of these factors of emission of CO_2 are stated, whereas the values corresponding to Spain have been highlighted.

CO_2 (exhaust) emission factors *Table 50*

	Passenger Transport						Freight Transport				
	Road (g/vkm)				Rail (g/train-km)	Aviation (g/vkm)	Road (g/vkm)			Rail (g/train-km)	Waterborne (g/vkm)
Country	Passenger cars	Buses & coaches	Motorcycles & mopeds	**Total road passenger transport**	Passenger transport	Passenger transport (incl. LTO)	LDV	HDV	**Total road freeight transport**	Freight transport	Inland waterways
Austria	188	586	84	**198**	942	11,980	268	634	**394**	802	25,400
Belgium	195	615	79	**198**	401	11,778	240	751	**415**	4,089	20,660
Bulgaria	174	566	51	**202**	1,338	16,804	221	617	**357**	2,200	21,312
Czech Republic	188	556	77	**186**	1,334	11,787	221	721	**393**	1,666	22,226
Deenmark	198	626	80	**211**	4,932	13,128	213	707	**383**	5,809	n,a,
Estonia	226	623	65	**226**	4,498	8,896	231	627	**367**	36,355	n,a,
Finland	213	648	81	**220**	217	12,869	232	712	**397**	4,762	21,667
France	196	636	84	**198**	1,043	14,200	254	663	**327**	1,137	19,882
Germany	212	672	94	**215**	1,928	14,844	276	680	**415**	3,036	21,667
Greece	185	581	79	**172**	6,467	19,830	219	633	**361**	6,934	n,a,
Hungary	193	552	74	**188**	1,530	13,342	225	599	**353**	2,936	22,664
Ireland	186	630	76	**198**	6,435	19,045	200	633	**349**	13,336	n,a,
Italy	188	652	86	**192**	879	17,610	271	707	**421**	494	19,882
Latvia	223	669	84	**220**	4,655	11,251	230	616	**362**	41,610	n,a,
Lithuania	203	598	71	**194**	9,069	10,210	222	656	**371**	35,202	21,667
Luxembourg	196	618	76	**204**	50	6,398	209	670	**367**	5,371	20,660
Netherlands	210	747	74	**214**	188	14,193	256	741	**422**	2,843	21,317
Norway	207	608	69	**210**	757	13,155	214	679	**373**	2,949	n,a,
Poland	181	576	69	**180**	1,366	13,071	215	665	**369**	1,815	14,939
Portugal	192	615	75	**190**	2,720	16,553	221	760	**406**	5,436	n,a,
Romania	186	561	56	**175**	2,293	12,715	224	610	**357**	5,932	22,825
Slovakia	189	544	84	**197**	1,797	13,703	218	546	**331**	2,290	22,694
Slovenia	192	596	75	**172**	1,269	6,838	223	661	**373**	1,437	n,a,
Spain	191	607	57	**192**	1,018	20,654	211	699	**378**	3,149	n,a,
Sweden	230	585	81	**234**	112	15,210	225	684	**382**	900	n,a,
Switzerland	208	630	64	**205**	0	12,151	240	661	**403**	583	21,667
United Kingdom	231	820	97	**237**	1,123	17,795	234	815	**406**	7,434	21,317
TOTAL	204	647	79	**206**	1,314	15,887	242	696	**381**	3,420	21,431

Data source: TREMOVE (2010)

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

DEFINITION OF THE INDICATORS

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | **SAVING OF TONS OF CO_2**

From the emission factors corresponding to Spain in the previous table, measured in grams of CO_2 by vehicle km, and the ratio by occupation (travelers by vehicle) used in each profitability study, the values needed to perform the estimation of the saving of tons of CO_2 for each project evaluated are obtained and shown in the table below.

The total saving of emissions of CO_2 (in tons) is calculated as application of the ratios from the previous table to the travellers.km and tons.km, captured and induced by each high-speed project.

VALUES FOR SPAIN OF THE STUDY OF EXTERNAL COSTS

	Conventional railway	Bus	Car	Airplane	A. Railway
g CO_2 / vehicle - km	1018	607	191	20,654	1018
average occupation	180	39	1.8	150	260
g CO_2 / traveler - km	5.7	15.6	106.1	137.7	3.9
kg CO_2 / traveler - km	**0.0057**	**0.0156**	**0.1061**	**0.1377**	**0.0039**

	Freight railway	Freight truck
g CO_2 / vehicle - km	3149	699
average load	400	11,8
g CO_2 / ton - km	7.9	59.2
kg CO_2 / ton - km	**0.0079**	**0.0592**

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

MADRID - LEVANTE HIGH-SPEED LINE

adif ALTA VELOCIDAD

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

MADRID - LEVANTE H.S.L.

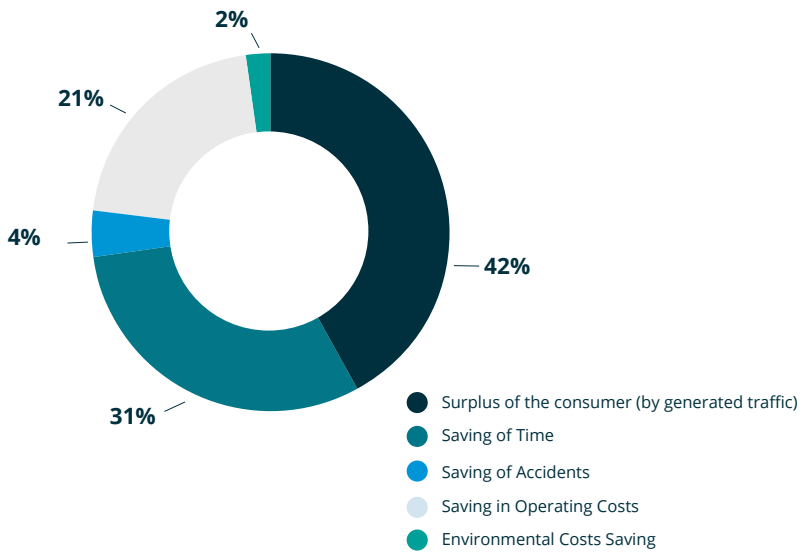
SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | SAVING OF TONS OF CO_2

SAVINGS OF EXTERNAL COSTS

These results are calculated for a period of evaluation of 30 years since the implementation of the first phase of the project (2011).

The total savings (expressed in NPV to 2011 at 3%, thousand Euros of 2011) of this line is the one below:

Savings (Thousands of Euros of 2011)	16,247,439
Surplus of the Customer (by generated traffic)	6,855,188
Saving of Time	5,018,366
Saving of Accidents	695,771
Saving in Operating Costs	3,390,155
Saving of environmental costs	287,959



Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

MADRID - LEVANTE H.S.L.

SAVINGS OF EXTERNAL COSTS | **TIME SAVINGS** | MODAL TRANSFER | SAVING OF TONS OF CO_2

TIME SAVINGS

The total hours saved along the 30 years of the study are summarized in the following chart:

Global summary	Total (30 years)	Average annual saving
Thousands of hours saved	283,178	9,439

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

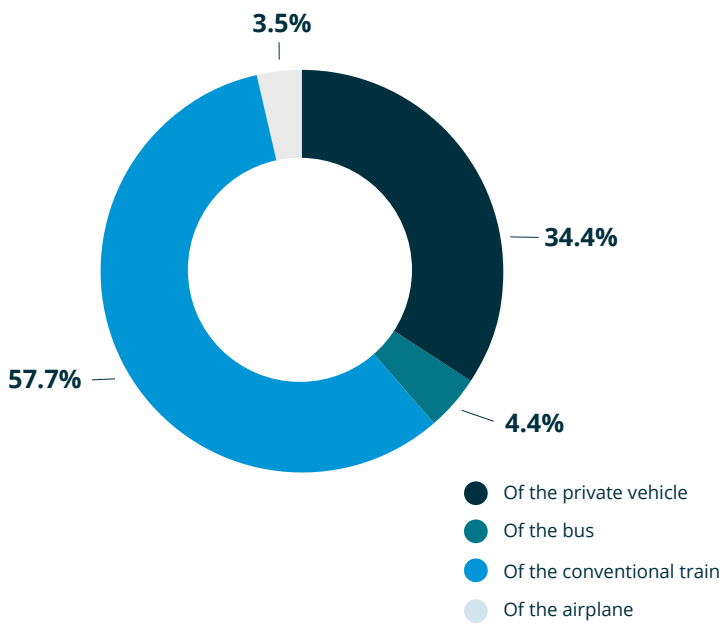
MADRID - LEVANTE H.S.L.

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | **MODAL TRANSFER** | SAVING OF TONS OF CO_2

MODAL TRANSFER

Below it appears the summary of the Travelers km transferred of each means of transport and the graphic of percentages of modal transfer:

Travelers km transferred (thousands)	Total (30 years)	Annual average
From the private vehicle	32,838,353	1,094,612
From the bus	4,197,197	139,907
From the conventional train	55,095,573	1,836,519
From the airplane	3,375,938	112,531
TOTAL Thousands Travellers.km transferred	**95,507,061**	**3,183,569**



On the other hand, it can be noted that from the total traveler's km in high speed, a 14.4% corresponds to the travelers induced. From the travelers transferred, the greater percentage comes from the conventional train itself with a 57.7%, followed by the private vehicle with a 34.4%.

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

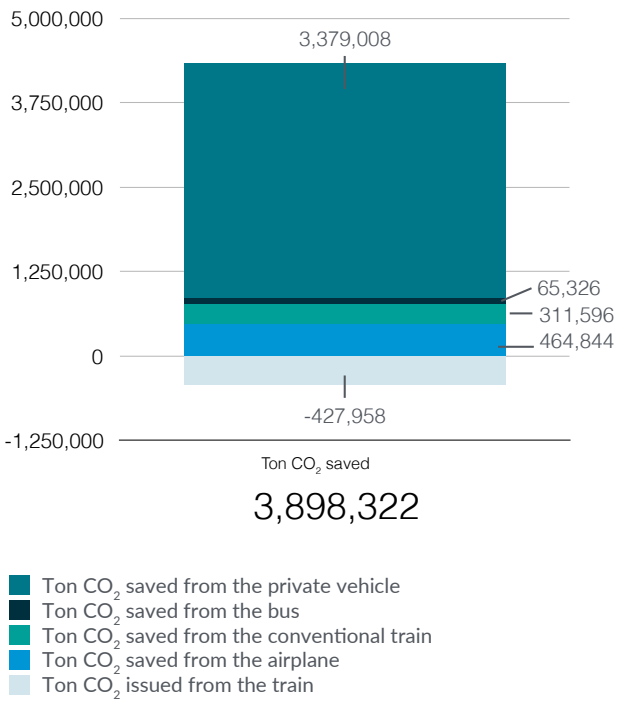
MADRID - LEVANTE H.S.L.

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | **SAVING OF TONS OF CO_2**

SAVING OF TONS OF CO_2

The savings of CO_2 by the travelers km transferred from each mean of transport for the total of the period of analysis (30 years) are the ones below:

MADRID-LEVANTE HSL	Total (30 years)	Annual average saving
Ton CO_2 saved from the private vehicle	3,484,514	116,150
Ton CO_2 saved from the bus	65,326	2,178
Ton CO_2 saved from the conventional train	311,596	10,387
Ton CO_2 saved from the airplane	464,844	15,495
Ton CO_2 issued from the train	-427,958	-14,265
TOTAL Tons CO_2 SAVED	**3,898,322**	**129,944**



Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

ANTEQUERA - GRANADA HIGH-SPEED LINE

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

ANTEQUERA - GRANADA H.S.L.

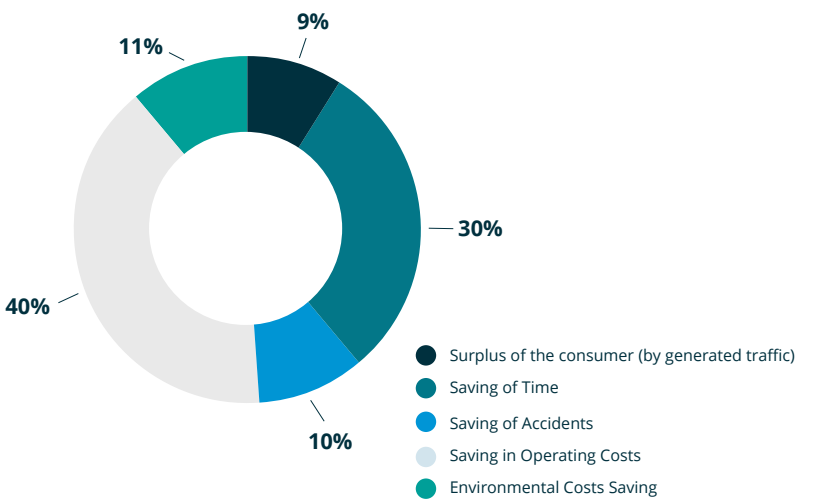
SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | SAVING OF TONS OF CO_2

SAVINGS OF EXTERNAL COSTS

These results are calculated for a 30 year period of evaluation since the implementation of the first phase of the project (2015).

The total savings (expressed in NPV at 2015 at 3%, thousand Euros of 2015) of this line is the one below:

Savings (Thousands of Euros of 2015)	2,283,881
Surplus of the Consumer (by generated traffic)	205,709
Saving of Time	683,677
Saving of Accidents	240,372
Saving in Operating Costs	909,627
Saving in environmental costs	244,497



Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

ANTEQUERA - GRANADA H.S.L.

SAVINGS OF EXTERNAL COSTS | **TIME SAVINGS** | MODAL TRANSFER | SAVING OF TONS OF CO_2

SAVINGS OF TIME

The total hours saved along the 30 years of the study are summarized in the following chart:

Global summary	Total (30 years)	Annual average saving
Thousands saved hours	56,478	1,883

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

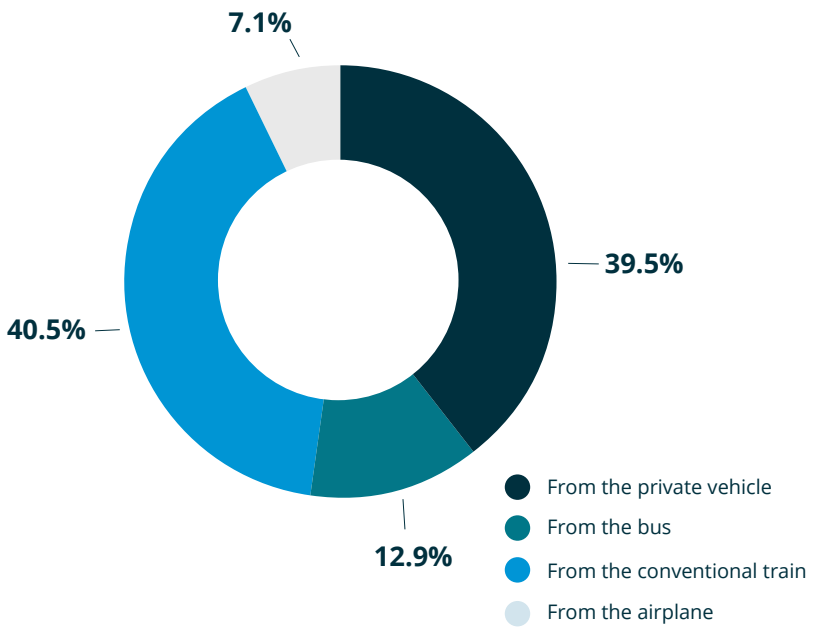
ANTEQUERA - GRANADA H.S.L.

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | **MODAL TRANSFER** | SAVING OF TONS OF CO_2

MODAL TRANSFER

Below it appears the summary of the Travelers km transferred of each means of transport and the graphic of percentages of modal transfer:

Travelers km transferred (thousands)	Total (30 years)	Media anual
From the private vehicle	10,554,836	351,828
From the bus	3,444,035	114,801
From the conventional train	10,834,862	361,162
From the airplane	1,894,223	63,141
TOTAL **Thousands of Travellers.km transferred**	**26,727,956**	**890,932**



On the other hand, it can be observed that from the total traveler's km in high speed, a 15.1% corresponds to the travelers induced. From the travelers transferred, the greater percentage comes from the conventional train itself with a 40.5%, followed by the private vehicle with a 39.5%.

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

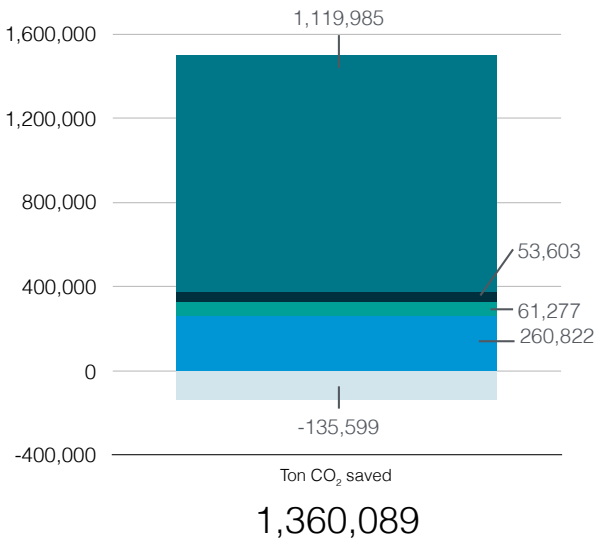
ANTEQUERA - GRANADA H.S.L.

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | **SAVING OF TONS OF CO_2**

SAVING OF TONS OF CO_2

The savings of CO_2 by the travelers km transferred from each mean of transport for the total period of analysis (30 years) are the ones below:

ANTEQUERA - GRANADA HSL	Total (30 years)	Annual average saving
Ton CO_2 saved from the private vehicle	1,119,985	37,333
Ton CO_2 saved from the bus	53,603	1,787
Ton CO_2 saved from the conventional train	61,277	2,043
Ton CO_2 saved from the airplane	260,822	8,694
Ton CO_2 issued from the train	-135,599	-4,520
TOTAL Tons CO_2 SAVED	**1,360,089**	**45,336**



Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

VALLADOLID-BURGOS-VITORIA HIGH-SPEED LINE

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

VALLADOLID - BURGOS - VITORIA H.S.L.

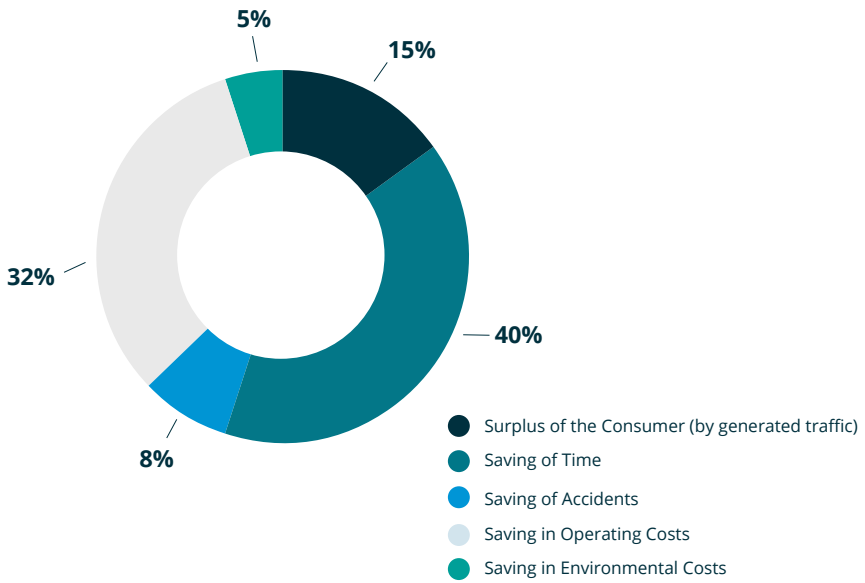
SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | SAVING OF TONS OF CO_2

SAVINGS OF EXTERNAL COSTS

These results are calculated for a 30 years period of evaluation since the implementation of the first phase of the project (2019).

The total savings (expressed in NPV at 2019 at 3%, thousands of Euros of 2016) of this line is the one below:

Savings (Thousands of Euros of 2016)	4,733,151
Surplus of the Consumer (by generated traffic)	697,189
Saving of Time	1,915,172
Saving of Accidents	353,545
Saving in Operating Costs	1,514,149
Saving in Environmental Costs	253,096



Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

VALLADOLID - BURGOS - VITORIA H.S.L.

SAVINGS OF EXTERNAL COSTS | **TIME SAVINGS** | MODAL TRANSFER | SAVING OF TONS OF CO_2

SAVINGS OF TIME

The total hours saved along the 30 years of study are summarized in the chart below:

Global summary	Total (30 years)	Annual average saving
Total Thousands of hours saved	114,677	3,823

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

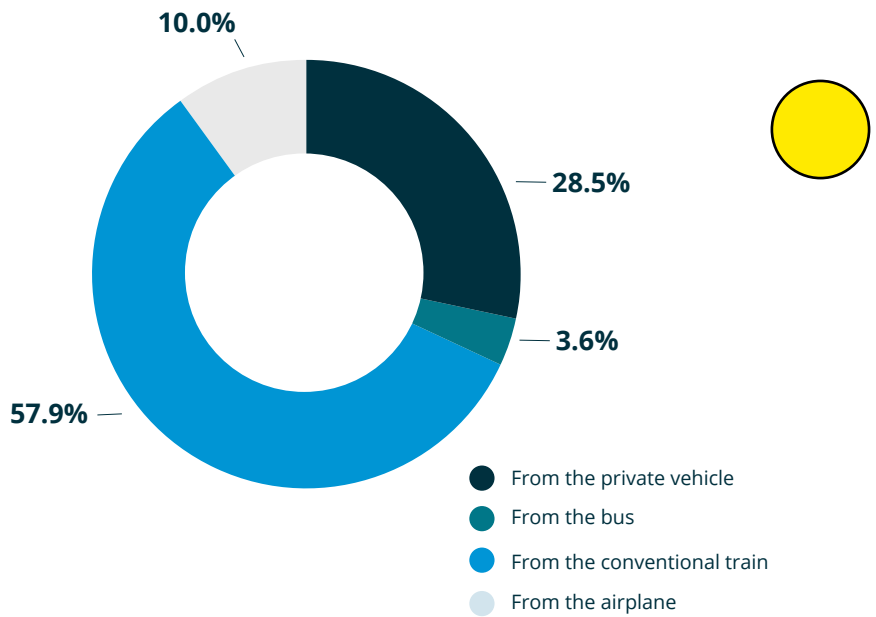
VALLADOLID - BURGOS - VITORIA H.S.L.

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | **MODAL TRANSFER** | SAVING OF TONS OF CO_2

MODAL TRANSFER

Below it appears the summary of the Travelers km transferred from each transport means and the graphic of percentages of modal transfer:

Travelers km transferred (thousands)	Total (30 years)	Annual average
From the private vehicle	17,281,210	576,040
From the bus	2,156,858	71,895
From the conventional train	34,945,031	1,164,834
From the airplane	6,014,088	200,470
TOTAL Thousand Travellers.km transferred	**60,397,188**	**2,013,240**



On the other hand, it can be noted that from the total traveler's km in high speed, a 12.5% corresponds to the travelers induced. From the transferred travelers, the greater percentage comes from the conventional train itself with a 57.9%, followed by the private vehicle with a 28.6%.

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

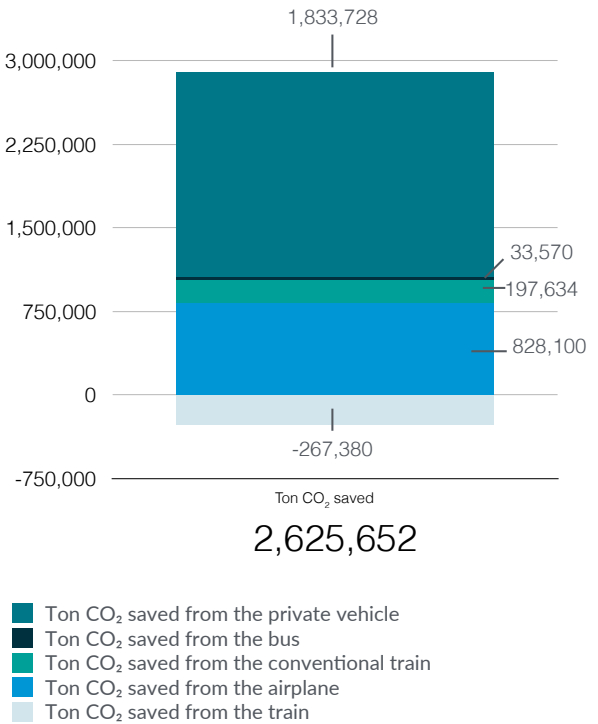
VALLADOLID - BURGOS - VITORIA H.S.L.

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | **SAVING OF TONS OF CO_2**

SAVING OF TONS OF CO_2

The savings of CO_2 by the traveler's km of each mean of transport for the total of the analysis period (30 years) are the ones below:

VALLADOLID-BURGOS-VITORIA HSL	Total (30 years)	Annual average saving
Ton CO_2 saved from the private vehicle	1,833,728	61,124
Ton CO_2 saved from the bus	33,570	1,119
Ton CO_2 saved from the conventional train	197,634	6,588
Ton CO_2 saved from the airplane	828,100	27,603
Ton CO_2 issued from the train	-267,380	-8,913
TOTAL Tons CO_2 SAVED	**2,625,652**	**87,522**



Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

MADRID - EXTREMADURA HIGH-SPEED LINE

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

MADRID - EXTREMADURA H.S.L.

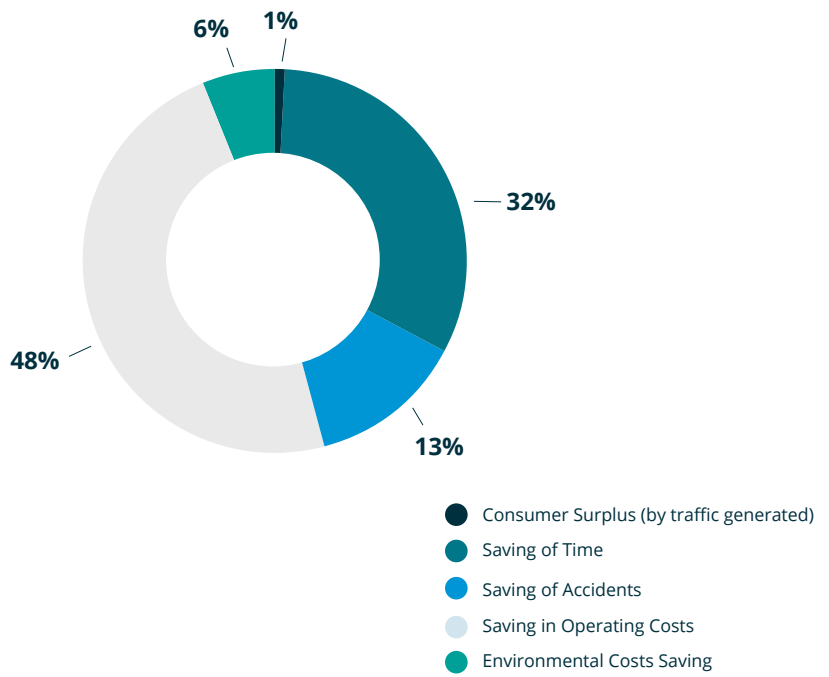
SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | SAVING OF TONS OF CO_2

SAVING OF EXTERNAL COSTS

These results are calculated for a 30 year evaluation period since the implementation of the first phase of the project (2019).

The total of the savings (expressed in NPV at 2019 at 3%, thousand Euros of 2015) of this line is the one below:

Savings (Thousands of Euros of 2015)	4,832,143
Travellers	
Surplus of the Consumer (by generated traffic)	56,896
Saving of Time	1,539,693
Saving of Accidents	564,623
Saving in Operating Costs	2,187,992
Saving in environmental costs	195,553
Freight	
Saving of Accidents	55,335
Saving in Operating Costs	153,249
Saving in Environmental Costs	78,803



Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

MADRID - EXTREMADURA H.S.L.

SAVINGS OF EXTERNAL COSTS | **TIME SAVINGS** | MODAL TRANSFER | SAVING OF TONS OF CO_2

SAVINGS OF TIME

The total hours saved along the 30 years of study are summarized in the chart below:

Global summary	Total (30 years)	Annual average saving
Thousand hours saved	123,826	4,128

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

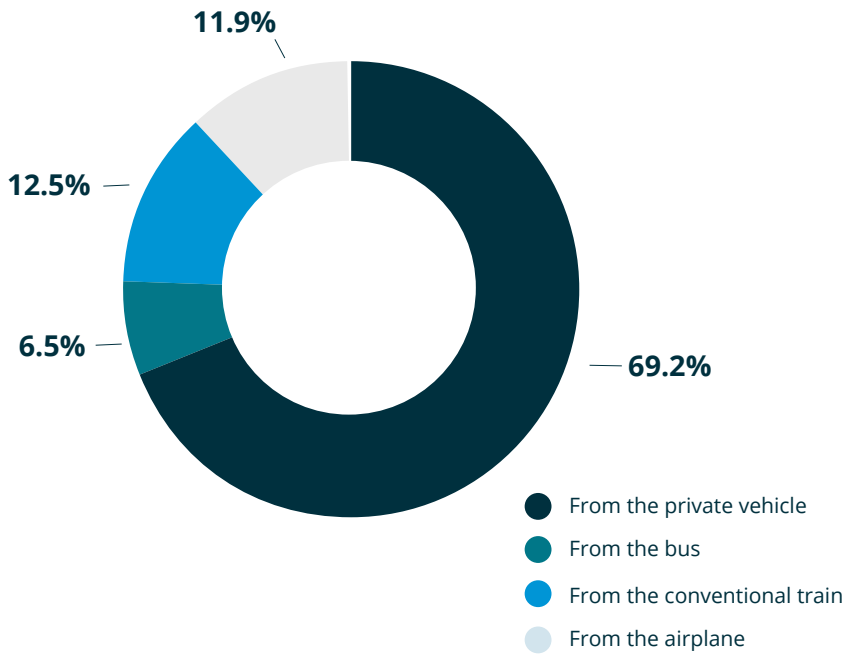
MADRID - EXTREMADURA H.S.L.

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | **MODAL TRANSFER** | SAVING OF TONS OF CO_2

MODAL TRANSFER

Below it appears summarized the Travelers Km transferred from each transport mean and the graphic of percentages of modal transfer:

Travelers km transferred (thousands)	Total (30 years)	Annual average saving
From the private vehicle	31,844,059	1,061,469
From the bus	2,982,067	99,402
From the conventional train	5,731,036	191,035
From the airplane	5,474,636	182,488
TOTAL Thousands of Travellers.km transferred	**46,031,797**	**1,534,393**



On the other hand, it can be noted that from the total traveler's km in high speed, a 7.9% corresponds to the travelers induced. From the travelers transferred, the greater percentage comes from the private vehicle with a 69.2%, followed by the private vehicle with a 11.9%.

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

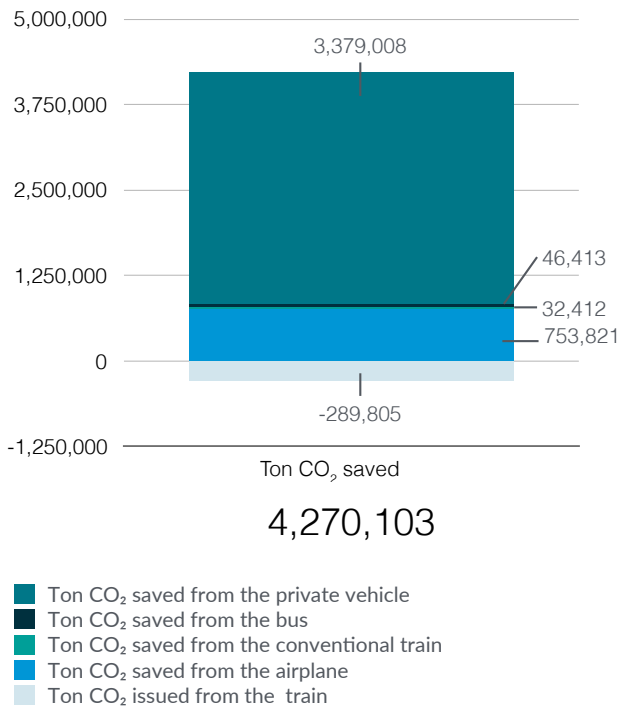
MADRID - EXTREMADURA H.S.L.

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | **SAVING OF TONS OF CO_2**

SAVING OF TONS OF CO_2

The savings of CO_2 due to the travelers km transferred of each mean of transport for the total analysis period (30 years) are the ones below:

MADRID – EXTREMADURA HSL	Total (30 years)	Annual average saving
Ton CO_2 saved from the private vehicle	3,379,008	112,634
Ton CO_2 saved from the bus	46,413	1,547
Ton CO_2 saved from the conventional train	32,412	1,080
Ton CO_2 saved from the airplane	753,821	25,127
Ton CO_2 saved from the truck	348,254	11,608
Ton CO_2 saved from the train	-289,805	-9,660
TOTAL Tons CO_2 SAVED	**4,270,103**	**142,337**



Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

MADRID - GALICIA HIGH-SPEED LINE

OLMEDO-ZAMORA-OURENSE-SANTIAGO DE COMPOSTELA SECTION

adif ALTA VELOCIDAD

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

MADRID - GALICIA H.S.L.

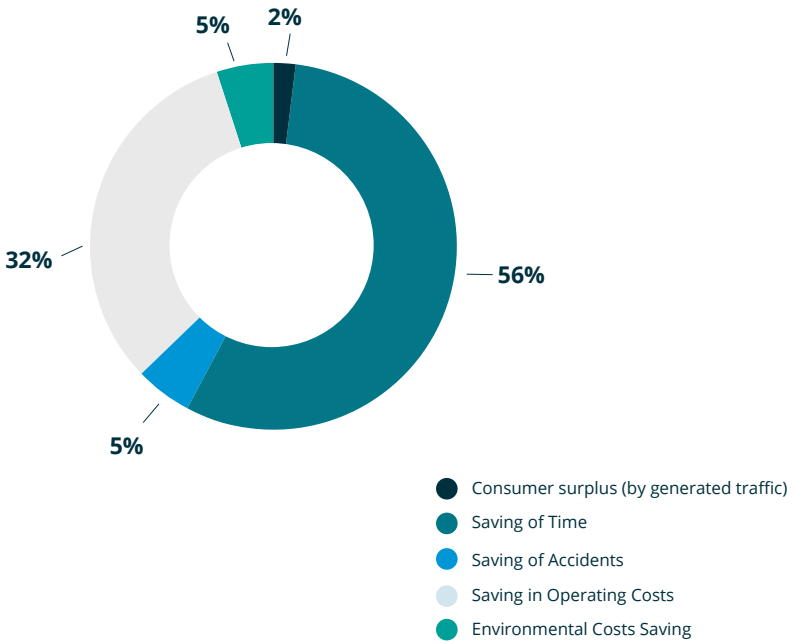
SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | SAVING OF TONS OF CO_2

SAVINGS OF EXTERNAL COSTS

These results are calculated for a period of evaluation of 30 years since the implementation of the first phase of the project (2015).

The total savings (expressed in NPV at 2015 at 5.5%, thousand Euros of 2012) of this line is the one below:

Savings (Thousands of Euros of 2012)	5,580,692
Surplus of the Consumer (by generated traffic)	125,238
Saving of Time	3,122,052
Saving of Accidents	287,101
Saving in Operating Costs	1,760,930
Environmental costs savings	285,371



Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

MADRID - GALICIA H.S.L.

SAVINGS OF EXTERNAL COSTS | **TIME SAVINGS** | MODAL TRANSFER | SAVING OF TONS OF CO_2

SAVINGS OF TIME

The total hours saved along the 30 years of the study are summarized in the following chart:

Global summary	Total (30 years)	Annual average saving
Thousands of hours saved	202,905	6,763

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

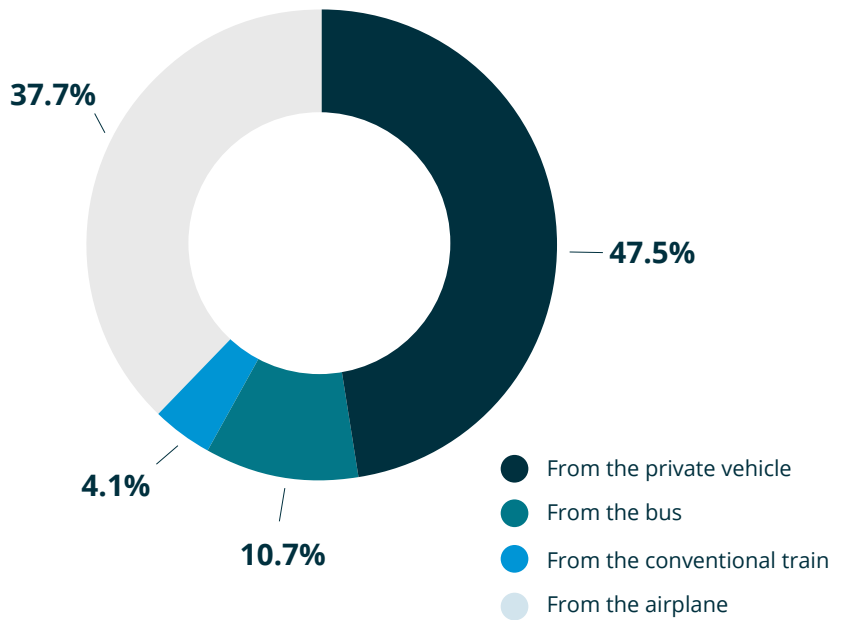
MADRID - GALICIA H.S.L.

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | **MODAL TRANSFER** | SAVING OF TONS OF CO_2

MODAL TRANSFER

Below it appears summarized the Travelers km transferred of each transport mean and the graphic of percentages of modal transfer:

Travelers km transferred (thousands)	Total (30 years)	Annual average
From the private vehicle	18,275,843	609,195
From the bus	4,111,011	137,034
From the conventional train	1,589,269	52,976
From the airplane	14,526,314	484,210
TOTAL Thousands of Travellers.km transferred	**38,502,437**	**1,283,415**



On the other hand, it can be highlighted that from the total traveler's km in high speed, a 7.6% corresponds to the travelers induced. From the travelers transferred, the greater percentage comes from the private vehicle with a 47.5%, followed by the airplane with a 37.7%.

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

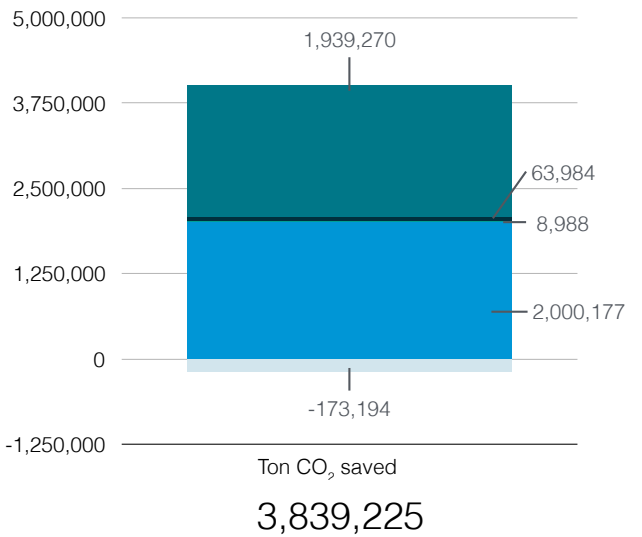
MADRID - GALICIA H.S.L.

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | **SAVING OF TONS OF CO_2**

SAVING OF TONS OF CO_2

The savings of CO_2 by the travelers km transferred from each mean of transport for the total of the analysis period (30 years) are the ones below:

ANTEQUERA-GRANADA HSL	Total (30 years)	Annual average saving
Ton CO_2 saved from the private vehicle	1,939,270	64,642
Ton CO_2 saved from the bus	63,984	2,133
Ton CO_2 saved from the conventional train	8,988	300
Ton CO_2 saved from the airplane	2,000,177	66,673
Ton CO_2 issued from the train	-173,194	-5,773
TOTAL Tons CO_2 SAVED	**3,839,225**	**127,974**



Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

ATLANTIC AXIS HIGH-SPEED LINE

SANTIAGO DE COMPOSTELA - VIGO SECTION

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

ATLANTIC AXIS H.S.L. / SANTIAGO-VIGO

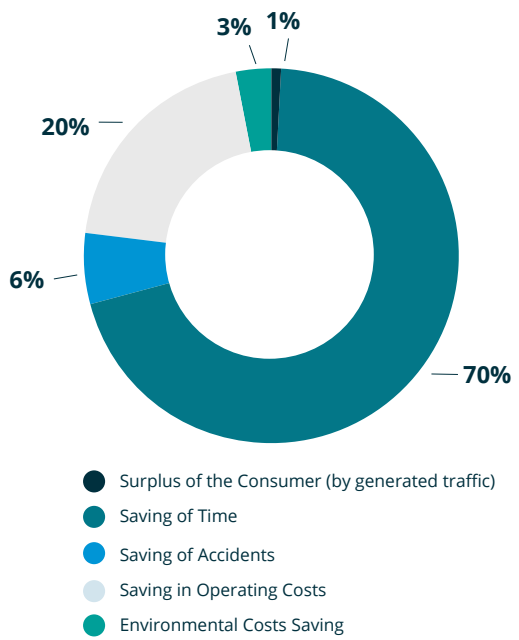
SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | SAVING OF TONS OF CO_2

SAVINGS OF EXTERNAL COSTS

These results are calculated for a period of evaluation of 30 years since the implementation of the first phase of the project (2016).

The total of the savings (expressed in NPV at 2016 at 3%, thousands of Euros of 2015) of this line is the one below:

Savings (Thousands of Euros of 2016)	2,265,564
Surplus of the Consumer (by generated traffic)	23,650
Saving of Time	1,592,161
Saving of Accidents	132,420
Saving in Operating Costs	461,022
Environmental Costs Saving	56,311



Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

ATLANTIC AXIS H.S.L. / SANTIAGO-VIGO

SAVINGS OF EXTERNAL COSTS | **TIME SAVINGS** | MODAL TRANSFER | SAVING OF TONS OF CO_2

SAVINGS OF TIME

The total hours saved along the 30 years of the study are summarized in the following chart:

Global summary	Total (30 years)	Annual average saving
Thousands of hours saved	84,509	2,817

Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

ATLANTIC AXIS H.S.L. / SANTIAGO-VIGO

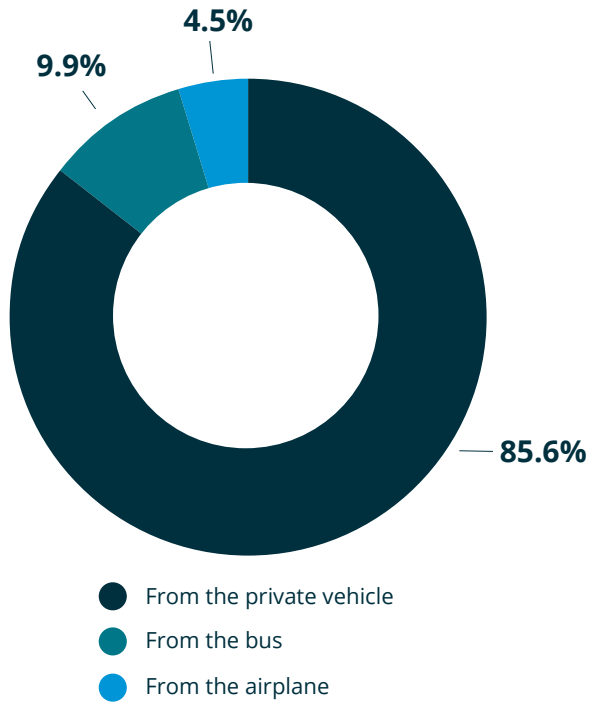
SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | **MODAL TRANSFER** | SAVING OF TONS OF CO_2

MODAL TRANSFER

Below it appears the summary of the Travelers km transferred from each transport mean and the graphic of percentages of modal transfer:

Travelers km transferred (thousands)	Total (30 years)	Annual average
From the private vehicle	6,427,144	214,238
From the bus	741,883	24,729
From the airplane	339,677	11,323
TOTAL Thousands of Travellers.km transferred	**7,508,705**	**250,290**

On the other hand, it can be highlighted that from the total traveler's km in high speed, 1% corresponds to the travelers induced. From the travelers transferred, the greater percentage comes from the private vehicle with an 85.6% and afterwards from the bus with a 9.9%.



Proyects Category 1 / INDICATORS OF FORSEEN IMPACT BROKEN DOWN BY LINES

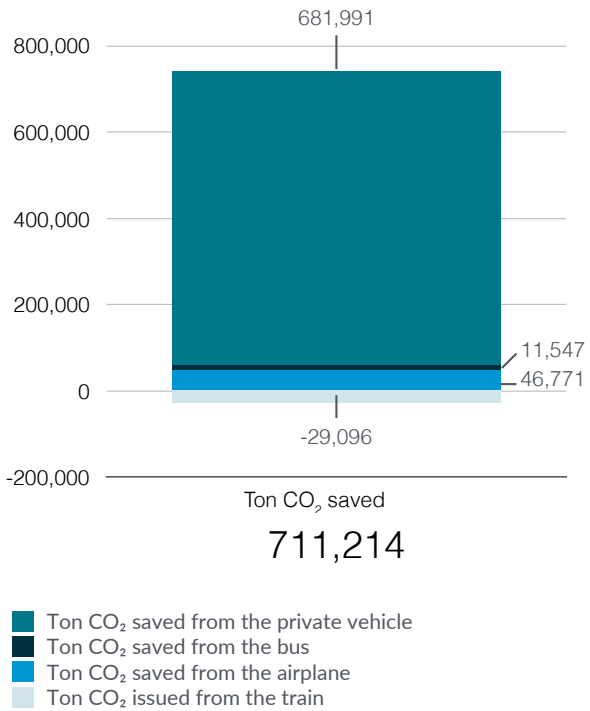
ATLANTIC AXIS H.S.L. / SANTIAGO-VIGO

SAVINGS OF EXTERNAL COSTS | TIME SAVINGS | MODAL TRANSFER | **SAVING OF TONS OF CO_2**

SAVING OF TONS OF CO_2

The savings of CO_2 by the travelers km transferred from each mean of transport for the total of the analysis period (30 years) are the ones below:

SANTIAGO – VIGO HSL	Total (30 years)	Annual average saving
Ton CO_2 saved from the private vehicle	681,991	22,733
Ton CO_2 saved from the bus	11,547	385
Ton CO_2 saved from the airplane	46,771	1,559
Ton CO_2 issued from the train	-29,096	-970
TOTAL Tons CO_2 SAVED	**711,214**	**23,707**



Projects Category 2

Investments in projects intended to improve the energy efficiency of the railway system and to promote the sustainability of the high speed railway system

JUN 2020

INDICATORS OF FORESEEN IMPACT

REVERSIBLE SUBSTATIONS

Projects Category 2 / INDICATORS OF FORESEEN IMPACT

REVERSIBLE SUBSTATIONS

Below it appears the estimation of annual saved energy and avoided CO_2 emissions once the energy recovery systems have been implemented in the indicated substations.

REVERSIBLE SUBSTATIONS	Energy saved (GWh)	Emissions avoided (ton CO2)
Installation of a converter which recuperates energy of the regenerative braking in the substation of Alcorcón	2,531	585
Installation of a converter which recuperates energy of the regenerative braking in the substation of Guarnizo	1,146	265
Installation of a converter which recuperates energy of the regenerative braking in the substation of Olabeaga	2,217	513
Installation of a converter which recuperates energy of the regenerative braking in the substation of Getafe	1,303	301
Installation of a converter which recuperates energy of the regenerative braking in the substation of Martorell	1,728	400
Installation of a converter which recuperates energy of the regenerative braking in the substation of Arenys de Mar	1,526	353
TOTAL 6 SUBSTATIONS	**10,451**	**2,417**

ALLOCATION OF FUNDS TO
ELIGIBLE GREEN PROJECTS

JUN 2020

As indicated at the beginning of this report, the net amount of the funds obtained from the third Green Bond of Adif Alta Velocidad, has been divided between the two categories of Eligible Green Projects: “Investments related to new lines and expansions of existing lines” and “Investments related to maintenance, upgrades and energy efficiency of the rail system” established in the Green Financing Framework.

The first category, and recipient of the greatest part of the funds obtained, “Investments related to new lines and expansions of existing lines”, includes projects of construction of high speed lines which are already being executed or that are planned to be, as well as lines already in service. The detail of such investments, performed in the years 2018 and 2019, is the following:

HIGH SPEED LINES	**EXECUTED AMOUNT 2018 - 2019 (thousand euros)**	**FUNDING WITH GREEN BOND 2019 (thousand euros)**	**GREEN BOND ALLOCATION (%)**
MADRID-LEVANTE H.S.L.	136,465.16	101,355.98	16.94%
ANTEQUERA-GRANADA H.S.L.	62,016.52	14,982.05	2.50%
VALLADOLID-BURGOS-VITORIA H.S.L.	56,112.49	10,304.75	1.72%
MADRID-EXTREMADURA H.S.L.	202222,30	86,056.39	14.39%
MADRID-GALICIA H.S.L. (OLMEDO-LUBIAN-ORENSE-SANTIAGO)	770,472.37	374,847.78	62.67%
ATLANTIC AXIS (SANTIAGO - VIGO)	32,474.66	9,046.21	1.51%
TOTAL	**1,259,763.50**	**596,593.16**	**99.74%**

ALLOCATION OF FUNDS TO

ELIGIBLE GREEN PROJECTS

In addition to the mentioned information, a minor part of the funds has been forwarded to the second category, **"Investments related to maintenance, upgrade and energy efficiency of the rail system"**. Particularly, they have been applied to the project "Reversible Substations".

Below such investments, that were performed in the years 2018 and 2019, are detailed:

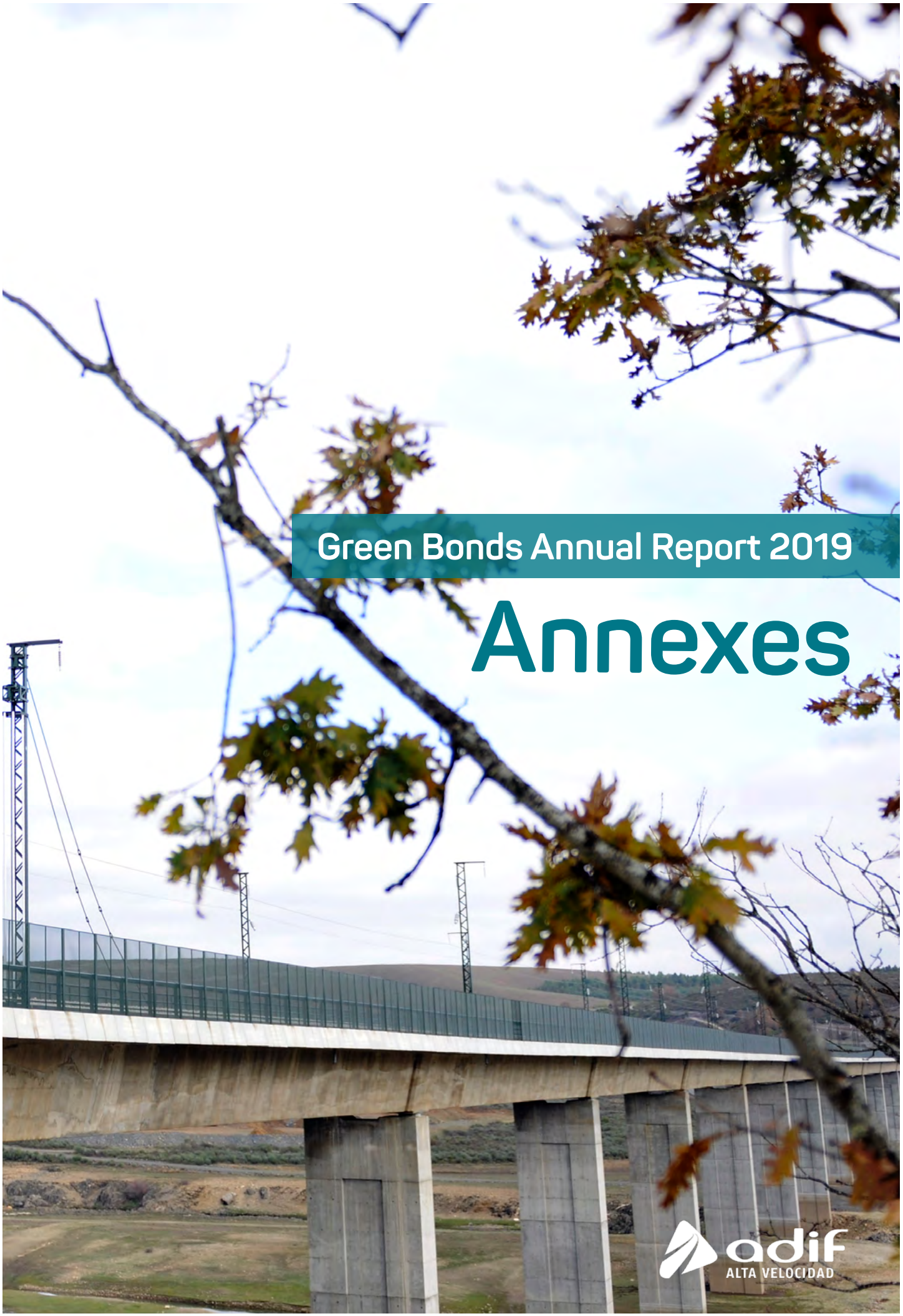
ENERGY EFFICIENCY PROJECTS	EXECUTED AMOUNT 2018 - 2019 (thousand euros)	FUNDING WITH GREEN BOND 2019 (thousand euros)	GREEN BOND ALLOCATION (%)
Reversible Substations (Alcorcón)	643.79	161.61	0.03%
Reversible Substations (Guarnizo)	609.06	203.42	0.03%
Reversible Substations (Olabeaga)	652.06	395.24	0.07%
Reversible Substations (Getafe)	698.06	197.27	0.03%
Reversible Substations (Martorell)	583.30	341.19	0.06%
Reversible Substations (Arenys de Mar)	457.02	284.10	0.05%
TOTAL	**3,643.28**	**1,582.83**	**0.26%**

ALLOCATION OF FUNDS TO

ELIGIBLE GREEN PROJECTS

In summary, the detail of the total allocation of the funds corresponding to the green bond issue in 2019 would remain as follows:

SUMMARY OF ALLOCATION OF FUNDS	FUNDING WITH GREEN BOND 2019 (thousand euros)	GREEN BOND ALLOCATION (%)
Category 1: High Speed Lines	596,593.16	99.74%
Category 2: Reversible substations	1,582.83	0.26%
TOTAL ALLOCATED	**598,176.00**	**100.00%**
Funds pending of allocation	0.00	0.00%
TOTAL	**598,176.00**	**100.00%**



Green Bonds Annual Report 2019

Annexes

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INDEPENDENT ASSURANCE REPORT ON THE GREEN BONDS ANNUAL REPORT 2019

To the President of ENTIDAD PÚBLICA EMPRESARIAL ADIF – ALTA VELOCIDAD.

Scope of the work

We have performed a reasonable assurance engagement on the of contents of Tables of the section "Application of the Funds to Green Eligible Projects" of the Annual Green Bonds Report 2019 (hereinafter, Green Bonds Report), of ENTIDAD PÚBLICA EMPRESARIAL ADIF – ALTA VELOCIDAD, (hereinafter ADIF-AV or the Entity).

In particular, the specific aspects that we have confirmed about the aforementioned information are the following:

- That the net funds received by the Entity for the issuance of the Green Bonds, made on April 25, 2019, coincides with the net funds stated in the Green Bonds Report.
- That the typology of the projects in which the investments have been materialized, stated in the Green Bonds Report, corresponds to one of the two categories of "eligible green projects" indicated in the Entity's Green Bond Framework.
- That the investment made in the eligible green projects, stated in the Green Bonds Report, is greater than the net funds received from the Green Bonds issue, made on April 25, 2019.

Inherent limitations

Our assurance work has not included the evaluation of the risks of material misstatements due to fraud or error, nor the evaluation of the control environment, nor of the internal control implemented by the Entity for the adequate preparation and presentation of the information included in the Green Bonds Report.

Responsibility of ADIF-AV's Management

The preparation of the Green Bond Annual Report and its contents are the responsibility of ADIF-AV's Management, which is also responsible for establishing, implementing and maintaining the internal control and management systems where information is obtained.

Our responsibilities

Our responsibility is to issue an independent assurance report, based on work performed in accordance with the provisions of ISAE 3000 "Assurance Engagements Other Than Audits or Reviews of Historical Financial Information" issued by the International Auditing and Assurance Standards Board (IAASB) from the International Federation of Accountants (IFAC) for a reasonable level of assurance.

This standard requires planning and applying procedures to obtain sufficient evidence to reduce the risk of the assignment to an acceptably low level, according to the circumstances thereof, as a basis for expressing a conclusion.

For the purpose of this report, we have asked Management and the units of ADIF-AV which have participated in the preparation of ADIF-AV's Green Bond Annual Report various questions and we have applied certain procedures including, in general and amongst others, the following procedures:

- Obtaining and reading of the Green Bonds Report issued by the Entity.
- Meetings with ADIF-AV's staff and management at a corporate level and at the level of its business of the Green Bonds projects, to ascertain the nature of the projects financed by Green Bonds and the correct allocation of the funds.
- Verify the cash receipts, in the bank account of the Entity, of the net funds received for the issuance of Green Bonds, made by the Entity on April 25, 2019, by reviewing the corresponding bank statements.
- Confirm that the typology of the projects in which the investments stated in the Green Bonds Report have materialized corresponds to one of the two categories of "eligible green projects" indicated in the Entity's Green Bond Framework.
- We have confirmed whether the investment made in the eligible green projects, stated in the Green Bonds Report, is greater than the net funds received from the Green Bonds issue made on April 25, 2019, by reviewing the main corresponding supporting documentation of the investment.
- Confirm, where appropriate, that the amount of funds obtained from the issuance of Green Bonds not applied to the investment of "eligible green projects" are invested in a responsible manner, in bank deposits, cash or equivalents, as indicated in the Framework of Green Bonds of the Entity.
- Obtaining and reading of the "Second opinion on ADIF-Alta Velocidad's Green Bond Framework", issued by an independent expert.

We consider that the evidence which we have obtained provides an adequate basis for our conclusions, drawing attention to what is indicated in the section on inherent limitations.

Our independence and quality control

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants (IESBA), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior

Our firm applies International Standard on Quality Control 1 (NICC 1) and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Conclusion

In our opinion, based on the procedures performed, we conclude that:

1) The net funds that ADIF-AV has received for the issuance of Green Bonds, made on April 25, 2019, coincides with the net funds stated in the Green Bonds Report.

2) The typology of the projects in which the investments have materialized, stated in the Green Bonds Report, corresponds to one of the two categories of "eligible green projects" indicated in the Entity's Green Bond Framework.

3) The investment made in the eligible green projects, stated in the Green Bonds Report, is greater than the net funds received from the Green Bonds issue, made on April 25, 2019.

Other matters

This work does not constitute an audit of accounts nor is it subject to the regulations governing the audit activity in force in Spain, and therefore we do not express an audit opinion in the terms provided in the aforementioned regulations.

PKF ATTEST Servicios Empresariales, S.L.

Alfredo Ciriaco

June 12, 2020

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