



The South Europe Atlantic high-speed line
PARIS-BORDEAUX IN 2 HOURS
SUMMER 2017

PRESS KIT
2016

LISEA

LIGNE À GRANDE VITESSE SUD EUROPE ATLANTIQUE

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VIDEOS

www.youtube.com/user/LGVSEAToursBordeaux

NEWS

Concession company news on

www.lisea.fr

and works news on

www.lgv-sea-tours-bordeaux.fr

Twitter: @LGVSEA_LISEA

Facebook:
Partenaire des territoires LGV-SEA-Tours-Bordeaux-2017

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Paris-Bordeaux in 2 hours, from the summer of 2017

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BRINGING PEOPLE AND REGIONS CLOSER TOGETHER

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OPTIMISING MOBILITY SOLUTIONS

Construction of the South Europe Atlantic high-speed line (HSL), a major public interest project, will provide a continuous high-speed rail link between Paris and Bordeaux. With trains travelling at a cruising speed of 320 km/h, the two cities will be only two hours apart. Works started in 2012 and will be completed in 2017. The challenge: to build 340 km of new line (including 38 km of connecting lines) between Tours and Bordeaux in just five years, on an alignment that passes through 113 municipalities, six departments and three regions. This exemplary project will drive development and boost the attractiveness of France's southwest regions.

CUTTING TRAVEL TIMES

The primary goal of this new infrastructure is to cut travel times. The Paris-Bordeaux leg will take two hours, shaving more than an hour off the current time, with similar time gains for travel between Tours and Bordeaux (1 hour 30 instead of 2 hours 30) and between Poitiers and Bordeaux (less than one hour).

SERVING THE REGIONS

As part of its concession contract, LISEA commits to serving the main stations of the existing rail network through connections between the HSL and the existing line. 10 connecting lines – 38 kilometres of new rail sections – will be built at Saint Avertin, Monts, Celle St Avant, Migné Auxances, Fontaine le Comte (two connections), Juillé, Villognon, Couronne and Ambarès et Lagrave.

DRIVING ECONOMIC DEVELOPMENT

Another important objective is to reinforce the trans-European route linking the regions of northern and eastern Europe to southwest France via the Atlantic seaboard. Providing access to a dense and connected network will drive economic development by boosting the attractiveness of the regions concerned: greater competitiveness and broader access to markets for companies, an incentive to attract new businesses and boost tourism by encouraging short-stay visits.

MEETING THE EXPECTATIONS OF REGIONAL STAKEHOLDERS

As shown by the Lyon and Marseille routes, the arrival of a high-speed line in a region offers strong development potential. The opening up of the HSL between Paris and Bordeaux will act as an accelerator of attractiveness for the entire southwest Europe corridor. The stakes are enormous and call for close collaboration with local authorities in order to blend time gains, an increase in service frequencies and more rational organisation of traffic between the HSL and the existing line.



THE Tours-Bordeaux SEA HSL will **supplement** the existing rail line, supporting development of **more transport, more intermodality** in stations and **more REGIONAL RAIL SERVICE**.

BORDEAUX, FUTURE EUROPEAN CAPITAL

Almost 20 million passengers are expected on the Paris-Bordeaux route when the SEA HSL comes into service in 2017. According to a survey carried out by market study expert COHDA for LISEA⁽¹⁾, almost 60% of households and business respondents say they would travel to Paris more often, while almost 70% of households and 80% of company heads say they would use the TGV high-speed train in preference to other means of transport. But their expectations also concern service frequency: half the households, companies and municipalities polled would like a direct TGV service every hour. This market projection would rank Bordeaux among Europe's most important capitals in terms of attractiveness.



Euratlantique, the Garonne Eiffel project in Bordeaux

WWW Find the complete study on our website: www.lisea.fr

(1) About the study:
Telephone survey conducted by the COHDA Institute from 23 September to 6 October 2014:
- 300 interviews with companies representative of the economic fabric of the Gironde department (83%) and the Toulouse urban area (17%).
- 181 interviews with municipalities in the Aquitaine region (94%) and the Toulouse urban area (6%), of which 42% with more than 2,000 inhabitants and 58% with less than 2,000.
- 750 interviews with a representative sample of people aged 15 and over, living in the Gironde department, in municipalities in the Aquitaine region with more than 10,000 inhabitants (60%), the Toulouse urban area and Montauban (40%).

Neighbourhood regeneration

The arrival of the HSL will have a **crucial impact** on regional development. This type of infrastructure is a strong driver for **development of major urban projects**, particularly around railway stations.

In **Bordeaux**, the national interest (OIN) urban development project **Euratlantique** will combine creation of a service sector business park and a residential programme on almost 1,000 hectares around **Saint Jean railway station**.

In **Angoulême**, 35 hectares will be developed, with the creation of a **multimodal urban transport hub**, office space, shops and residential units around the station.

TRAVEL TIMES: COMPARISON BETWEEN THE EXISTING LINE AND THE SEA HIGH-SPEED LINE⁽²⁾

JOURNEY	2007	2017
Paris - Poitiers	1hr26	1hr17
Paris - Angoulême	2hr05	1hr40
Paris - Bordeaux	3hr00	2hr05
Paris - La Rochelle	2hr50	2hr27
Bordeaux - Tours (Saint-Pierre-des-Corps)	2hr30	1hr30
Bordeaux - Angoulême	0hr52	0hr35
Poitiers - Bordeaux	1hr32	0hr55
Poitiers - Angoulême	0hr44	0hr37
Poitiers - Tours (Saint-Pierre-des-Corps)	0hr47	0hr30
Tours (Saint-Pierre-des-Corps) - Angoulême	1hr32	1hr07
Paris - Toulouse	4hr56	4hr03

(2) Sources: SNCF and SNCF Réseau 2007 - Indicative travel times based on averages



CLEAN TRANSPORT

An energy- and space-efficient system, the train is one of the most environmentally friendly modes of transport. The decision to develop high-speed lines – including the SEA HSL – in the framework of the Grenelle Environment Forum in 2007 was motivated by the need to provide more alternatives to air and road transport.



The Dordogne viaduct on the HSL will help cut Paris-Bordeaux travel time to two hours

COMPETITIVE ADVANTAGE OVER THE AIRPLANE

The significant reduction in travel times brought by the SEA HSL will be crucial in boosting the competitive advantage of the train over the airplane and will automatically generate a modal shift. According to forecasting studies, the market share of rail is set to increase from 70% to 90% of the rail/air breakdown, which

will make a strong contribution to reducing the transport-related carbon footprint of people using the future line.

In addition, improved connections in city centre stations will open the way to new services fostering intermodality with other urban transport networks (light rail, buses, etc.).

AND AN INCREASE IN FREIGHT TRAFFIC

Another advantage of this new line: reduction of freight transport on roads. The HSL will free up slots on the existing line for freight trains, which will strengthen the development of rail freight.

This is a particularly important objective since it corresponds perfectly with the measures taken by the Ministry of Ecology, Sustainable Development and Energy in February 2013 to encourage this mode of freight transport.



A daily high-speed rail round trip between Paris and Bordeaux filled with passengers travelling by rail rather than AIR avoids 50,000 TONNES of CO₂ equivalent per year



AN INNOVATIVE PARTNERSHIP

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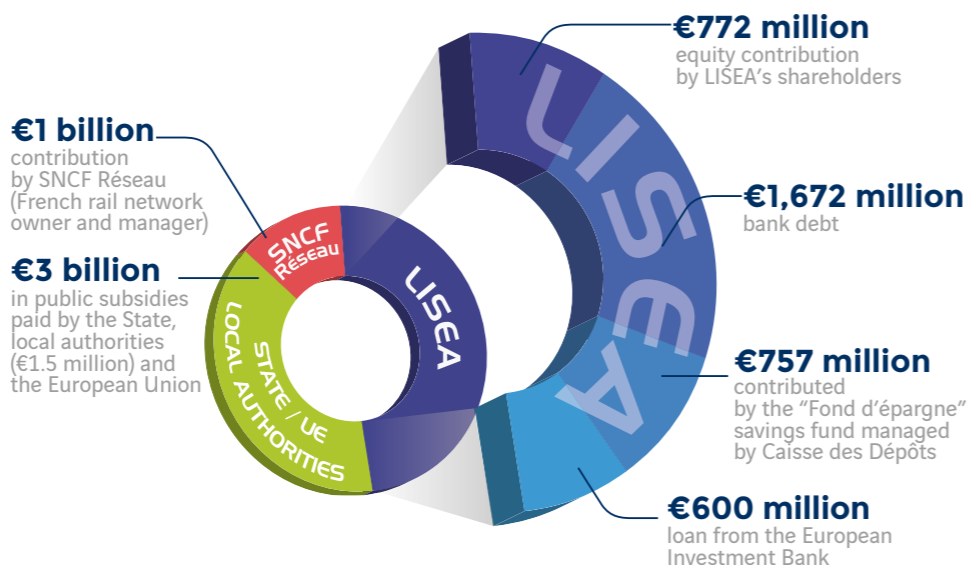
A 50-YEAR RAIL CONCESSION

Construction of the SEA HSL, a public interest project involving a total investment of €7.8 billion, is financed in the framework of a **50-year concession contract**. It is the first time that this procedure has been used in France to build a high-speed rail line. This choice, made in line with the recommendations of the State, answers to a rationale of effectiveness: shorter construction lead times, controlled and known costs and transfer of the traffic risk to the concession holder.

Following a call for tender, LISEA* was awarded the concession contract for the future line for a period of 50 years, i.e. until 2061. Its mission is to finance, design, build, operate and maintain the new 340 km rail infrastructure throughout the concession period. The project represents a public-private investment of €7.8 billion, with 50% provided by public funds.

LISEA ASSUMES RESPONSIBILITY FOR ALL OPERATIONS

As programme manager responsible for the private financing component, LISEA assumes the risks related to design, construction, operation and maintenance of the line. In return it will receive fees for use of the line, paid directly by the rail operators. The price of train tickets is set by the SNCF in accordance with its commercial choices and the cost price on national links, or by other European railway companies on international links (Thalys, Eurostar, etc.).



PROJECT PLAYERS: LISEA, COSEA, MESEA

LISEA has contracted the design and construction of the SEA Tours-Bordeaux HSL to the COSEA joint venture led by VINCI Construction. As soon as the line enters service, operation and maintenance will be contracted to MESEA**.



A tightly regulated concession: the STATE'S commitments

The State has made over **1,350 commitments** covering the technical and environmental aspects of the project and reduction of negative impacts for nearby residents. LISEA's compliance with these commitments is regularly monitored by SNCF Réseau and by the Prefects of the six departments concerned. In addition, the action taken by LISEA, COSEA and MESEA is monitored by independent organisations - the Independent Technical Agent (ITA) and the Independent Safety Assessor (ISA). Furthermore, the EPSF (French Railway Safety Authority) will deliver an authorisation for the line, enabling it to transport passengers.

* LISEA shareholders: VINCI Concessions, VINCI SA, CDC Infrastructure, Meridian, FININFRA SA, AXA Infrastructure Investissement, AXA UK Infrastructure Investissement (fund managed by Ardian).
 ** MESEA shareholders: VINCI Concessions and Systra

AN INNOVATIVE PARTNERSHIP

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MESEA: RESPONSIBLE FOR SATISFACTORY OPERATION OF THE LINE UNTIL 2061

During the concession period, the main focus will be on operation and maintenance of the high-speed line. MESEA will be responsible for ensuring safety and performance throughout the concession period, from the start of commercial operation in July 2017 until 2061.

MESEA'S MISSION

From the maintenance bases at Clérac, Villognon, Poitiers and Nouâtre Maillé, MESEA will have responsibility for maintaining the Tours-Bordeaux high-speed line for a period of 44 years to support 24/7 operation of trains at 320 km/hr while ensuring:

- > optimum comfort and safety for passengers and rail operators
- > full safety for personnel
- > continuous improvement and social, technical and economic performance.

SAFETY AND PERFORMANCE ACROSS THE BOARD

To ensure faultless safety, reliability, availability and comfort on the Tours-Bordeaux high-speed line, MESEA continuously monitors operations and performs corrective and preventive maintenance.

MESEA's responsibility comprehensively covers all components of the rail infrastructure including surroundings, engineering structures, tracks, overhead catenary lines and signalling systems.

150 JOBS CREATED IN 2016

In 2016, MESEA is putting together its teams to ensure they are operational when the Tours-Bordeaux high-speed line opens in July 2017. MESEA will have a staff complement of 170. During the recruitment phase, MESEA has forged partnerships with Pôle Emploi, giving priority to local, sustainable employment.

Job openings are available on the Pôle Emploi and MESEA websites.

www.mesea.fr



The MESEA shareholders are VINCI Concessions (70%), a private partner serving the public interest and world leader in concessions, and SYSTRA (30%), a world leader in transport infrastructure with a track record going back more than 50 years. MESEA will have 170 employees in 2017.





MAINTAINING A LOCAL PRESENCE AND DIALOGUE

The final alignment of the HSL is the result of a long process of consultation initiated by SNCF Réseau in 2001, which made it possible to establish a compromise between technical, economic and environmental considerations.

LISEA took over the baton in 2010 by reaching out to local stakeholders in the regions crossed. The goal of this consultation was to give elected officials an opportunity to express their fears and needs, ensure understanding and acceptance of the project by all local residents, provide explanations and alleviate tensions.

MORE THAN 150 PUBLIC MEETINGS

More than 150 public meetings were organised in the municipalities crossed on the launch of infrastructure and civil engineering works. These events allowed the teams to present their works schedule and methods, while local residents were able to find answers to their questions.

ACQUISITION OF PARCELS: PRIORITY TO DIALOGUE

In parallel, a vast programme of dialogue and conciliation was launched with owners and farmers in the framework of acquisition of the land required for the alignment. The crux of the challenge was to reconcile release of land within a limited time frame and the need for close enough dialogue to identify the stakes and, where necessary, propose individual solutions. In the overwhelming majority of cases, the acquisition of parcels and homes went ahead under friendly settlement.



Guided visits for an inside view of the worksites

Since 2013, LISEA has been organising guided visits to the worksites through four itineraries starting from Jaunay Clan, Sorigny, Mansle and Ambarès et Lagrave. The initiative has been a success: in the two campaigns organised, **over 20,000 visitors were able to discover this enormous worksite, from the inside.** The visits for the general public were set up through partnerships with the local tourist sector and are supplemented by exceptional open day events.

A strong emphasis on information



To support the dialogue process, LISEA has set up tools for informing local communities: a magazine, **LISEA Express** (190,000 copies published), a website (www.lisea.fr) a website for tracking progress in real time (www.lgv-sea-tours-bordeaux.fr) and **twitter** and **facebook** accounts.

Have a question? Get in touch with LISEA at contact@lisea.fr

In 2016, LISEA continues to engage with the regions as a partner in economic and innovation events in the regions crossed:

Top des entreprises, Créa'Vienne, Université des entreprises, Emergence, etc.



A MONUMENTAL PROJECT

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BUILDING THE ENGINEERING STRUCTURES

Given the sheer scale of the project, construction of the HSL richly deserves its appellation of “**Worksite of the Century**”. Never before in the history of construction in France has such a long stretch of track been built in a single continuous operation over so short a period. The task taken on by COSEA was to simultaneously build 500 engineering structures and lay 340 km of new rail line in less than five years. It required mobilising different worksite skills and logistics, implemented in successive phases.

PREPARATORY WORK AND CIVIL ENGINEERING, THE INFRASTRUCTURE PHASE

The first stage in construction of a high-speed line consists of all the infrastructure works (civil engineering, earthworks, rerouting of utilities and sanitation networks, etc.). It includes all the land preparation operations prior to installing the track bed. The first job is to realign the natural terrain, a task bringing enormous resources into play: 1,600 highly specialised machines moving 38 million cu. metres of backfill and 70 million cu. metres of excavated material. Numerous technical directives issued by SNCF Réseau and the regulatory agencies

had to be taken into account. For instance, the maximum gradient over the whole of the alignment is limited to 2.5% (barring special exemption). At the same time, the engineering structures were built simultaneously over the whole alignment by teams responsible for 18 works packages. At the height of activity in the summer of 2013, the energies of more than 8,500 people were harnessed to meet the challenges of this first phase of construction.

500 ENGINEERING STRUCTURES AND 10 CONNECTING LINES

This phase involves building 500 engineering structures, of which 50 particularly large non-standard structures, together with 10 connections to the existing rail lines criss-crossing the regions through which the HSL passes. They include viaducts, rail and road bridges, piled viaducts (identical to a bridge or viaduct but longer and lower), flyovers (to allow one rail line to cross over or under another line), cut-and-cover tunnels, passages for large fauna, small water channels, hydraulic basins and infiltration basins. Ranging from a few metres (standard engineering structures) to several hundred metres long (non-standard engineering structures), they allow the future line to cross roads, watercourses and other rail lines.

Innovative and impressive techniques

For several of the engineering structures built, COSEA teams had to resort to cutting-edge technical solutions, including the development of a high-strength concrete formula, for instance. Another specific technique used: tunnel jacking, whereby the structure is built next to its final location and pushed into place using hydraulic jacks, a technique that minimises traffic disruption.

UNITY, CONSISTENCY AND STYLE

The architects designing these engineering structures were guided by a desire for unity, consistency and style. Their reflection revolved around two objectives: integrating the structures as closely as possible into the landscape and conjuring up the final destination of the HSL, i.e. southern Europe and the sea. To this end, they used light-coloured concrete reflecting the limestone typical of the regions crossed, while the outer cladding on all the bridges is decorated with a wave motif.

A colossus bestriding the Dordogne River

Among these spectacular structures are the Migné Auxances viaduct, the Folie piled viaduct in Poitiers and the Couronne piled viaduct in Charente. But in terms of size and the means employed, the Dordogne viaduct posed the greatest challenge to COSEA's teams: at 1,319 metres, it is the line's longest viaduct and was built partly in the river itself, which presented numerous difficulties. Ten cranes and 200 people were employed on the different operations: laying the foundations in clay soil and raising the piers equipped with 8 to 13 piles driven to a depth of up to 41 metres, before construction of the deck. Each deck section was cast in place using formwork and installed according to the balanced cantilever method. Building this gigantic structure required 45,000 cu. metres of concrete.



A MONUMENTAL PROJECT

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CONSTRUCTION OF EUROPE'S LARGEST RAIL PROJECT

Unlike civil engineering, the railway equipment (or superstructure) works were carried out on a linear basis in successive phases at the rate of 650 metres of track bed equipped per day. This new organisational and logistics challenge taken up between the summer of 2014 and the second quarter of 2016 and will be followed by the dynamic testing phase.

TWO RAILWAY WORKSITE BASES, THE NERVE CENTRES OF THE PROJECT

Installation of all the railway equipment required construction of two specific railway worksite bases connected both to the existing rail network and the new HSL under construction: the 35-hectare Nouâtre base in the Indre et Loire department and the 40-hectare Villognon base in the Charente department, each responsible for two railway equipment worksites to the north and south of their locations respectively.

THE DIFFERENT STAGES OF THE RAILWAY EQUIPMENT WORKS

From the two railway worksite bases, the equipment was installed in a succession of 20 or so mobile worksites. The first stage is the installation of signalling and telecommunications equipment along the line and off it. This involved telecommunications and low voltage works (GSM-R, telephone, optical fibre, etc.) and related civil engineering. It also included access control and intrusion detection systems. The teams then installed catenary poles previously brought in by road and distributed sleepers along the track bed. Lastly, a first layer of ballast was installed (pre-ballasting). The project thus moved into the railway equipment phase and tracklaying was begun, consisting of:

- > Sleeper installation
- > Rail laying
- > Ballasting, lifting and stabilisation of the track
- > Catenary installation
- > Adjustment and inspection of the line

TWO TRACK-LAYING TECHNIQUES

Two track-laying techniques are implemented on the SEA Tours-Bordeaux high-speed line project.

> From Villognon: the "auxiliary track" method involving an 8 kilometre track built from 18 metre long panels of prefabricated track with wooden sleepers

> From Nouâtre: the "pusher wagon" technique, which was used in phase 2 of the East European HSL project. Here, the works train moves along the permanent track. The pusher wagon part of the works train delivers the rails to the point where they are to be laid and pushes them out in front. The "spider crane" then positions them on the sleepers.



 / 432 metre long continuous welded rails



The continuous welded rails (CWR) used on the SEA Tours-Bordeaux HSL are rolled as 108 metre rails at a Tata Steel rolling mill in Hayange (Lorraine). They are then sent to the SNCF workshop in Saulon la Chapelle (Burgundy) where they are welded together to form 432 metre long rails. These continuous welded rails are then delivered by works train to the two worksite bases and ultimately welded together.

2 railway WORKS BASES

1,400km OF CWR

1,100,000 CONCRETE SLEEPERS

3 millions tonnes OF BALLAST

CATENARIES: 14 000 POSTS : 640 KM WIRE

A MONUMENTAL PROJECT

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DYNAMIC TESTING IN 2016

2015

Railway equipment works

2016

Completion of railway equipment works
Systems testing
Superstructure inspection

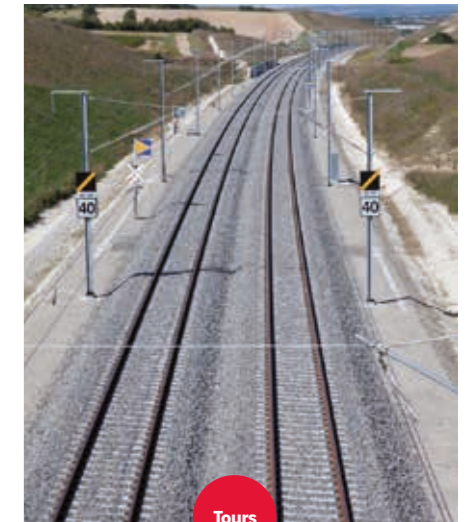
JUNE/SEPT.

Dynamic testing

JULY 2017
Start of SEA HSL operation

JUNE 2016: THE LINE IS ENERGISED AND DYNAMIC TESTING BEGINS

Dynamic testing of the SEA HSL will get under way when the catenary is energised at 2 x 25,000 Volts on a 120 km section between Mondion and Luxé in June 2016. This "central" section will be used to perform the first full-speed testing on the new line starting in the summer of 2016. In September, the northern and southern parts of the line will be energised and the series of tests will be completed.



NORTHERN SECTION
September

CENTRAL SECTION
June

SOUTHERN SECTION
September





A PROJECT THAT RESPECTS THE REGIONAL HERITAGE

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In infrastructure projects such as the South Europe Atlantic Tours-Bordeaux high-speed line, the State requires the concession holder to respect the regional heritage. LISEA, COSEA and their dedicated teams complied with these stringent commitments both in terms of archaeology and biodiversity.

THE BIGGEST RESCUE ARCHAEOLOGY PROJECT IN FRANCE

In accordance with rescue archaeology legislation, which prescribes "detection, protection and conservation of archaeological heritage through scientific study" a major programme of digs was carried out upstream over the entire alignment from September 2009 to the autumn of 2013. With 130 investigations across more than 4,000 hectares of land take, the SEA HSL programme is the biggest rescue archaeology project ever undertaken in France.



These operations revealed sites that provided interesting insights into the chronology of human history: two Middle Palaeolithic sites (including one more than 250,000 years old); three Upper Palaeolithic sites; two Neolithic sites bearing witness to the first sedentary village communities; eight Protohistoric (Bronze and Iron Age) sites; five Gallo-Roman sites and eight Medieval sites. These discoveries will be documented in publications aimed at the scientific community and the general public.

PRESERVING BIODIVERSITY: "AVOID, REDUCE, OFFSET"

From the first contacts made with local representatives to site inventories, every effort was made to understand the issues at stake and build a line respecting the heritage of the regions concerned. This constituted a major challenge given that the three regions through which the line passes have an exceptionally rich natural heritage, with not

only 14 Natura 2000 sites but also almost 50% of all the protected species identified in France and Europe – more precisely 223 species.

In order to minimise the impact of the line on the ecosystems crossed, LISEA and COSEA invited biodiversity players (i.e. nature protection non-profits, farmers, municipal officials and the relevant administrative services) to work in a structured framework

Archaeology exhibited near you

An exciting exhibition of the archaeological finds brought to light will be held from 2017 to 2019. It will start at the Musée d'Aquitaine in Bordeaux between June and December 2017 and then move to the Musée Départemental de la Préhistoire du Grand-Pressigny in the Indre et Loire department between January and June 2018, followed by the Musée d'Angoulême from June 2018 to January 2019 and the Musée Sainte Croix de Poitiers from January to June 2019.

as far upstream as possible. The dual goal was to avoid the most sensitive areas and rapidly implement appropriate environmental offset measures, i.e. create or restore the habitat of protected species. Two types of offset measure were rolled out over an area of approximately 3,500 hectares: acquisition of land under an agreement with a management organisation, and agreements with farmers or foresters covering land that has ecological potential for protected species and under which they agree to adapt their farming or forestry methods to these species' biological requirements.

For instance, LISEA set aside 700 hectares of land to provide an alternative habitat for the little bustard, a grassland migratory bird in danger of extinction, with the creation of suitable sites for nesting and feeding, and almost 720 hectares for the European mink. Ponds were also created or restored in the Deux Sèvres and Vienne departments.



Relocation of the freshwater mussel

In the place where one of the pillars of the Vienne viaduct was to be built, the environmental impact study had identified 50 Spengler's freshwater mussels and 8,000 thick-shelled river mussels. Given that the species is covered by a national action plan, it was decided to relocate them to the Creuse department, where a small colony of the same species had been found. To ensure that this new habitat was indeed suitable, three specimens were transferred in 2010, all of which survived.

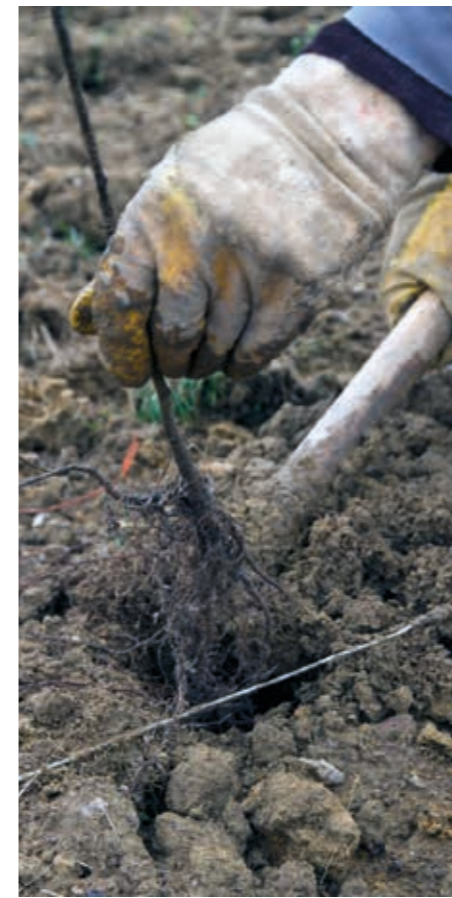
A PROJECT THAT RESPECTS THE REGIONAL HERITAGE

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On top of these offset measures, a number of other protective actions were rolled out, such as seasonal adjustment of site clearance work, notably to preserve certain species of protected insects, replanting of an area at least equivalent to that cleared, relocation of some species, and the construction of 800 structures to maintain ecological corridors, ranging from passages for large fauna to viaducts and simple pipes to facilitate water runoff.

WATER, A PARTICULARLY IMPORTANT ISSUE

In accordance with France's water act, LISEA and COSEA implemented specific measures to respond to three major principles: protecting water resources and preserving natural flows and aquatic environments. This issue is particularly important given that the future HSL crosses 600 areas of natural groundwater flow, including 90 watercourses.



Along the same lines, over 25% of the water required on the worksite (earthworks and ground sprinkling) is provided thanks to construction of a rainwater recovery basin. Another challenge involves regulation of groundwater flows. LISEA, which builds 600 structures ranging from viaducts to simple water pipes, conducted an environmental audit to identify the initial status of the watercourses and wetlands crossed by the HSL, with the aim of using this data to design structures that preserve the conditions identified. They are also designed to avoid obstructing a 100-year flood or the highest known flood level.

Lastly, efforts were made to ensure that the alignment did not prevent the movement of animals. Some 2,000 hydraulic structures were built to re-establish passages for aquatic and semi-aquatic fauna.

RESPECTING THE LIVING CONDITIONS OF LOCAL RESIDENTS

Particular attention was paid to ensure the least possible disruption to the everyday lives of local residents. Several measures were implemented to this end.

Noise abatement: kilometres of acoustic protection

Among the many parameters that had to be taken into account when deciding on the alignment of the HSL, SNCF Réseau's main objective was to keep it as far away as possible from inhabited areas. Where this could not be done, LISEA and COSEA undertook to implement a number of acoustic protection measures in inhabited areas to comply with the regulatory directive to reduce the sound impact of the line. After a series of tests taking into account such factors

1,200 hectares of forest replanted

While the alignment chosen required clearance of several wooded areas, in compliance with its commitments, COSEA implemented offset measures and replanted 1,200 hectares, i.e. an area greater than that cleared. In the Deux Sèvres and Vienne departments, which lack tree cover, the ratio was two hectares replanted for every hectare cleared.

Innovative structures to allow the passage of micro-mammals

When building hydraulic structures, LISEA and COSEA equip them with a series of concrete ledges allowing small animals to cross watercourses without getting wet. In Charente, a further innovation was made: after consultation with local experts it was decided to improve use of these ledges by adding covered passages for micro-mammals such as shrews and voles that prefer to move hidden from view. In addition, track traps are installed to identify the species using these passages.

as wind direction and the topography of the land, the findings made it possible to define the protective measures required – they take the form of small earthen walls and noise screens.

Restoring local roads and paths:

This involves restoring the entire network of local roads and paths interrupted by the alignment, including access paths for farmers and rambling trails.

Integrating the line in the surrounding landscape:

The areas immediately adjacent to the line will be planted, with hedgerows primarily, for better integration into the surrounding landscape. Specific landscaping studies will be carried out for classified or registered sites and monuments.



A PROJECT THAT HELPS DRIVE THE LOCAL ECONOMY

More than 8,500 people, including around 2,000 locally hired employees, worked on construction of the HSL at the height of activity during the summer of 2013. By the end of 2015, the project had generated revenue of almost €750 million for local subcontractors, creating jobs and major positive spin-offs thanks to the efforts made and the outstanding partnerships established.

RECRUITMENT, TRAINING AND INTEGRATION THROUGH WORK, AN EXEMPLARY PARTNERSHIP

8,500 – this was the number of people working on construction of the HSL at the height of activity during the summer of 2013. Assembling this huge workforce called for recruitment of a large number of new employees including from among the local population. To this end, an employment charter was signed in July 2011 by the State, COSEA, the state employment agency (Pôle Emploi) and the Poitou-Charentes regional council with the aim of setting up a single recruitment point to respond effectively to labour requirements.



This same partnership-based approach led to the creation of several training programmes to meet the project's needs and the profile of interested job-seekers. For example, nine earthworks and engineering structure training hubs were established near the worksite in the civil engineering phase. Moreover, COSEA and the companies making up the construction joint venture committed to measures in favour of integration through work: more than 10% of hours worked are reserved for people on back-to-work schemes, providing jobs for at least 400 people.

RAILWAY EQUIPMENT WORKS: CREATING SUSTAINABLE JOBS

Recruitment was looked at on a long-term view with the idea of creating sustainable career paths. For instance, some employees were encouraged to train for alternative jobs to meet the needs of the railway equipment works phase, giving them the opportunity to acquire skills in two or even three different areas.

In an extension to the partnership with the State, Pôle Emploi, the Poitou-Charentes regional council and COSEA, an agreement was signed on 4 December 2013 covering the creation of a "Plateforme d'appui aux mutations économiques LGV SEA" (organisation to support economic change). Its aim is to help HSL employees prepare for the post-project period so that they can apply their new skills in other projects or job opportunities and offer similar help to subcontractors during the transition phase.



OUR COMMITMENTS

LISEA was keen to mobilise its teams and resources to support sustainable development initiatives led by non-profits, companies and local authorities in the regions crossed by the line. It also focused on assessing the impact of the HSL.

TWO LISEA CORPORATE FOUNDATIONS



THE FONDATION
LISEA BIODIVERSITÉ

www.lisea.fr/partenaire-des-territoires/nos-fondations

The Fondation LISEA Biodiversité was set up to provide long-term support for projects that aim to protect and restore the natural heritage of the departments through which the SEA Tours-Bordeaux HSL passes. With a budget of €5 million for the 2012-2017 period, it helps finance projects advocated by non-profits, public institutions and companies in the regions concerned. The third and last call for projects was issued in 2015. Of the 69 projects submitted in March 2015, 30 new projects were selected for financial support. The overall commitment made by the Fondation Biodiversité is €3.9 million spread over 104 projects (January 2015).



Sillon Solidaire: calls for non-profit projects to combat exclusion

In 2012, COSEA and LISEA set up an endowment fund under the name "Sillon Solidaire" in liaison with the Fondation VINCI pour la Cité. Its goal is to finance non-profit initiatives in the regions concerned around three themes (access to housing, mobility and success at school). Not directly connected to the SEA HSL project, the call for projects is endowed with a budget of €300,000 a year. www.sillonsolidaire.fr



THE FONDATION
LISEA CARBONE

www.lisea.fr/partenaire-des-territoires/nos-fondations

The Fondation LISEA Carbone helps finance projects in the regions concerned in three areas: reducing energy consumption in public buildings; efforts to develop more eco-responsible mobility, and energy transition projects in the agricultural domain. It is also endowed with €5 million for the 2012-2017 period. The Fondation Carbone has supported 55 energy renovation projects in municipal buildings to date, which will avoid 733 tonnes of CO₂ per year by 2017. The foundation also supports three major alfalfa drying projects covering more than 1,000 hectares, which save more than 1,500 tonnes of CO₂ per year.



A SOCIOECONOMIC OBSERVATORY: ASSESSING THE EFFECTS OF THE HSL FOR 15 YEARS

Measuring the effects of the SEA HSL on the regions and supporting the development policies of local stakeholders: these are the goals of the Socioeconomic Observatory set up by LISEA in September 2012. It has a dual objective: to inform local stakeholders of the territorial, economic and social effects of the HSL to help guide their activities and policies, and contribute to discussion around the observed impacts of the HSL. To date, six themes have been identified, including the economic and social effects of

the project, the impact on transport solutions and mobility and the strategies adopted by stakeholders to derive maximum benefit from the new line. Apart from the concession holder, the observatory brings together other partners: SNCF Réseau, State agencies, local and regional authorities, chambers of commerce and agriculture and any other stakeholder with recognised expertise in the areas or themes envisaged. The observatory will continue its work until 2027, i.e. 10 years after the SEA HSL is brought into service.

AN ENVIRONMENTAL OBSERVATORY: MONITORING THE MEASURES IMPLEMENTED OVER THE LONG TERM

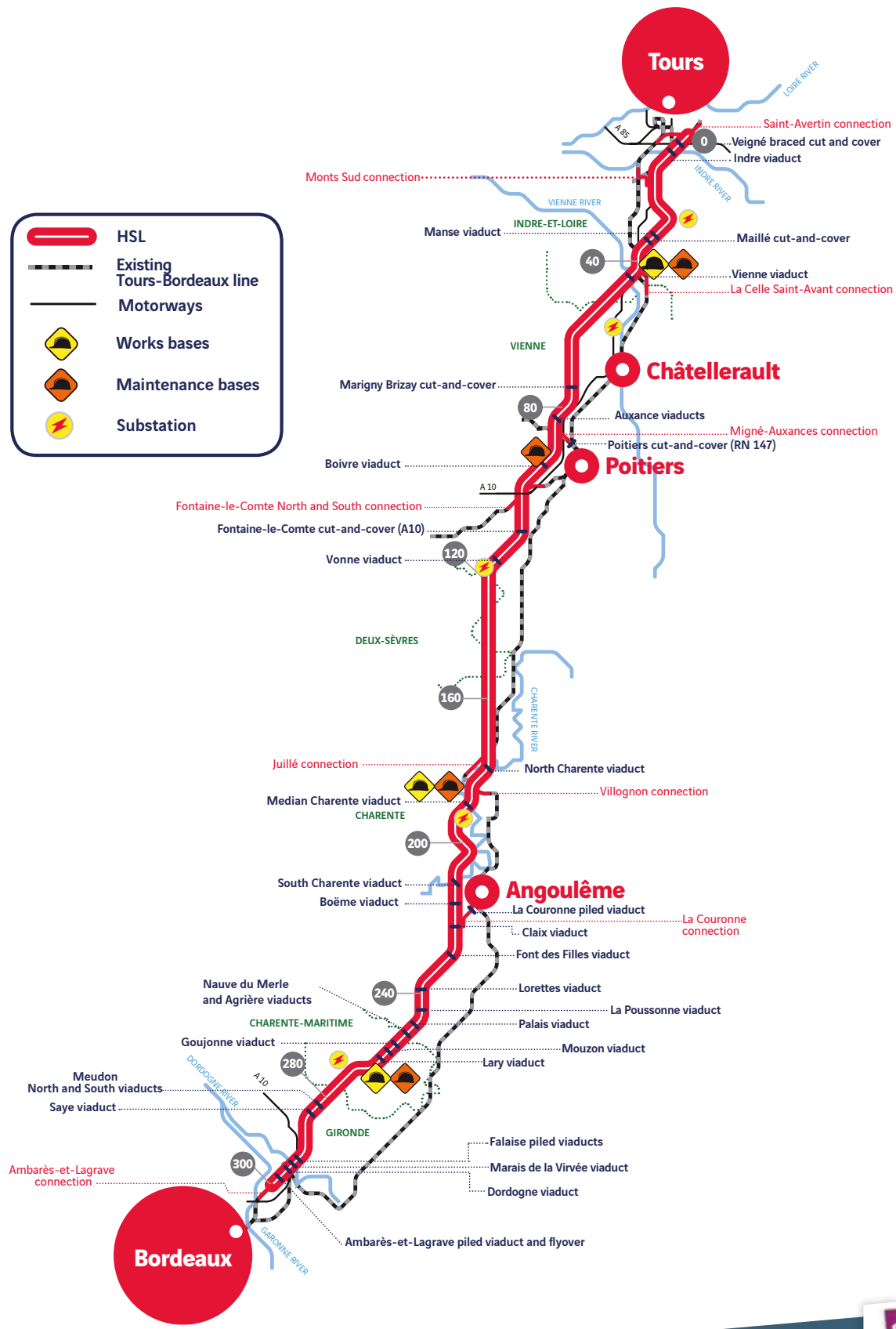
An Environmental Observatory has been set up to monitor the effectiveness of the impact reduction and offset measures put in place. It will continue its work for five to 10 years after the line is brought into service. Another of its tasks will be

to assess the real effects of the HSL on the environment – landscape, human and ecological – in the regions crossed with the aim of enriching environmental knowledge and best practices in the field of impact reduction.



Legend:

- HSL
- Existing Tours-Bordeaux line
- Motorways
- Works bases
- Maintenance bases
- Substation



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