

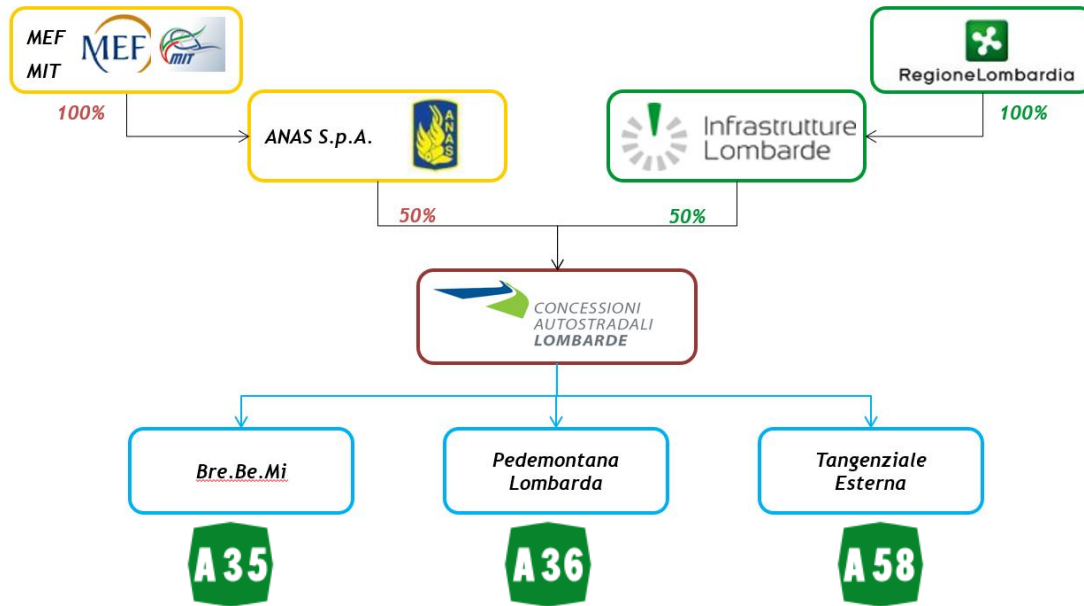


CONCESSIONI
AUTOSTRADALI
LOMBARDE

A35 “Brebemi”: the first Italian eHighway

BRUXELLES, 12.12.2018

The Company “Concessioni Autostradali Lombarde” - CAL - was established in 2007 for combined initiative of Italian Government (MEF & MIT) and Region Lombardy with the aim to build three major motorways in Lombardy: A35-Bre.Be.Mi, A36-Pedemontana Lombarda and A58-Tangenziale Esterna of Milan.

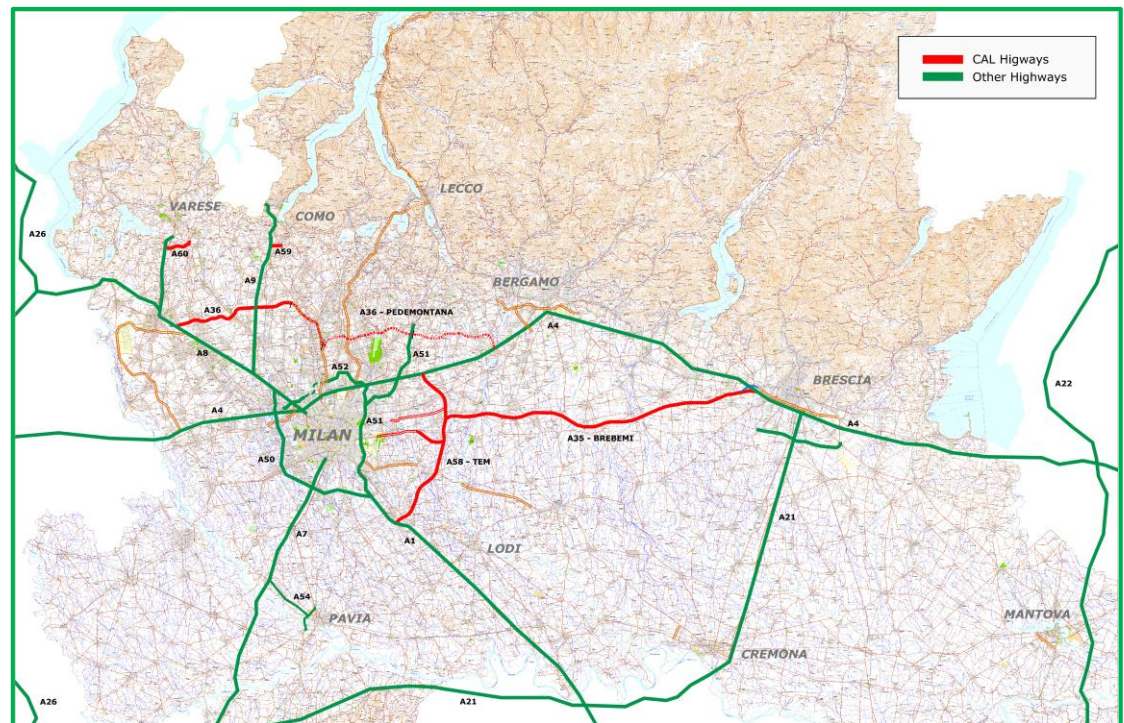


In these years CAL has carried out the activity of Grantor, as public outsourcer of the works, with the present achievement of **136 km of new motorways**, **110 km of ordinary roads** and other compensatory works on the land, with a global worth that excide **4,5 billion euros**.

The Project Financing instrument has been used to make a public investment of such entity, without equals in the public finance coverage in Europe.

Three motorways had been accomplished into a few years:

- **A35 - Bre.Be.Mi.**
(working period: 5 years, 2009-2014)
- **A58 - TEM**
(working period: 3 years, 2012-2015)
- **A36 - Pedemontana Lombarda**
(work in progress from 2010, 22 km in operation, completion within 2024)



*Highway network in Lombardy.
In red line, the highways completed
and managed by CAL.*

Results achieved by CAL in its first ten years of activity demonstrate that public works can be realized with the due regard to planned times and costs, if Grantor adopts effective P&CM procedures, and enhances its professionalism and managerial ability to pursue complexes projects.

ELECTRIC ROAD SYSTEMS (ERS)

ITALIAN CASE STUDY



Electric road systems (ERS) will be tested in Italy on A35 «Brebemi» Highway

Why A35 «Brebemi» Highway?

The logistics area of Milan is the most important crossroads in Italy for the international economic relationships



1.500 logistics companies and more than 15.000 freight transport companies, with a turnover of 20 billion euro - about 26% of the Italian market

- it is part of the TEN-T comprehensive network, connects Milan - urban node of the TEN-T core network - with Brescia;
- it is directly connected to the TEN-T core network within the Mediterranean Corridor and in a strategic position with the nodes of the TEN-T core network (i.e. **Milano Smistamento freight terminal**);
- it is also in a strategic position with the Reno-Alpi Corridor and the Scandinavian Corridor;
- it has the highest percentage of heavy goods vehicles (28%) on Italian highways.



Strategic position of **A35 «Brebemi» Highway** is a key to logistic in the freight transport and makes it the best location for ERS testing

Environmental contest

The atmospheric pollution and the climatic changes are object of the Kyoto Protocol and of the Paris Agreement.

At national and local level:

The "*Program Agreement for the coordinated and joint adoption of measures to restore air quality in the Po Valley*" was signed between five Ministries and several regions and autonomous provinces of the "Bacino Padano"



The "Bacino Padano" area is characterized by a high density of emissive sources and by particular climatic conditions favorable to the stagnation of pollutants released into the atmosphere

Furthermore, the definitive project of the A35 "Brebemi" Highway was approved with a specific prescription in order to define concrete measures to reduce vehicle emissions (CIPE resolution No. 42/2009)

Diesel-powered heavy vehicles represent only 9% of the world's traffic, but emit about 40% of the altering climate gases



Electrified roads have the potential to reduce carbon dioxide emissions from the transport sector

The ERS test on A35 «Brebemi» Highway will allow to evaluate the environmental benefits in the specific context of the «Bacino Padano»

The Pilot Study is based on the implementation of about 3 km Electric Road System stretch, in order to evaluate the technological, economic and strategic impacts on Italian context.



Technical characteristics of the Pilot Study: electrification of about 3 km stretch for each direction, realization of an overhead contact line with a continuous electric power (750 V), monitoring of the electrical parameters and the remote control of the infrastructure through a centralized system, security ensured through automatic and manual systems, hybrid vehicles used by the involved logistics and transport operators (**Brivio&Vigano**, **Italtrans**, **Fercam**).



The Pilot Study will find technical and/or economical and financial coverage from private (**Scania**, **Siemens**, **Concessionaire**) and public subjects (**Regione Lombardia** and **EU CEF TRANSPORT CALL 2018**).



The analysis developed in the study will be carried out by two of the most important Italian university: **Politecnico di Milano** (partner of CAL and Scania in the EU CEF TRANSPORT CALL 2018) and **Bocconi University**.

Cooperation between Sweden (Trafikverket), Germany (Hessen Mobil) and Italy (CAL) can play a key role advocating for the electric road systems development and the greening of economies at national and European level, and in helping our Countries to fulfil the UN Sustainable Development Goals.

The cooperation would, in its initial phase, focus on input information exchanges about technical solutions and investment costs.

In a most advanced phase, when the Pilot Studies will give concrete results and solutions, the cooperation let to share them, in order to prepare our new regulations and to implement the best practices.

The data which we can expect to share should include:

- the Business Model (investments costs and operating costs compare to a toll system)
- the standards to establish in order to let the trucks use the overhead system in different countries
- with reference to greenhouse gas (GHG), the reduction of emissions and the effects on environment expected and obtained
- the effectiveness and efficiency of overhead technology in the Italian infrastructural context compared to Swedish one
- the effective costs for maintenance and management of overhead structure
- the best way to involve stakeholders in the process

- **Activity 1: Setting the scene and pilot project definition** -> from May 2019 to March 2020
 - 1.1 Solutions for highway electrification - benchmarking with European experiences
 - 1.2 Electric commercial vehicles and eHighway connection tools - the state of the art
 - 1.3 Methodology of technical, environmental and economic evaluation
 - 1.4 eHighway pilot on the A35 - the definitive project plan
- **Activity 2: Pilot preparation** -> from march 2020 to December 2020
 - 2.1 Executive project plan - EHighway pilot on the A35
 - 2.2 Preparatory activities for the pilot - expropriation and compensation
 - 2.3 Installation of the eHighway pilot - electric part
 - 2.4 Installation of the eHighway pilot - civil works
 - 2.5 Preparation of electric vehicles with pantograph
 - 2.6 Installation of hardware and software systems
- **Activity 3: Start-up and test phase of the pilot** -> from December 2020 to February 2023
 - 3.1 Preparatory activities for the start-up of the electrified pilot route and fleet of hybrid vehicles
 - 3.2 Commissioning and testing
 - 3.3 Monitoring of operation and performance
 - 3.4 Optimization of systems and operation
 - 3.5 Environmental monitoring
- **Activity 4: Analysis of results and definition of the business model** -> from July 2020 to March 2023
 - 4.1 Technical analysis
 - 4.2 Environmental analysis
 - 4.3 Economic analysis and business model definition
- **Activity 5: Project management, dissemination and exploitation** -> from May 2019 to March 2023
 - 5.1 Project coordination
 - 5.2 Monitoring of project progress, indicators and quality control
 - 5.3 Reporting
 - 5.4 Risk management
 - 5.5 Dissemination and exploitation