



European
Commission

MAKING EUROPEAN CITIES GREENER

In pursuit of sustainable urban transport



Innovation
and Networks
Executive Agency

Sustainable transport for clean cities

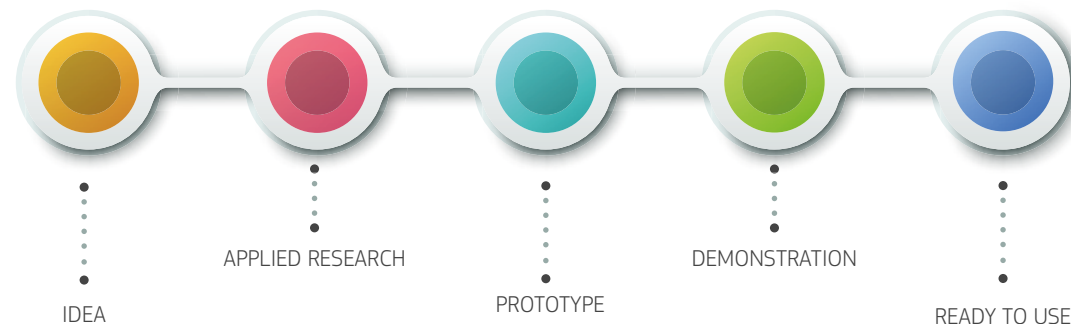
Reducing CO2 and pollutant emissions from urban transport is one of the EU's ambitious goals for creating more sustainable and enjoyable European cities. With over 70% of EU citizens living in urban areas and 23% of the greenhouse gas emissions coming from urban transport, efficient and eco-friendly city transport has become an important factor for growth and employment, as well as for improved life quality for city dwellers.

The transformation towards low-emission mobility builds on three key pillars:

- A more efficient transport system
- Clean, alternative energy for transport
- Low- and zero-emission vehicles

Research and innovation play a key role in developing and launching onto the market the next generation solutions in these three areas. The EU's Horizon 2020 programme and the Connecting Europe Facility contribute financially to hundreds of projects, from idea to deployment. INEA, the European Commission's Innovation and Networks Executive Agency, manages both programmes and supports these projects throughout their lifecycle.

INEA-funded projects range from those that pick up on a basic research idea and advance on its concept, to those that support a successful market launch of ready-to-use products and technologies.



The **CEF Transport** programme supports the construction and upgrade of transport infrastructure in Europe. It also contributes to the deployment of sustainable and efficient mobility solutions, as well as to the combination of transport modes and IT.

The **Horizon 2020 Smart, green and integrated transport** challenge is designed to boost the competitiveness of the European transport industry and achieve a European transport system that is resource-efficient, environmentally-friendly, as well as safe and seamless, for the benefit of all citizens, the economy and society.

The **Horizon 2020 Secure, clean and efficient energy** challenge aims to support the transition to a reliable, sustainable and competitive energy system by overcoming a number of Europe's challenges, such as increasingly scarce resources, growing energy needs and climate change.

This brochure gives a snapshot of projects that develop innovative solutions for urban transport, helping reduce CO2 and pollutant emissions in European cities. It includes examples that cover intelligent travel planners, green urban vehicles, smart city solutions, low-emission logistics,

and more. They have been selected from a broad portfolio of projects that includes other areas such as mobility planning, road safety, as well as testing and demonstrating green mobility measures through such initiatives as CIVITAS.

INEA

Innovation and Networks Executive Agency
Making implementation happen

INEA is an executive agency established by the European Commission to implement EU funding programmes for transport, energy and telecommunications.

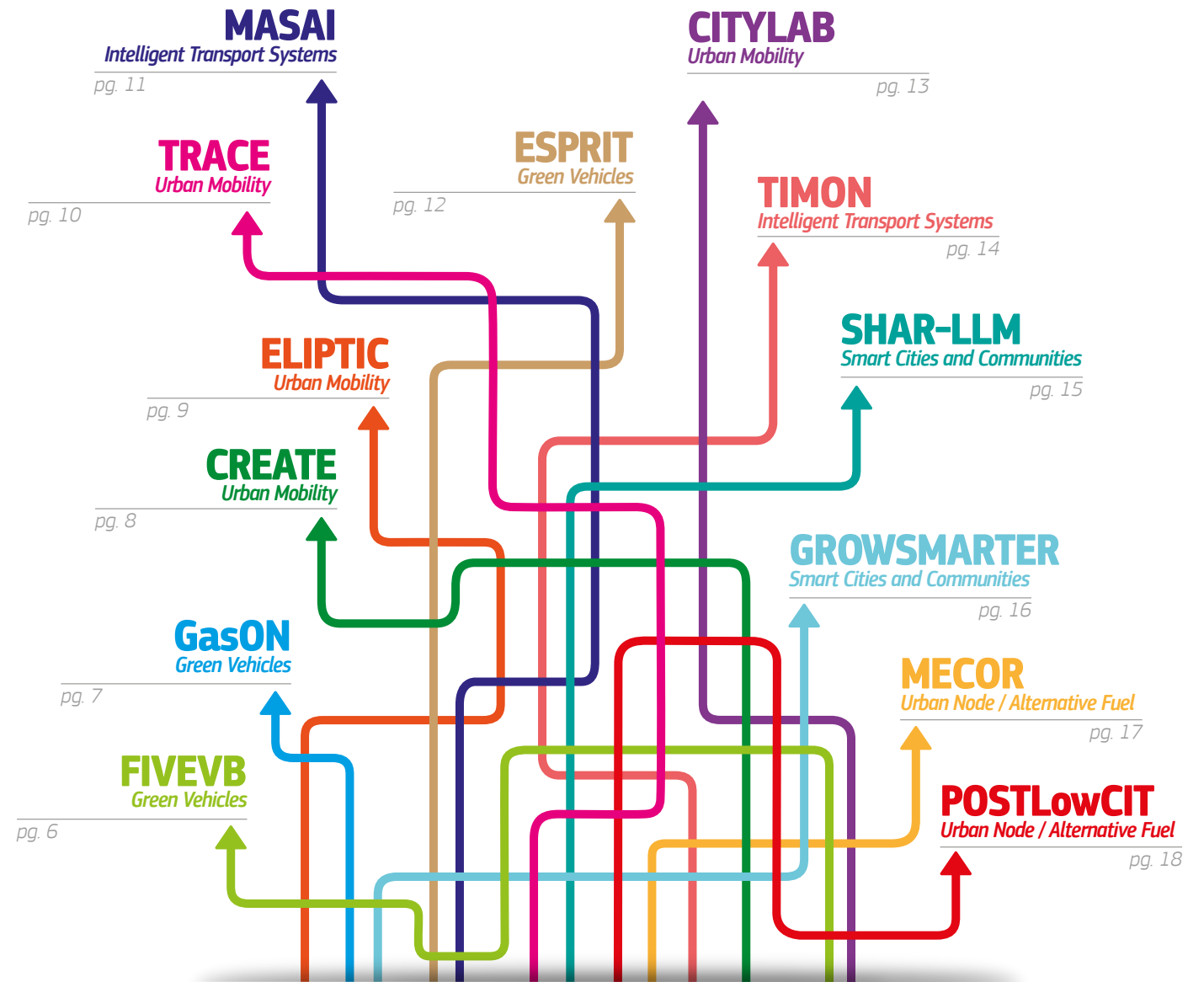
The Agency's mission is to provide its stakeholders, such as applicants, beneficiaries and policy makers, with expertise and high-level programme management, whilst promoting synergies among programmes, in order to benefit EU citizens and stimulate economic growth.

Managing transport research and infrastructure programmes worth €26.3 billion

INEA implements parts of the Connecting Europe Facility (CEF) and Horizon 2020 programmes in the transport field that will fund some 1,300 projects for a total amount of €26.3 billion in the 2014-2020 period. These projects cover the whole innovation cycle from idea to the market.

The Agency also manages the CEF Energy and Telecommunications programmes, the Horizon 2020 'Secure, clean and efficient energy' challenge, as well as the legacies of the Trans-European Transport Network (TEN-T) and Marco Polo (freight performance) programmes.

The total budget for over 2,000 INEA's projects in 2014-2020 is €35.3 billion.



PROJECTS

FIVEVB

Project full title

Five Volt Lithium Ion Batteries with Silicon Anodes produced for Next Generation Electric Vehicles

Call

Horizon 2020 H2020-GV-2014

Field

Green Vehicles

Coordinator

AVL LIST GmbH, Austria

EU funding

€5.67 million

Duration

05/2015 – 04/2018

Website

www.fivevb.eu



Electric vehicles are gaining in social acceptance, but they still need to overcome certain technological barriers in order to become a popular alternative to gasoline-fuelled cars. FiveVB is developing the next-generation Li-Ion (lithium-ion) battery cells based on innovative materials such as high-capacity anodes, high-voltage cathodes and stable, safe and environmentally-friendly electrolytes. The project addresses issues such as the battery's durability, safety, cost, recyclability and energy density.

FiveVB's goal is to push European's industry and academia to take over a leading role in the development and manufacturing of Li-Ion cells and materials, and thus increasing European economic competitiveness globally. In parallel, the project aims to provide cost-efficient and durable Li-Ion cells and batteries in order to encourage more customers to purchase reliable electric vehicles rather than traditional ones.



GasON

The project aims to build an advanced engine for compressed natural gas (CNG), a low-carbon alternative fuel which produces significantly fewer emissions than gasoline. GasOn develops three parallel technologies, based on gaseous direct injection combined with other advanced technologies such as variable valve actuation, advanced boosting, variable compression ratio and lean burn combustion.

The project plans to build three demonstrator vehicles (one for each developed technology) equipped with advanced fuel storage

systems, allowing the prototype cars to drive without a break for similar distances as traditional gasoline-fuelled vehicles.

The engines developed within the project will comply with the EU 2020+ CO2 emission targets. In comparison to the 2014 best-in-class vehicles in the related segment, the GasOn technology will reduce the CO2 emission by 20%. It will also comply with the new worldwide harmonised light vehicle test procedure (WLTP), guaranteeing low-fuel consumption and CO2 emission in real driving conditions.

Project full title

Gas-Only internal combustion engines

Call

Horizon 2020 H2020-GV-2014

Field

Green Vehicles

Coordinator

Centro Ricerche Fiat SCPA, Italy

EU funding

€16.70 million

Duration

05/2015 – 10/2018

Website

www.gason.eu



CREATE

Project full title

Congestion Reduction in Europe: Advancing Transport Efficiency

Call

Horizon 2020 MG-5.3-2014

Field

Urban mobility

Coordinator

University College London, United Kingdom

EU funding

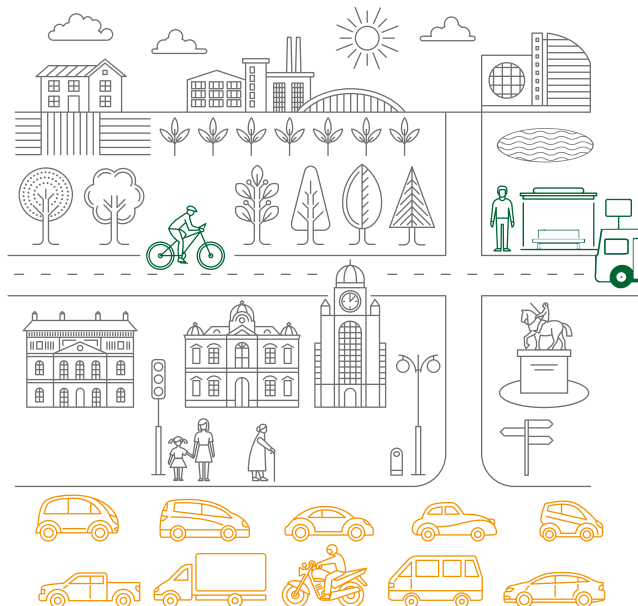
€3.98 million

Duration

01/06/2015 – 31/05/2018

Website

www.create-mobility.eu



Urban congestion has major economic and social costs. Car-based cities often provide poor living environment for their citizens, including dangerously high noise and air pollution rates. CREATE is examining the best mix of changes in policy, car use, governance, legislation and funding for the transition to a car-independent lifestyle in urban areas.

Based on 40 year-long sustainable mobility efforts in five European capitals – Berlin (Germany), Copenhagen (Denmark), London (United Kingdom), Paris (France) and Vienna (Austria) – the project develops a transferable methodology and peer-learning

activities. They will support the project's partner cities of Bucharest (Romania), Skopje (Macedonia), Tallinn (Estonia), Adana (Turkey), and Amman (Jordan) in their efforts of creating more liveable cities.

CREATE will provide them with guidelines on tackling congestion and promoting car-independent lifestyle among the citizens, as well as support them with strategies to address future mobility demands, such as cyclist infrastructure or accessible public transport.

ELIPTIC

ELIPTIC strengthens eco-friendly public transport as the backbone of smart cities. It develops advanced concepts and business models, in which existing electric public transport infrastructure (light rail, metro, tram and trolleybus) is used as charging stations for full-electric battery buses, trolley-battery-hybrid buses as well as for electric cars, taxis and delivery vehicles.

The project is set to analyse 20 concepts in various urban areas, including metropolitan areas such as Barcelona, Brussels, London and Warsaw, middle-sized cities like Bremen (Germany), Gdynia (Poland), Leipzig (Germany), Oberhausen (Germany) and Szeged

(Hungary), and the small towns of Eberswalde (Germany) and Lanciano (Italy).

ELIPTIC aims to demonstrate that the uptake of alternatively fuelled vehicles in urban areas can be done in a cost-efficient way by integrating existing infrastructure. By developing electric public transport, it also contributes to reaching the EU's goals of halving the use of conventional cars in cities by 2030 and reducing the emissions from transport to more than 60% below 1990 levels by 2050.

Project full title

Electrification of public transport in cities

Call

Horizon 2020 MG-5.1-2014

Field

Urban Mobility

Coordinator

Freie Hansestadt Bremen, Germany

EU funding

€5.99 million

Duration

06/2015 – 05/2018

Website

www.eliptic-project.eu



TRACE

Project full title

Opening the cycling and walking tracking potential

Call

Horizon 2020 MG-5.3-2014

Field

Urban mobility

Coordinator

INESC ID, Portugal

EU funding

€2.9 million

Duration

01/06/2015 – 31/05/2018

Website

www.h2020-trace.eu



Walking and cycling are important congestion busters in cities. The TRACE project is unlocking their full potential by developing and improving new smart tracking tools for walkers and cyclists in eight cities - Breda (The Netherlands), Agueda (Portugal), Southend-on-Sea (UK), Bologna (Italy), Esch (Luxembourg), Belgrade (Serbia), Plovdiv (Bulgaria) and Leuven (Belgium).

Various incentives of the project encourage volunteers to take up walking and cycling to the workplace, to school, for shopping purposes and for leisure, thus promoting behavioural change and

contributing to greener cities. The data collected in large trials will feed into information services for users to better plan their walking and biking routes. At the same time, it will support urban transport planning and policy making to make urban mobility more sustainable.

The project's ambition is to prepare the new ICT-based tracking tools and applications for full commercial exploitation by assessing their impact, success factors and benefits in real life conditions.

MASAI

Citizens planning their long-distance journeys and local trips are in the eye of the project. MASAI helps them make optimal, informed choices in terms of the most suitable means of transport, accommodation, or tourist services. The concept facilitates all steps from planning to completing the journey, in accordance with user's preferences or constraints, through offering information on various travel possibilities and enabling direct paperless transactions between travellers and service providers.

By supporting a seamless door-to-door travel experience and developing an open ecosystem of mobility services, MASAI has a direct positive impact on citizens' quality of life. The project also helps optimise the use of public transport, thus contributing to reducing CO2 emissions. MASAI's unique feature, a display of an estimated carbon footprint for each travel option, creates awareness among citizens who frequently travel across Europe and makes them better understand the environmental impact of their travel choices.

Project full title

Mobility based on aggregation of services and applications integration

Call

Horizon 2020 MG-7.2a-2014

Field

Intelligent Transport Systems

Coordinator

Mta-mobility, ticketing & applications SPRL, Belgium

EU funding

€3.3 million

Duration

06/2015 – 05/2018

Website

www.masai.teleticketing.eu



ESPRIT

Project full title

Easily diStributed Personal RapId Transit

Call

H2020-GV-2014

Field

Green Vehicles

Coordinator

Commissariat à l'énergie atomique et aux énergies alternatives, France

EU funding

€7.99 million

Duration

05/2015 – 04/2018

Website

www.fivevb.eu



The ESPRIT project is developing a prototype of a light-weight electric vehicle available either for car sharing or as a means of transport in suburban areas to reach main public transport hubs. A pioneering coupling system will allow up to eight ESPRIT vehicles to be stacked together and transported at the same time by a single operator. To prove the ESPRIT concept, the project carries out modelling and simulations to predict the economic, social and environmental benefits of using the vehicles.

By making electric cars publically available, the project aims to encourage citizens to use public transport and car sharing rather than their private vehicles, leading to a reduction of traffic congestion, noise and air pollution. ESPRIT expects to demonstrate through simulations that it is possible to maintain a continuous 90% availability rate of electric vehicles for car sharing across all pickup stations using less manpower compared to current systems, in which 50% of stations are empty several times a day.

CITYLAB

The goal of CITYLAB is to improve city logistics, including transport of goods, waste and services, and make it more cost-efficient and eco-friendly. The project focuses on last-mile delivery services, urban waste management, logistics facilities and warehouses. CITYLAB puts into practice a pioneering "living laboratories" approach where citizens, government, industry and research are working together to find and test innovative ideas. Seven European cities exchange their experiences and transfer know-how: Amsterdam, Brussels, London, Oslo, Paris, Rome and Southampton.

The project results will contribute to emission-free cities as they will help reduce road traffic and increase the load factor of freight vehicles, for example by combining delivery orders from multiple customers, or by using empty lorries to pick up recyclable waste on their way back to the point of departure. Meanwhile, the living labs will establish best practice and develop strategies on how to replicate them in other cities.

Project full title

City Logistics in Living Laboratories

Call

Horizon 2020 MG-5.2-2014

Field

Urban Mobility

Coordinator

Transportøkonomisk Institutt, Norway

EU funding

€3.98 million

Duration

05/2015 – 04/2018

Website

www.citylab-project.eu



TIMON

Project full title

Enhanced real time services for an optimised multimodal mobility relying on cooperative networks and open data

Call

Horizon 2020 MG-3.5a-2014

Field

Intelligent Transport Systems

Coordinator

University of Deusto, Spain

EU funding

€5.6 million

Duration

06/2015 – 11/2018

Website

www.timon-project.eu



The project develops new technologies and artificial intelligence to build an open web-based platform for road users. The key objective is to connect people, vehicles, infrastructure and businesses into a cooperative virtual ecosystem. The system will collect and store data from cars, pedestrians, cyclists, shops and alike, processing it to deliver real-time information on nearby accidents, traffic jams and air pollution.

By sharing and receiving data, road users will be able to adapt their routes and choose the most optimal way to get to the destination.

By helping them make the best decision, TIMON aims to increase safety, sustainability, flexibility and efficiency of road transport. Two pilots will be organised within the project to test its solutions, in Helmond (the Netherlands) and Ljubljana (Slovenia)

The project's ambitious goal is to decrease the number of road accidents by 15% - 20%, reduce road congestion by 12% - 20% and reduce greenhouse gas emissions by up to 10% in the cities where the technology will be available.



SHAR-LLM

The Sharing Cities project is developing smart city solutions with a high market potential for e-mobility and energy management in three lighthouse cities - Lisbon (Portugal), London (United Kingdom) and Milan (Italy).

Among other measures, the project is promoting electric car sharing, installing a number of charging points for electric vehicles and integrating them in the city's energy grid, fostering the use of electric trucks for the city logistics, expanding the existing e-bike sharing schemes, as well as implementing smart parking

technologies. All these measures will encourage the shift from conventional cars to electric vehicles, as well as promote sharing instead of car ownership to reduce the number of vehicles in cities.

Sharing Cities involves citizens in the project and also develops new approaches and tools to improve the public's understanding of how smart cities should operate. The project's solutions will be shared with project's fellow cities Bordeaux (France), Burgas (Bulgaria) and Warsaw (Poland) for future replication.

Project full title

Sharing Cities

Call

Horizon 2020 Smart Cities and Communities

Field

Smart Cities and Communities

Coordinator

Greater London Authority

EU funding

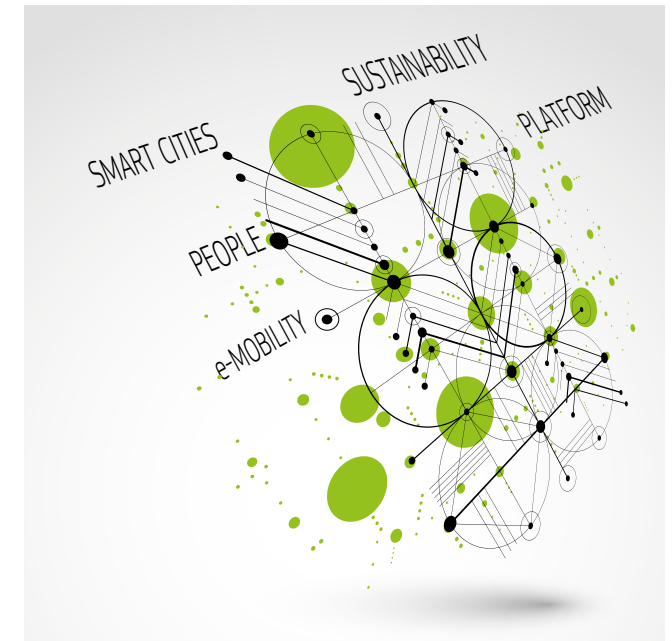
€24.1 million

Duration

01/2016 – 12/2020

Website

www.sharingcities.eu



GrowSmarter

Project full title

GrowSmarter

Call

Horizon 2020 Smart Cities and Communities

Field

Smart Cities and Communities

Coordinator

Municipality of Stockholm

EU funding

€24.8 million

Duration

01/2015 – 12/2019

Website

www.grow-smarter.eu



GrowSmarter brings together the cities of Barcelona, Cologne and Stockholm to demonstrate 12 innovative urban solutions, such as smart energy saving and waste collection, electric mobility, refurbishing buildings to make them more sustainable, or ICT. The results of the project will be shared with other cities to replicate GrowSmart solutions across Europe. Citizens of Cologne will, for example, have access to electric mobility hubs of electric cars and e-bikes managed via an open data platform. This will help promote clean electric transport in

Cologne and lead to new application for facilitating life of city dwellers.

Popularising the use of electric vehicles, or increasing the number of small-scale generation power plants from renewable energy sources calls for a new balance of electricity demand and supply. GrowSmarter will develop virtual power plants connecting many small energy systems through a central platform that optimally manages generation, consumption and storage of electricity.



MECOR

The project supports the deployment of 60 semi-fast electric vehicle charging stations in Denmark and Sweden. The stations are to be located at key transport hubs, such as train, bus and metro stations, ferry docks and airports in the Öresund region, on the Danish-Swedish border. The locations for the charging stations have been selected to allow electric vehicle users to continue onwards their journey ("first" or "last" mile concept) using a greener form of transport.

Emissions of pollutants and traffic congestion will decrease in the region thanks to the opportunity for commuters to combine two or more environmentally friendly transport modes, for instance an electric private vehicle and a train. The MECOR project will therefore contribute to the objective of cutting CO2 emissions in the transport sector and help reduce air pollution related to road traffic, in line with EU priorities.

Project full title

Multimodal e-mobility connectivity for the Oresund Region

Call

CEF Transport 2014

Field

Urban node/alternative fuel

Coordinator

Clever A/S, Denmark

EU funding

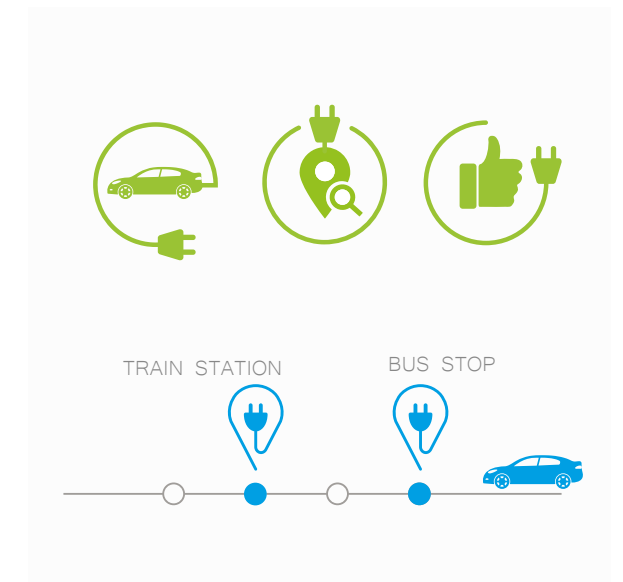
€1.48 million

Duration

03/2015 – 12/2017

Website

www.clever-project.europeanfundingandpolicy.eu



POSTLowCIT

Project full title

Low-noise and low-carbon freight delivery for Postal Operators to ensure last mile connections through optimised urban and long distance transport

Call

CEF Transport 2015

Field

Urban node/alternative fuel

Coordinator

Sociedad Estatal Correos Y
Telegrafos Sa, Spain

EU funding

€1.03 million

Duration

02/2016 – 05/2019



The project makes the urban freight delivery service of CORREOS – the Spanish postal operator – greener by using alternative energy vehicles in Madrid, Barcelona, Valencia and Seville. More specifically, it deploys 18 electric vans and 52 electric motorcycles for postal mail delivery together with the corresponding charging stations. Furthermore, four gas-powered trucks will also be added to the CORREOS fleet.

The deployment of alternative-fuel vehicles will decrease the use of fossil fuels by CORREOS, and, consequently, emissions of CO₂ and oxides of nitrogen (NO_x). In addition, it will contribute to abating noise levels in the urban areas. The 74 vehicles deployed in the four Spanish cities will act as a pilot to study the possible future wider scale roll-out of similar systems.

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