

### An Innovative Railway to Grid Management System



# E-LOBSTER

### Grant Agreement 774392

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Courtesy of Metro de Madrid - Photo by Emiliano Durán





### Concept

E-LOBSTER Project is proposing an innovative R+G (Railway to Grid) Management System which, combined with advanced power electronics and energy storage systems, will be able to reduce electricity losses in both the power distribution network and the light railway network.

The technology will be deployed in the Metro de Madrid.

Courtesy of Metro de Madrid - Photo by Emiliano Durán

## Main Enabling Technologies



#### **Advanced Power Electronics**

Allowing a unique management of the energy between traction substations and distribution network



#### Energy Storage System

Allowing mutual synergies among electrified transport and distribution networks and increasing the penetration of RES



#### Railway to Grid Management System

Allowing the interaction between electrified transport and distribution networks using shared assets

## Main Project Deliverables



Handbook of the most suitable technologies for electricity losses reduction in DN and Electrified Railway Systems

June 2019



Best practices and measures for the installation of the selected technologies at pilot site

October 2021



E-book on guidelines for E-LOBSTER replication across Europe covering technical, economic, legislative, social and environmental aspects

October 2021



E-LOBSTER Business Model and Roadmap towards TRL 9

October 2021



### Timeline: Main Project Milestones





31 July 2021

#### 30 November 2021

Final release of E-LOBSTER R+G Management System

The E-LOBSTER R+G Management System is ready to be demonstrated in Metro de Madrid premises Installation of the E-LOBSTER advanced power electronics and the related R+G Management System in a Metro De Madrid substation

The prototype validated in Newcastle University Laboratory and properly updated is transferred to Metro De Madrid premises for six months test campaign

### Main Impacts



#### Renewable Energy Sources

E-LOBSTER will promote the penetration of Renewable Energy Sources (RES) and it will allow an optimal energy management.



#### Reduction of Transport Emissions

E-LOBSTER will limit transport emissions, promoting electrified urban transport and their new role of grid stability providers



#### Empowerment of the role of consumers

E-LOBSTER will empower the role of the consumers and of the cities in the electrical market

### E-LOBSTER Coordinators



Project Coordinator Giannicola Loriga RINA Consulting S.p.A

"We are really proud to coordinate such an ambitious project providing efficient technologies and services for advanced power electronics, energy storage and energy management for both distribution and smart grids and electrified transport networks"



Project Technical Coordinator Pietro Tricoli University of Birmingham

"I am glad to be the technical coordinator of this project that will use power electronics and energy storage as key technologies to deliver a major step forward for the management of energy exchange between power distribution grids and electric railways"

### Project Consortium



Website: http://www.e-lobster.eu/ LinkedIn: https://www.linkedin.com/company/elobster/ Twitter: https://twitter.com/H2020ELOBSTER



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 774392