Electric LOsses Balancing through integrated STorage and power Electronics towards increased synergy between Railways and electricity distribution networks

Fact Sheet

Project Information

E-LOBSTER
Grant agreement ID: 774392

DOI
10.3030/774392

Funded under
SOCIETAL CHALLENGES - Secure, clean and efficient energy

Total cost
€ 3 999 102,50

EU contribution
€ 3 999 102,50

Coordinated by
RINA CONSULTING SPA
Italy

Closed project

EC signature date
18 May 2018

Start date
1 June 2018
End date
31 August 2022

This project is featured in...
European distribution networks and light-railway networks present common issues: both have been developed as independent networks, relying on the resilience and robustness of existing power supplies. However, RES progressive penetration introduced an increasing degree of uncertainty on the direction of power flows. Both networks are looking at integrated solutions targeting: i) reduction of electricity losses ii) increase the grid stability in a high local RES penetration scenario iii) accommodate the needs of new energy actors such as EVs, electrical storages and prosumers. Electrified transport networks such as light railways could act to enhance distribution grid stability providing ancillary services inter-exchanging electricity. However such potential is still unexploited. E-LOBSTER intends to capture such potential through the development of an innovative, economically viable and easily replicable electric Transport-Grid Inter-Connection System that will be able to establish synergies between power distribution networks, electrified transport networks (metro, trams, light railways etc.) and charging stations for EVs. The proposed solution encompasses the integration of high power flow Electric Storage with smart Soft Open Points providing flexible control. The system will be managed by an integrated Railway + Grid Management System which starting from the real time analysis of energy losses will be able to optimize the interexchange of electricity between the networks maximizing local RES self-consumption. The hardware and software control platform will be demonstrated at TRL 6 in one substation owned by Metro de Madrid. Business models and standardisation needs will be deeply analyzed and measures to unlock existing barriers will be promoted and in parallel the knowledge generated from the project will be further exploited for the definition of the up-scale design of a full scale E-LOBSTER system, paving the ground towards replication across the EU.
Keywords

- light railways
- distribution networks
- power electronics
- lithium batteries

Programme(s)

- H2020-EU.3.3. - SOCIETAL CHALLENGES - Secure, clean and efficient energy
- H2020-EU.3.3.4. - A single, smart European electricity grid

Topic(s)

- LCE-01-2016-2017 - Next generation innovative technologies enabling smart grids, storage and energy system integration with increasing share of renewables: distribution network

Call for proposal

- H2020-LCE-2016-2017

See other projects for this call

Sub call

- H2020-LCE-2017-SGS

Funding Scheme

- RIA - Research and Innovation action

Coordinator
RINA CONSULTING SPA
Net EU contribution
€ 773 100,21

Address
Via cecchi 6
16129 Genova
Italy

Region
Nord-Ovest > Liguria > Genova

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation
Website
Participation in EU R&I programmes
HORIZON collaboration network

Total cost
€ 885 624,82

Participants (9)

THIRD-PARTY

RINA TECH UK LTD
United Kingdom
Net EU contribution
€ 112 524,61

Address
Rina 1 springfield drive
KT22 7AJ Leatherhead surrey

Region
South East (England) > Surrey, East and West Sussex > East Surrey

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation
Participation in EU R&I programmes
HORIZON collaboration network
<table>
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<tr>
<th>Company Name</th>
<th>Total cost</th>
<th>Address</th>
<th>SME</th>
<th>Region</th>
<th>Activity type</th>
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<tr>
<td>TURBO POWER SYSTEMS LTD</td>
<td>€ 112,524,61</td>
<td>1 queens park, queensway north</td>
<td>Yes</td>
<td>North East (England) &gt; Northumberland and Tyne and Wear &gt; Tyneside</td>
<td>Private for-profit entities (excluding Higher or Secondary Education Establishments)</td>
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<tr>
<td>RAIL SAFETY AND STANDARDS BOARD LIMITED</td>
<td>€ 505,530,00</td>
<td>The helicon 1 south place</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
London > Inner London — East > Haringey and Islington

Activity type
Other

Links
Contact the organisation  Website  Participation in EU R&I programmes  HORIZON collaboration network

Total cost
€ 387 500,00

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THE UNIVERSITY OF BIRMINGHAM

United Kingdom
Net EU contribution
€ 485 059,78

Address
Edgbaston
B15 2TT Birmingham

Region
West Midlands (England) > West Midlands > Birmingham

Activity type
Higher or Secondary Education Establishments

Links
Contact the organisation  Website  Participation in EU R&I programmes  HORIZON collaboration network

Total cost
€ 485 059,78

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LITHIUM BALANCE AS

Denmark
Net EU contribution
€ 428 750,00

Address
Hassellunden 13
2765 Smorum
SME  
Yes
Region
Danmark > Hovedstaden > Nordsjælland
Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation  Website
Participation in EU R&I programmes
HORIZON collaboration network

Total cost
€ 428 750,00

METRO DE MADRID SA
Spain
Net EU contribution
€ 314 715,40
Address
Avenida de asturias 4
28029 Madrid
Region
Comunidad de Madrid > Comunidad de Madrid > Madrid
Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
Contact the organisation  Website
Participation in EU R&I programmes
HORIZON collaboration network

Total cost
€ 314 715,40

UNIVERSITY OF NEWCASTLE UPON TYNE
United Kingdom

Net EU contribution
€ 492,422,50

Address
Kings gate
NE1 7RU Newcastle upon Tyne

Region
North East (England) > Northumberland and Tyne and Wear > Tyneside

Activity type
Higher or Secondary Education Establishments

Links
Contact the organisation Website Participation in EU R&I programmes HORIZON collaboration network

Total cost
€ 492,422,50

FUNDACION DE LOS FERROCARRILES ESPANOLSES

Spain

Net EU contribution
€ 274,250,00

Address
C santa isabel 44
28012 Madrid

Region
Comunidad de Madrid > Comunidad de Madrid > Madrid

Activity type
Research Organisations

Links
Contact the organisation Website Participation in EU R&I programmes HORIZON collaboration network

Total cost
€ 274,250,00
UNION INTERNATIONALE DES TRANSPORTS PUBLICS

Belgium

Net EU contribution

€ 225,250,00

Address

Rue sainte marie 6
1080 Bruxelles / Brussel

SME

Yes

Region

Région de Bruxelles-Capitale/Brussels Hoofdstedelijk Gewest > Région de Bruxelles-Capitale/ Brussels Hoofdstedelijk Gewest > Arr. de Bruxelles-Capitale/Arr. Brussel-Hoofdstad

Activity type

Other

Links

Contact the organisation
Website
Participation in EU R&I programmes
HORIZON collaboration network

Total cost

€ 225,250,00

Last update: 23 July 2023

Permalink: https://cordis.europa.eu/project/id/774392

European Union, 2024