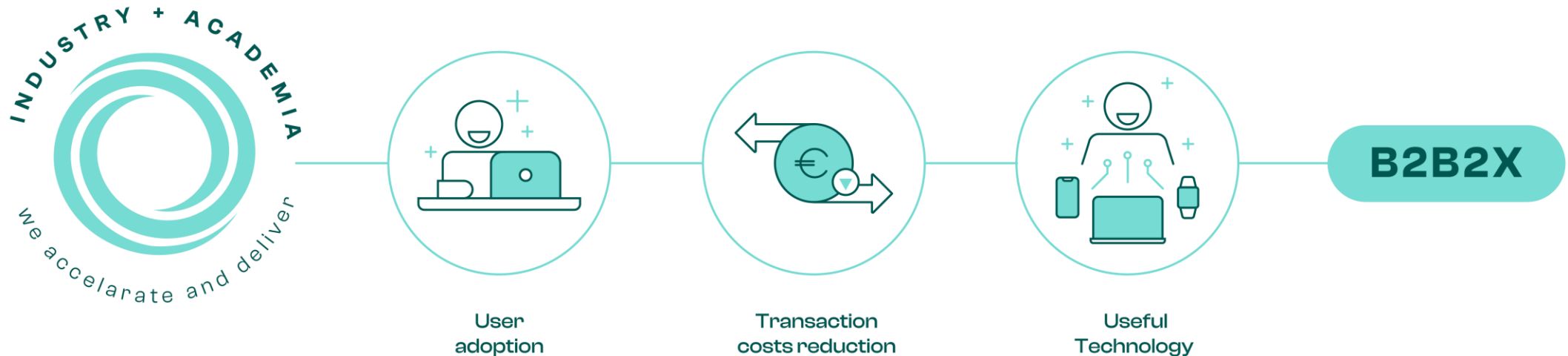# Smart Energy Lab
Horizon Europe Opportunities

03/26/2025 Rui Martins

SEL

Who is Smart Energy Lab

We develop <u>disruptive and innovative solutions</u> for the energy transition of the end-user in Europe

INDUSTRY + ACADEMIA

we accelarate and deliver

User adoption

Transaction costs reduction

Useful Technology

B2B2X

SEL

Empowering Businesses with Clean, Renewable Solutions

Dedicated to advancing renewable energy, we help businesses drive value in the Energy Transformation with innovative solutions for optimizing energy use and transitioning to cleaner power.

Our Products

Electric Mobility

Our suite of EDGE solutions tackles barriers to widespread EV adoption in residential buildings by reducing costs and time for scalable EV charging infrastructure.

Energy Management

A-EMS revolutionizes renewable energy management by integrating PV systems, batteries, and EV chargers with agnostic connectivity and custom algorithms.

Electrification

Disruptive solutions and a customer-centric approach to facilitate decarbonization through the development and implementation of scalable business solutions to replace bottled gas with electric alternatives.

CL5 Calls of Interest

September Deadline

Horizon Europe – Cluster 5

Date	Call	Smart Energy Lab expected participation	Type of Participation
September 2025	**02-D3-11** Inverter technologies and flexibility in PV Systems	• A-EMS UCs in flexibility for DSO's - *New use cases for REEF* • Cybersecurity developments - *REEF*	**Demo leader**
	02-D3-17 Control and operation tools for RES	• A-EMS UCs/features in flexibility for DSO's - *New use cases and features for REEF*	Partner
	04-D5-01 Wireless stationary bidirectional charging	• UCs/BCs on wireless EV (V2G/V2X) charging technologies and services – *Possible new product* • SSH - facilitate the socio-technological interface	Partner
	04-D5-02 Cybersecure and resilient e-mobility ecosystem	• Secure architecture and design principles encompassing all components for an e-mobility ecosyste*m – EDGE & REEF* • Develop VPP algorithm to deliver flexibility services for DSOs – *Cybersecurity for EDGE*	**WP and Demo Leader**
	01-D2-02 Cost-effective next-generation batteries for long-duration	• *Efficient management of large storage units for improved material longevity*	Partner
	04-D5-05 Road Battery Electric Vehicles (BEV) optimised user-centric solutions for energy efficiency design throughout weather conditions	• Tools and methods to assess EV battery degradation rate – *EDGE* • Digital Product Passport	**WP and Demo Leader**

2025/2026 EU Calls

Novel inverter technologies and flexibility in PV systems

HORIZON-CL5-2025-01-D3-11

1. **Submission due date**: <u>16/09/2025</u>
2. **Main goal**:
   - Energy yield improvement of PV systems based on smart digitalisation.
   - Optimal utilisation of generated energy, energy savings, and enhanced overall energy efficiency.
   - Enhanced flexibility services and interoperability.

Activities Proposed by SEL:
   - Integrated weather forecasting models
   - DT model development leveraging on IoT, AI and data analytics to optimize energy management, reduce carbon emissions, battery management and integrate RES. (REEF + EDGE)

Assets:
   - **REEF** – Agnostic Energy Management System combining multiple assets and forecasting capacity
   - **Living Energy** for community production and management UC's

2025/2026 EU Calls

Control and operation tools for a RES-based energy system

HORIZON-CL5-2025-02-D3-17

1. **Submission due date**: 16/09/2025
2. **Main goal**:
    - Design and test innovative technologies, processes and control mechanisms for the seamless integration of **massive volumes** of RES at DSO/TSO level.
    - Address network constraints and increase the flexibility capabilities of grids, through advanced operation and control mechanisms and tools.

Activities Proposed by SEL:
- Assess cost effectiveness, systems robustness and energy efficiency of using TES in peak shaving UCs, instead of other types of battery technologies – **REEF**
- DT methods to enhance security of the electric distribution system (at DSO level), especially in preventing, detecting and responding to disruptions in critical information flows - others
- Interoperability of different assets in a decentralized energy supply chain (local / private production, metering, energy exchange) – **REEF**

Assets:
- **REEF** – Agnostic Energy Management System
- **Living Energy** – A living lab composed of 90 real homes in Portugal. A perfect stage to test new products and services

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2025/2026 EU Calls

Efficient wireless stationary bidirectional charging solutions for road Light Duty Vehicles – Societal Readiness Pilot

HORIZON-CL5-2025-01-D5-01

1. **Submission due date**: 04/09/2025
2. **Main goal**:
   - Design, develop and demonstrate cost-effective, standardised, safe, visually not intrusive, efficient technologies, solutions and user-centric services offered for bidirectional automatic wireless chargers for road Light Duty Vehicles.
   - Solutions and services shall be demonstrated in at least three different cities

Activities Proposed by SEL:
- UCs/BCs on wireless EV charging technologies and services, optimizing investments and assuring user needs
- Benchmark on wireless charging
- V2G/V2X technology developments
- V2X UCs for extreme event grid demand
- Public infrastructure - Find a new pilot in Portugal to test the solution (or similar) together with the regulator - mobility

Assets:
- Edge product ready for new features
- Results from T1.7 of EV4EU

2025/2026 EU Calls

Cybersecure and resilient e-mobility ecosystem

HORIZON-CL5-2025-01-D5-02

1. **Submission due date**: 04/09/2025
2. **Main goal**:
   - Develop a secure-by-design architecture and secure design principles encompassing all components and interfaces within the e-mobility ecosystem

Activities Proposed by SEL:
- Public infrastructure - Find a new pilot in Portugal to test the solution (or similar) together with the regulator – test a cybersecure ecosystem in real life conditions
- V2X UCs for extreme event grid demand
- EV charging technologies and services, optimizing investments and assuring user needs

Assets:

- Edge
- Living Energy Portal for experience design of services