



El Almacenamiento Energético en el Programa Horizon Europe: Retos y Oportunidades Tecnológicas

GT Mercados: *IoT*

Uso **potencial de las IoT en distintas aplicaciones y mercados** en el sector del almacenamiento de energía y **requisitos de Ciberseguridad** necesarios para su implantación

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Reto 1: Uso potencial de las IoT en distintas aplicaciones y mercados en el sector del almacenamiento de energía

HORIZON-CL5-2021-D3-01-04: “Energy Sector Integration: Integrating and combining energy systems to a cost-optimised and flexible energy system of systems”

Deadline	Type of action	Indicate project budget	Number of grants	Budget
26/08/2021	IA	9.00 to 10.00	3	30.000.000

- **TRL:** Activities are expected to achieve TRL 6-8 by the end of the project
- **Scope:** demonstrate the benefits of the integration of different elements (electricity and gas networks, district heating and cooling, long-term energy storage systems, mobility system, energy-intensive industry and/or industrial clusters or sites).
- Demonstrate the **integration at local** (i.e. distribution networks) **and at national level** (i.e. transmission networks), and the interactions between them.
- Develop **2 or 3 pilots** in different Member States/Associated Countries
- **Projects should develop innovative tools for:**
 - System planning toolboxes to determine the **optimal sizing, location and distribution of energy storage systems** and technologies to facilitate their optimal use at different grid levels.
 - **Aging models’ definitions for several storage technologies** according to the operating conditions and required regulation services.
 - **Communication, platforms and devices for increased observability/controllability** of the generation, consumption and storage resources and the measurement acquisition.



Reto 1: Uso potencial de las IoT en distintas aplicaciones y mercados en el sector del almacenamiento de energía

HORIZON-CL5-2021-D3-01-05: Increasing energy system flexibility based on sector-integration services to consumers (that benefits system management by DSOs and TSOs)

Deadline	Type of action	Indicate project budget	Number of grants	Budget
26/08/2021	IA	9.00 to 10.00	2	20.000.000

- **TRL:** Activities are expected to achieve TRL 7-8 by the end of the project
- **Scope:** test and develop further already demonstrated solutions for **data-driven energy services for consumers, in cooperation with various actors in the energy system** (such as prosumers, aggregators, TSOs, DSOs, owners of assets that can provide flexibility like batteries, heating/cooling systems, charging point operators, gas systems)
 - **Replicate them in as many different geographies as possible** having different system needs, consumer needs, economic conditions or different climates.
 - **Integrate energy services with other services** for citizens and/or consumers (e.g. health, safety, mobility):
- **Expected outcomes:**
 - Increased application of **digital technologies to support consumers and market parties** to market their flexibility.
 - Increased **consumer engagement and acceptance**.
 - Increased **availability of flexibility sources** for TSOs and DSOs and **develop markets for flexibility** based on seamless data exchange and interoperability.



Reto 2: Requisitos de Ciberseguridad

HORIZON-CL5-2021-D3-01-06: Reliability and resilience of the grid: Measures for cybersecurity, vulnerabilities, failures, risks and privacy

Deadline	Type of action	Indicate project budget	Number of grants	Budget
26/08/2021	IA	7.00 to 8.00	2	15.000.000

- **TRL:** Activities are expected to achieve TRL 5-6 by the end of the project
- **Scope:**
 - Application of **advanced information technologies** (e.g. probabilistic safety assessment, quantitative risk analysis) in **system development, operation and asset management**.
 - Application of digital technologies for **ensuring operational data quality and demand patterns recognition improving data access and information acquisition** for maintenance operators.
- **Expected outcome:**
 - Demonstration of increased energy system **reliability and resilience** following disturbances such as **faults, cyberattacks, terrorism or similar** at all relevant levels (infrastructure, hardware, software, organisational, etc.).



Consortiums

- **Participation of SMEs**
- **Integration of countries with low rates of participation in H2020**
- **Gender considerations**
- **Profiles and roles:**
 - IoT architecture developers, AI, ML
 - Software development & Integration
 - Sensors and API providers
 - Electrical Technology providers
 - Electricity and Energy Management
 - Distributed ledger specialist
 - Digital Twins
 - TSO, DSO, Generation operation and/or prosumers.
 - Risk analysis and management
 - High-level/Low-level communications
 - Anomaly detection & Mitigation; Mitigation Monitoring; Identity management
 - standardization and certification, policy recommendations.
 - Legal & Ethics. Data management plan
 - Dissemination & Comm, user engagement