

Horizon Europe partners sought for AI-driven energy data integration, monitoring and reasoning, grid observability, foundation models and adaptive edge sensing under call Horizon Europe HORIZON-CL5-2026-11-D3-23

Summary

Profile type

Research & Development Request Ireland

Company's country

POD reference

RDRIE20261008011

Profile status

PUBLISHED

Type of partnership

**Research and development
cooperation agreement**

Targeted countries

• All countries

Contact Person

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Term of validity

8 Oct 2026**8 Oct 2027**

Last update

8 Oct 2026

General Information

Short summary

An Irish smart-grid technology SME seeks partners for Horizon Europe HORIZON-CL5-2026-11-D3-23 on data sharing for energy AI foundation models. The proposed work links multi-source DSO datasets with high-resolution grid measurements, open data-space integration and edge AI. DSOs, AI/foundation-model developers, data-space, HPC, cybersecurity and power-system research partners are sought for R&D and real-world validation.

Full description

An Irish smart-grid technology SME is developing a collaborative R&D concept for Horizon Europe call HORIZON-CL5-2026-11-D3-23, focused on data sharing to support training and development of AI foundation models in the energy sector.

The project concept addresses a central limitation in energy AI: large historical datasets exist across utilities, but low-voltage grid observability can remain incomplete and datasets are fragmented across organisations, systems and countries. The proposed R&D will combine existing DSO data such as SCADA/ADMS, smart-meter, asset, topology, outage, DER and weather information with new high-resolution physical-grid measurements.

The SME will contribute its GridWatch monitoring and edge-intelligence platform as the physical-grid data layer. The platform can capture voltage, current, active/reactive/apparent power, frequency, power factor, harmonics and power-quality information at ground- and pole-mounted distribution assets. Its open communications architecture enables integration with utility, third-party cloud and energy data-space environments. The system's powerful AI-driven backend provides for intelligent data-integration and evidence-based reasoning and operational decision-making support.

A major research theme is adaptive sensing. Instead of treating field monitoring as a fixed data source, the project would investigate a closed learning loop in which AI models identify uncertainty or events of interest, specialised models are deployed to the edge, and monitoring devices dynamically adapt sampling/reporting to acquire higher-value data. The resulting measurements can then support validation, retraining and cross-network learning.

Potential R&D use cases include grid-state/load forecasting, anomaly and fault detection, predictive asset intelligence, power-quality classification, renewable/EV/heat-pump impact forecasting, flexibility management and cross-DSO transfer learning.

The SME has previous European and utility R&D experience. In the EU SOGNO project it supplied LV/MV monitoring across demonstration environments involving CEZ Romania, Elektrilevi, RWTH Aachen and ESB Networks. It has also integrated monitoring directly with ESB Networks cloud infrastructure and third-party platforms.

The consortium sought should cover the complete chain from DSO datasets and operational pilots through interoperable data sharing, AI/foundation-model development, HPC, cybersecurity and validation to edge deployment. The call deadline is 1 December 2026. The project duration indicated in the associated partner opportunity is 156 weeks. Consortium budget and internal EOI timing will be defined with partners and the EEN adviser.

Advantages and innovations

The proposed R&D extends energy AI beyond passive use of existing datasets. Its core innovation is a feedback loop between large-scale AI and physical-grid observability.

Existing DSO datasets would provide scale and operational history, while field monitoring supplies targeted, high-resolution measurements where visibility is incomplete. AI/foundation models can then be trained across heterogeneous datasets using secure, interoperable data-sharing approaches. Specialised or distilled models can be returned to edge devices to detect events and adapt measurement behaviour.

This creates the potential for AI-directed sensing: the model can help determine what additional physical data are valuable, while edge devices provide the mechanism to acquire them. The approach could reduce unnecessary communications and storage while improving capture of rare or high-value network events.

A further innovation is cross-DSO transfer learning. Models trained on multiple European networks could be adapted to new grids or applications and benchmarked against task-specific approaches. Performance can be assessed in

terms of accuracy, timeliness, data volume, compute requirements, constraint satisfaction and operational value.

The expected impact is improved grid visibility and more reusable European AI capabilities for renewable integration, electrification, asset management, power quality and flexibility.

Technical specification or expertise sought

The SME seeks:

Distribution system operators/data owners able to provide substantial historical and operational datasets and real network demonstration environments.

AI/foundation-model organisations with expertise in multimodal and time-series models, transfer learning, model distillation and trustworthy AI.

Energy data-space/interoperability partners with expertise in common data models, connectors, FAIR data, federated learning and privacy-preserving data sharing.

HPC/AI Factory partners able to support large-scale training and optimisation.

Power-system research organisations with expertise in state estimation, forecasting, fault/anomaly detection, power quality and flexibility.

Cybersecurity/AI-assurance partners covering secure edge-to-cloud communications, model security, identity/access control and validation.

Partners should be prepared to co-design measurable demonstrations linking data-space/foundation-model infrastructure to operational distribution networks.

Stage of development

Under development

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 11: Sustainable Cities and Communities**
- **Goal 17: Partnerships to achieve the Goal**
- **Goal 7: Affordable and Clean Energy**
- **Goal 13: Climate Action**

IPR Status

IPR granted

IPR Notes

Background IPR / protected know-how exists in the GridWatch technology, including patented sensing technology. Project foreground IPR and open/FAIR

Partner Sought

Expected role of the partner

The preferred consortium is DSO-led and combines operational data owners with leading AI and digital-infrastructure organisations.

DSO partners are expected to define priority use cases, provide suitable datasets under agreed governance arrangements, host or support field demonstrations and validate results against operational requirements.

The AI partner should lead or co-lead development of the energy foundation-model architecture, including multimodal/time-series representation learning, adaptation to specific grid tasks, transfer learning and model distillation for edge deployment.

A data-space/interoperability partner should establish secure cross-organisation data exchange, semantic alignment, connectors and privacy-preserving/federated approaches, and AI-driven intelligent data-integration and evidence-based operational decision-making support. An HPC/AI Factory partner should support large-scale model training. Power-system researchers should develop and benchmark grid applications, while a cybersecurity/assurance partner should address secure data/model flows and trustworthy deployment.

MAC/GridWatch proposes to contribute or lead work on grid observability, instrumentation, edge AI and adaptive data acquisition, including deployment of monitoring at selected sites, generation of AI-ready measurements, integration with project data infrastructure, event-triggered sampling, deployment of specialised edge models and validation against physical network measurements.

The desired outcome is a consortium capable of demonstrating a complete chain from physical grid → interoperable data sharing → foundation model → grid applications → edge intelligence → improved physical-grid data acquisition

Type of partnership

Research and development cooperation agreement

Type and size of the partner

- **SME 50 - 249**
- **R&D Institution**
- **SME 11-49**
- **University**
- **Big company**

Call Details

Framework program

Horizon Europe

Call title and identifier

Horizon Europe HORIZON-CL5-2026-11-D3-23

Submission and evaluation scheme

Anticipated project budget

Coordinator required

Yes

Deadline for EoI

8 Nov 2026

Deadline of the call

1 Dec 2026

Project duration in weeks

Web link to the call

Project title and acronym

Dissemination

Technology keywords

- **04002013 - Smart grids**
- **01003008 - Data Processing / Data Interchange, Middleware**
- **01003025 - Internet of Things**
- **01003003 - Artificial Intelligence (AI)**

Targeted countries

- **All countries**

Market keywords

- **06008 - Energy Storage**
- **02007016 - Artificial intelligence related software**
- **02006004 - Data processing, analysis and input services**
- **06003010 - Distributed power and grid connection**
- **06002003 - Power grid and distribution**

Sector groups involved