Delivered by
Innovate UK and EPSRC

Prospering from the Energy Revolution

Local Energy Oxfordshire (Project LEO)

Project fact sheet

Project LEO has supported the development of a wide range of local energy projects at the grid edge and a new local market platform for electricity system flexibility.

The Prospering from the Energy Revolution challenge programme ran from 2018 to 2023.
For more in-depth information on the programme and the projects see:
https://www.ukri.org/what-we-offer/browse-our-areas-of-investment-and-support/prospering-from-the-energy-revolution/

8279.0223

Local Energy Oxfordshire (Project LEO)

Dates:
April 2019 – March 2023

UKRI funding:
£15.2m

Link:
https://project-leo.co.uk/

Project partners:
Scottish & Southern Electricity Networks (lead)
University of Oxford
Oxford Brookes University
Low Carbon Hub
Oxfordshire County Council,
Oxford City Council
Nuvve
Piclo
Equiwatt
EDF

SLES components:
Local renewable generation
Battery
Vehicle to grid
Community energy projects
Local market platform

What is the project?

Project LEO has supported the development of a wide range of local energy projects at the grid edge alongside the development of a new local Distribution System Operator (DSO) market platform for electricity system flexibility. The project has developed a robust evidence base showing the technological, market and social conditions needed for a greener, more flexible, and fairer electricity system. Grid-edge projects include PV, batteries, hydro generation, vehicle to grid and demand management and these sit alongside a series of smart-fair neighbourhood trials which engage with community level energy, social, economic and environmental issues. LEO has brought together many of these grid edge projects to deliver flexibility which can support efficient use of the electricity network and maximise the value of the local energy portfolio.

What has been delivered? What has been successful?

- ✓ Delivery of demonstration and trial local energy projects, many of which have participated in delivering local flexibility.
- ✓ Development of DSO market framework and trading platforms.
- ✓ Significant improvements in network visibility through installation of more than 100 data monitoring stations.
- ✓ Successfully completed DSO market trials to procure network services and enable peer to peer network capacity trading.
- ✓ Regional and local mapping tools bringing together dozens of data layers to provide a geographical visualisation of energy use, constraining factors, and opportunities for SLES.
- ✓ Improved understanding of the barriers and opportunities for local communities and others on the grid edge to participate and benefit from SLES.

Barriers encountered and outcomes

Barrier	Delivering flexibility services remains technically complex for grid edge assets and local energy projects. There is a need for greater expertise to support non-specialist community and local providers to participate.
Outcome	LEO has provided a framework to support participating and market trials and has used manual processes to show proof of concept where automation would have been preferable.
Barrier	There is value in optimising the electricity system through local flexibility, particularly behind the secondary substation, but the value of DSO procured flexibility is currently relatively low.
Outcome	Greater understanding of the relative scale of flexibility revenue streams for grid edge assets in comparison to other areas of value and the need to develop flexibility in a way that supports the wider business case for local energy projects.
Barrier	Market structures that reward economic value but struggle to support wider social goals and ensure that no one is left behind.
Outcome	The project has explored and articulated financial and non-financial benefits with stakeholders, identifying the importance of wider impact.

Impacts

Match funding: £19.58m

Top lessons learnt

1. Local area energy planning can help identify the potential for flexibility from local energy assets and support valuable outcomes across the economic, environmental, and social spheres.
2. Revenues from flexibility need to be built into a wider business case for local energy assets.
3. Standardisation, automation and simplification will be important in enabling flexibility from the grid edge as will investment in data and digital.

What's next?

- Project TRANSITION will run further DSO market trials in which projects developed through LEO will be able to participate.
- Follow on projects, including applications to Ofgem's Strategic Innovation Fund, aim to further develop the LEO markets.