



Community DSO

The Energy Community Concept



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What is Community DSO?

The innovation project, which has received £14.5m Ofgem funding, aims to enable communities to pursue their own decarbonisation agenda and have greater control over their own energy and assets. This will strengthen local energy independence and incentives for local decarbonisation, delivering cost and carbon savings, whilst supporting DSO functionality for distribution networks.



Community DSO NIC Project Aims

- **Provide the foundation for communities to adopt the Community DSO approach easily and at scale**
 - Replicable tools and methodologies
 - Technical and commercial requirements
 - Recommendations for industry change
 - Roles and responsibilities
 - Community engagement strategies
 - **Give industry insight and understanding about the effectiveness and performance of the approach.**
 - When is it attractive for a community?
 - When can it operate successfully?
 - How might multiple cells operate together?
 - What are the impacts of rolling out the concept?
- Ambition is for Community DSO to become a Business As Usual solution

Community DSO Innovation Project: The Opportunity

This project will explore the opportunities that could be enabled by businesses, householders and the public sector taking a community approach to the design, planning and operation of their net-zero smart local energy system (SLES) through hosting four diverse trials in four distinct energy communities, staggered over 5 years.

Community DSO Concept: A Cellular Approach

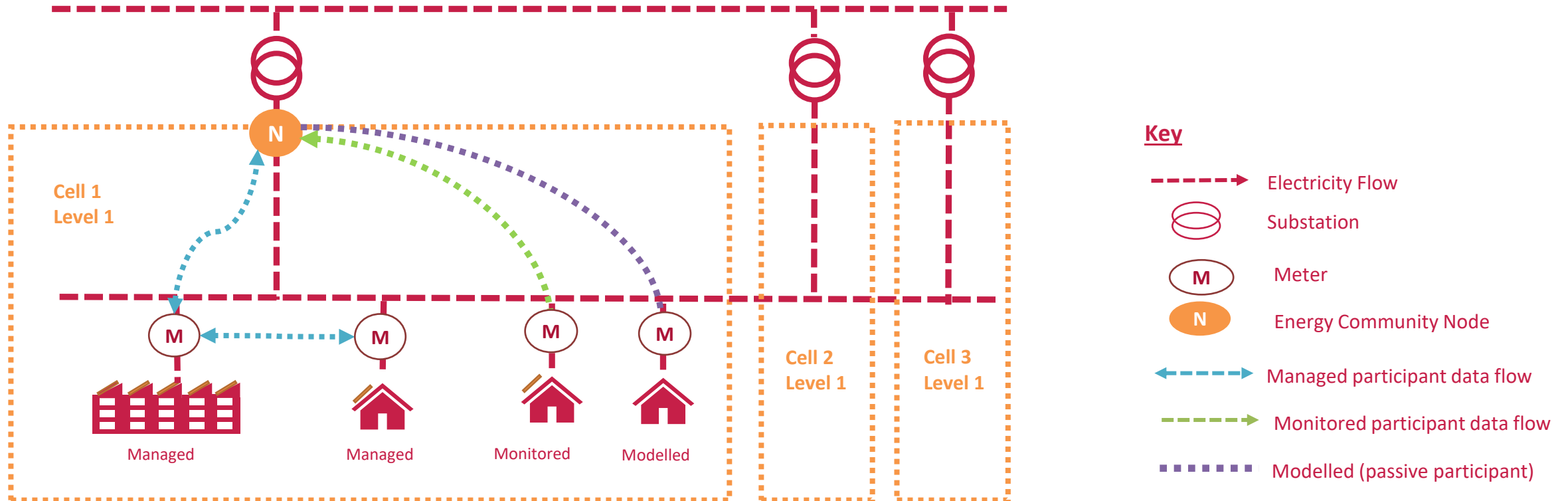


The cellular approaches will place communities in control of their local energy and demand, allowing them to benefit from:

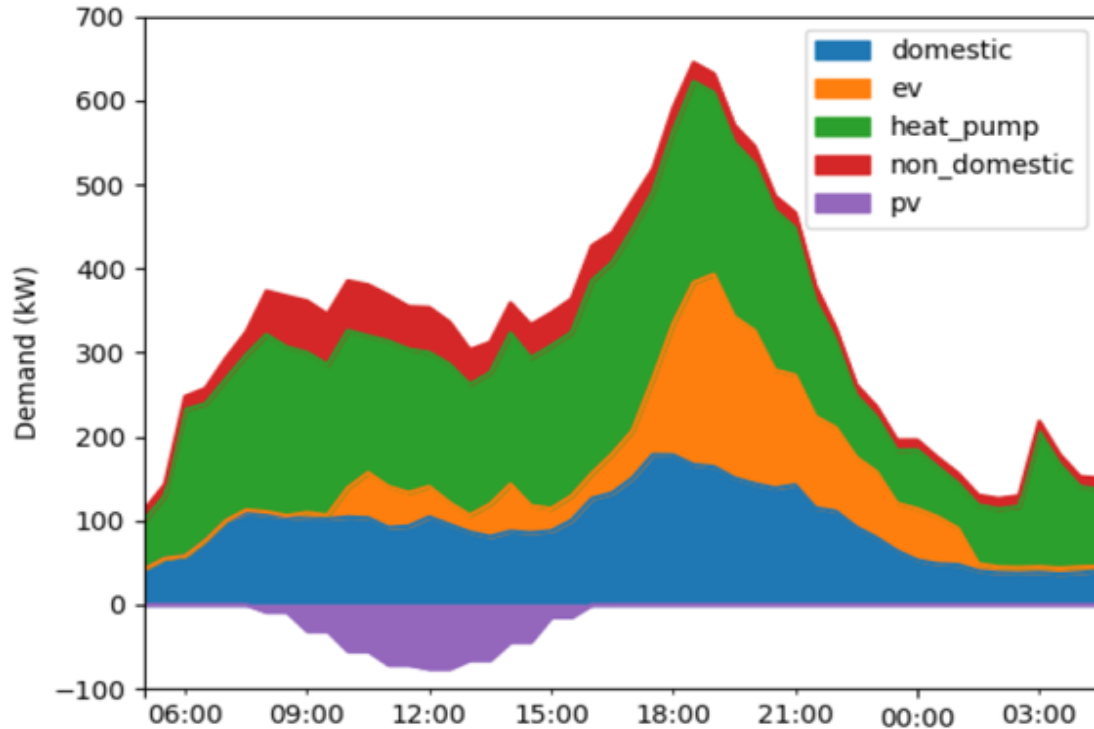
- Reducing their reliance on the wider energy system through self-consumption of local energy generation.
- Minimising the impact that the deployment of new decarbonisation technologies might have on the grid, reducing network costs and removing delays associated with the deployment of such technologies.

Community DSO Concept: A Cellular Approach

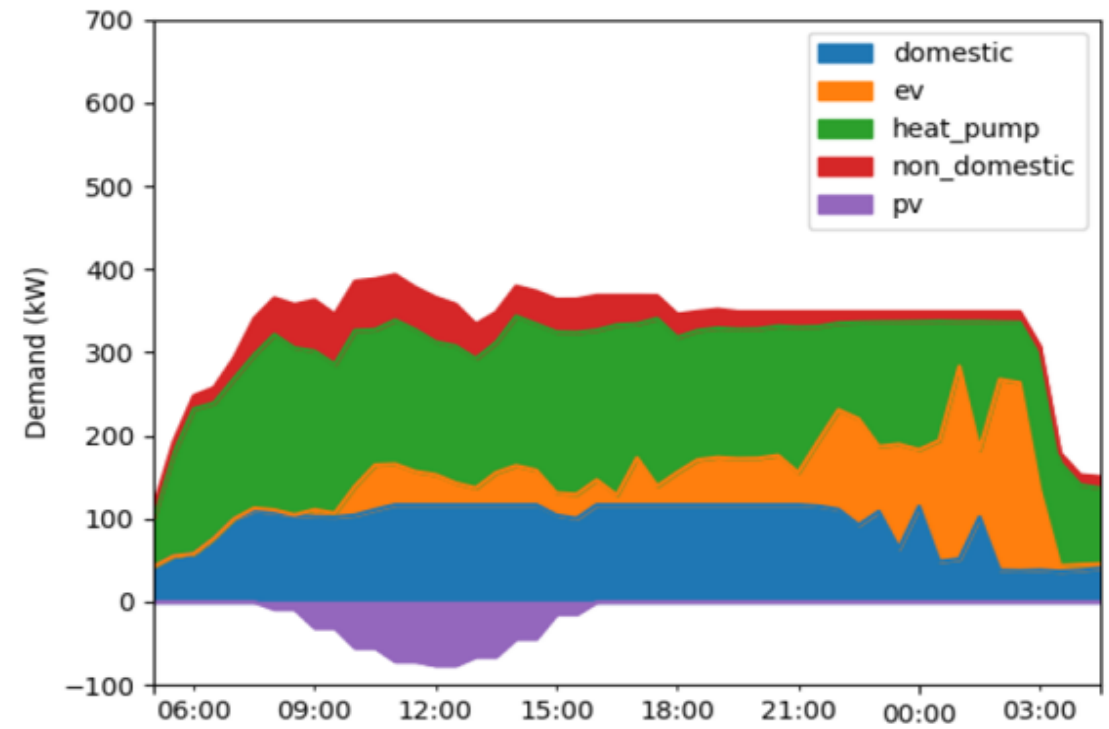
The Community DSO concept organises the network into replicable, hierarchically structured “cells”. A cell encompasses all the assets within it, including all energy producing or consuming devices within any home, business or other energy consumer connected to the same physical distribution circuit.



Community DSO Concept: Community Simulations



~200 customers, most with EV, a heat-pump, and PV



~40% participating in useful LV flexibility

Inclusive approach – enabling participation choices

Manage

- Consumer very actively engaged
- Systems control accessed
- Allows their assets to be utilised (e.g. PV Solar with Battery)
- Can supply dispatchable energy to the community
- Can provide Demand Side Response (at pre-agreed times)

Monitor

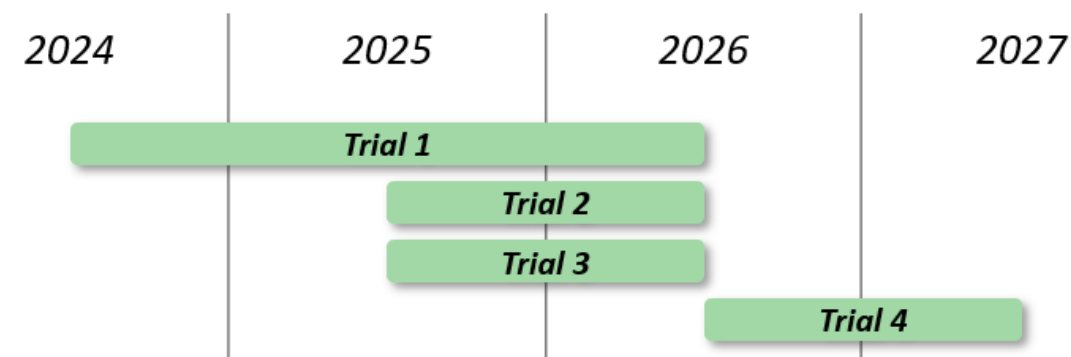
- Consumer actively engaged but with assets which are not dispatchable or preference is not to be managed
- Provides access to their energy data usage to support the management of the wider community system

Model

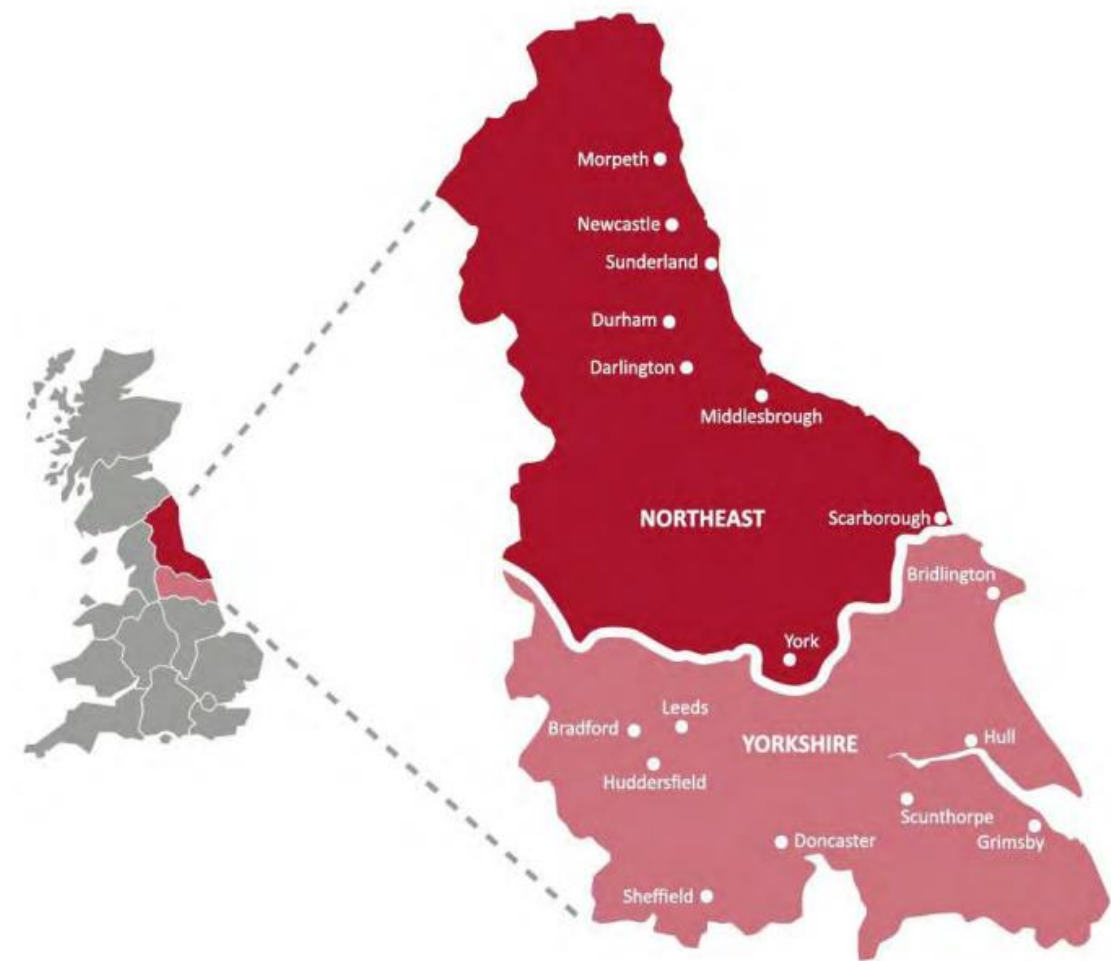
- Consumers who are neither monitored directly nor managed by the control platform, either by choice or necessity
- Community DSO will utilise advanced predictive modelling tools to better understand how the consumer demand varies

Project Trials

Demonstrate and test the extent to which Energy Communities can be collectively flexible



Our aim is for each trial to be slightly different:	Demographics, types of premises, technologies, business models, mix of energy resources etc
Every trial must be centred around a specific area within the low voltage network:	One secondary substation (or possible, one cable feeder)
Trial 1 is unique because of its timescales:	Needs to mobilise very quickly



Community DSO Innovation Project:

The Outcomes

“Community DSO has the potential to unlock huge value for customers and the network and will be defined by customers physical connection within the network and their willingness to coordinate their demand and supply of electricity.

This will present an opportunity for these customers to contribute actively to the local balancing of supply and demand, reduce their energy costs and minimise impacts on the network.”

It will:



Take advantage of state-of-the-art innovation in technology, data, analytics and market mechanisms



Offer opportunity for passive + active community participation + equitable reward in the marketplace



Provide a just transition route to net zero energy for the local distribution system and its customers

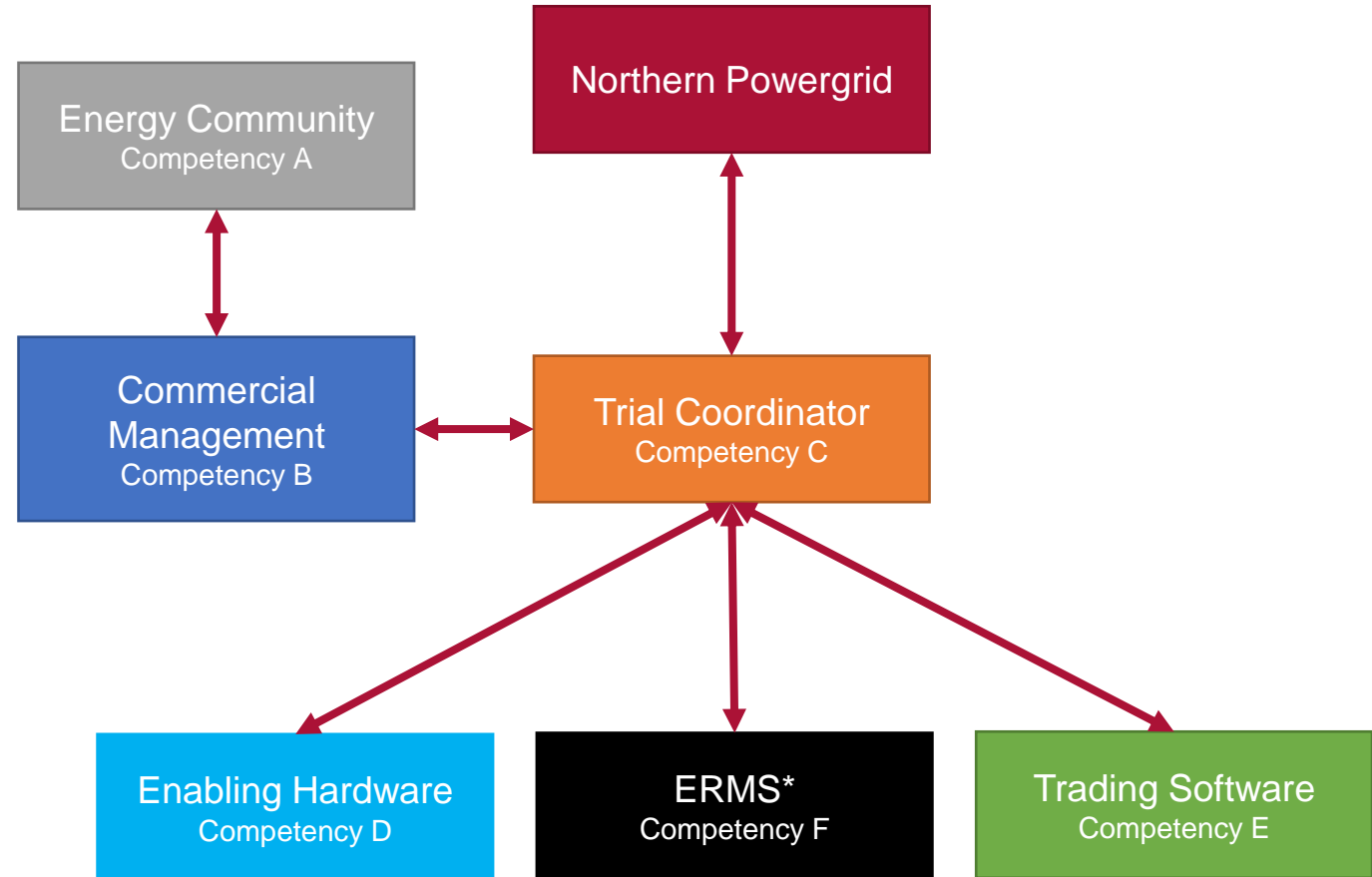


Provide system resilience in a cost and resource efficient way

Community DSO Innovation Project: Next Step - Call for Consortiums

Six competencies are needed for each of the four trials. We have chosen to tender for Trial 1.

- Organisations can meet one or several required competencies and should build their own consortiums that satisfy all competencies to tender to deliver the trial, working with the Partner Team from NPg, LCPDelta & TNEI.



**Energy Resource Management System*

Procurement Aims: Stage 1

Next Step - Call for Consortiums

- Focus is on appointing the winning consortium in early 2024 to commence trial one in Autumn 2024



- Appoint partners to deliver the 1st (and only the 1st) of 4 trials. **Tendering opens October 2023.**



- Contract with a single organisation, who will subcontract if necessary.
 - This organisation will be ultimately responsible for delivering all aspects of the trial, managing all the interfaces, and managing delivery risks
 - This contracting approach aligns with the commercial relationship that we expect DNOs to have with Community DSOs in BAU, providing opportunities for learning



- Trial communities must demonstrate an ability to shift or reduce their energy consumption, to support the secure operation of their existing local low voltage network



- Trial communities must be based within Northern Powergrid's Licence areas (North East, Yorkshire and North Lincolnshire)



Q&A

Thank you.

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