EIP028
Are there whole-buildings solutions to decarbonise MOBs?

Problem Statement Details

Currently, decarbonisation of multi-occupancy buildings (MOBs) is completed in an uncoordinated approach that benefits individual early adopters, utilising solutions optimised for single premises marketed directly to the customer. Often this results in unnecessary costs associated with multiple site visits and assessment work for the Distribution Network Operator (DNO) for individual flats in the same building when they choose to decarbonise. In some cases, solutions require connection supply upgrades, which becomes a fairness issue for the residents who are slower to decarbonise, as spare capacity to the building no longer exists – prohibiting or delaying decarbonisation.

While the focus of the challenge is on decarbonisation and retrofitting existing buildings, challenges in decarbonisation for new builds should also be considered. Namely, large developments that stretch over multiple construction phases have changing demands and spatial restrictions that constrain network extension and supply upgrades.

A whole-building solution is required to support decarbonisation at a reduced price point and ensure network constraints are less likely to prohibit uptake of low carbon technologies (LCTs) for multi-occupancy building residents.

Key Stakeholders

Distribution Network Operators – interested in minimising the number of connection requests and avoiding or deferring network reinforcement where possible to lower overall costs.

Gas Distribution Networks – interested in providing low carbon and hydrogen infrastructure as part of heat decarbonisation.

Multi-occupancy building residents – interested in low carbon technologies and heat solutions including fairness of costs associated with solution implementation.

Building network operators – interested in identifying a clear route to building decarbonisation and their role in operation/maintenance of related assets behind the intake position.

Mainstream providers of whole-building solutions – interested in marketing all or part of heat decarbonisation services and solutions to the building owners, residents and/or building network operators.

Local authorities – interested in providing insight on prior projects into multi-occupancy building archetypes and applicable heat solutions, customer segments, stakeholders, and route to market challenges.

Building owners (incl. housing associations and residents management company) – interested in identifying a clear purchasing and ownership structure for building residents as well as roles and responsibilities to install and maintain the solution.

Developers – interested in adopting a whole-building heat decarbonisation solution in plans for future multi-occupancy building projects.

Target Market

An estimated 4.7 million residents of multi-occupancy buildings (buildings with more than four properties) across England within the RIIO-ED2 price control period.

Enablers and Constraints

NeatHeat looks at Zero Emission Boilers (ZEB) as an alternative LCT solution to gas boilers where heat pump installations are impractical or not cost-effective; the aim is to allow heat decarbonisation without triggering a network reinforcement for homes fitted with a 100 A fuse. This assumes the ZEB draws 40 A and is smart controlled to only operate at night (off-peak) – the assumption holds even if the home is fitted with an electric vehicle charge-point that typically draws 30 A. However, the solution is directly marketed to the consumer and does not address the challenges of an uncoordinated approach and the impact on incoming building supplies.

Heat Pump Ready Programme provided by BEIS is a funding stream that assists in optimised deployment of heat pumps through innovative solutions and methodologies.

An internal working group has been created within UK Power Networks to recognise and determine areas of focus around the increased complexity in LCT connection requests from multi-occupancy residents.

Scalability and Target Implementation Date

The solution would need to be scaled to the different building archetypes where applicable.

Roll-out would reach across all network regions and across urban and town areas.

Implementation date is flexible within the RIIO-ED2 period depending on the solutions proposed and level of readiness.

Innovation Strategy Target Areas

Innovation Theme	Target Area	Primary or Secondary
Data and Digitalisation	The shift to data-driven, digitally enabled networks is critical as we move towards Net Zero. We need your help to drive standardisation, interoperability, security and digital skills whilst accelerating our transformation to data-driven networks by the mid-2030s.	Not applicable
Flexibility and Market Evolution	Energy networks must quickly and efficiently respond to the rapidly evolving needs of the energy system transition. We need your support to eliminate barriers to new market entrants, deploy novel commercial and network management solutions whilst ensuring fair participation and eliminating regulatory barriers within the RIIO-2 price control periods.	Secondary
Net zero and the energy system transition	In order to meet the UK net zero targets of 2050 we must start converting our networks to deliver low carbon fuels today. We want to work with you to develop the role of our gas networks into the future by investigating, trialling, implementing and delivering safe, low carbon alternatives to natural gas such as Hydrogen.	Secondary
	Net Zero requires connection of more low and zero carbon sources of energy generation, storage and demand to both the transmission and distribution networks. We need your innovative methods for effective network management and accessing flexibility to improve visibility, forecasting and modelling of low carbon technologies.	
Optimised assets and practices	Innovation has a key role to play in ensuring our networks continue to remain reliable, safe, secure and resilient to our changing climate. We are constantly looking to improve and welcome support to identify methods to prevent interruptions, ensure resilience, reduce climate impact and future-proof our networks.	Not applicable
Supporting Consumers in Vulnerable Situations	Equality and fairness are the foundations of a just transition to Net Zero. We hope you can provide insight into the transient and situational nature of vulnerability and how we can overcome the impact the energy system has on consumers, building strong relationships for the future.	Not applicable
Whole Energy System Transition	The energy system must consider the full range of opportunities, risks and interdependencies that exist across the energy networks to integrate and optimise them in a way that best serves the consumer. We are looking for ways to improve visibility of the networks and transitional options, co-ordinate approaches and collaborate across the UK.	Primary