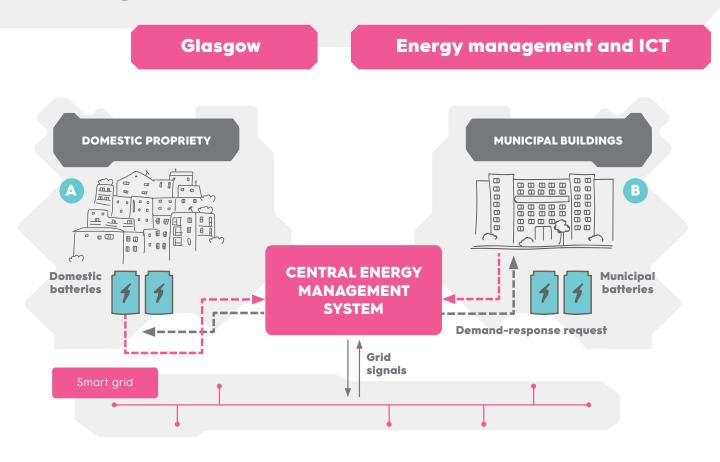
FACTSHEET G9 + G10



Implementation of demand-side management technology in domestic & non-domestic properties



A: The objective of this solution is to explore how domestic flats that utilise electricity as a heating source (by way of storage heaters) can be included as assets connected to the grid to supply demand-side response to grid signals. This solution will include the installation of domestic batteries to explore options for charging/discharging schedules related to electricity tariffs.

B: The objective of this solution is to build upon previous work that was undertaken by Glasgow City Council to look at how non-domestic buildings could be connected into a smart grid system via their in-house building management systems (BMS). Via connection to the BMS, the grid can ask for reductions in buildings' demand to create availability on the network to match overall demand. This can provide savings for the buildings in question, and provide resilience to the grid infrastructure, whilst negating the need for very expensive infrastructure upgrades.

Main partners involved:









This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 731198. The sole responsibility for the content of this document lies with the RUGGEDISED project and does not necessarily reflect the opinion of the European Union that is not responsible for any use that may be made of the information it contains.

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How does it work?

Demand response requests will be made by the demand-side controller - via the street lighting communications layer - to each domestic property included in the trial. The local BMS will decide whether it is cost-advantageous to maintain the electricity locally for local consumption or to deliver power to the grid for demand response.

Replication potential

It is the ambition of the Wheatley Group to see deployment of the DSM technology in domestic properties across the city (if the Smart Corridor demonstration proves successful). Those with local generation, such as PV technology, will be the initial targets for deployment.

Estimated impacts

The solution should:

 Provide relief from fuel poverty for residents via reduced heating costs or revenues generated through connecting assets as demand-response capable. · Also demonstrate the effectiveness of battery appli-

- cation in a domestic scenario.
- · Demonstrate the potential for electrical heating to become more efficient and better managed.

• Help reduce energy costs within buildings and allow Glasgow City Council buildings to be aggregated for inclusion in the national demand response mechanisms. The local grid impacts will be assessed to understand local benefit that may come from demand response.

Modelling

A building simulation model of a complete floor of flats in the Drygate housing scheme has been created by the Energy Systems Research Unit at the University of Strathclyde- as shown here. This has been used to produce heat and power demand data that can assist in both sizing the communal battery and planning future improvements.

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