



Case study

OPTINET

# OptiNet

The gas industry is facing a dual challenge as we transition to a cleaner energy system – more green gas suppliers connecting to the network and increasing demands on it, including more flexible power generation and gas for transport.

A first for the UK, OptiNet is a collaborative project to help us balance green gas supply with demand to maximise the green gas production and keep homes heated. It will support the transition to a cleaner energy system – an essential step on the path towards decarbonising by 2050.



A FARM FIT FOR THE FUTURE – WYKE FARMS BIOMETHANE PRODUCTION SITE



## FACT FILE

- The Pathways project (NIA\_SGN0144) recently predicted availability of as much as **193 TWh** of green gas by 2050, enough to heat more than **16 million homes** across the UK.
- Combined with a hybrid heat pump using renewable electricity 80% of the time, green gas can be used to decarbonise four times as many homes as it could on its own – more than **2.5 million homes** on our network in a net zero scenario.



## Need

Increasing the number of green gas connections is essential to our net zero vision. It is a cost-effective way of decarbonising heat that can be used in place of natural gas with zero impact on customers, so we want to maximise the amount of it flowing through our network.

In a net zero scenario, our network could see an additional 9.6 TWh of green gas entry per year – that’s enough to heat 800,000 homes, and as many as four million where hybrid heating is installed. But our network is reaching capacity. We have identified 16 zones where we need to balance entry (green gas) and exit (for power generation), and it is only by using new optimisation methods and technologies that we will be able to achieve this aim.



## Approach

With Cadent, we are investigating innovative ways of boosting capacity, enhancing control and improving storage to maximise the use of biomethane and better manage the peaks and troughs of demand as it changes on our network, both daily and throughout the year.

The project, which runs until 2021, includes installing a gas compressor. Managed by Cadent, this will prove the concept of compressing gas on the network so that green gas can be stored, moved longer distances and used more efficiently.

We will also install smart control on the gas network to help us quickly balance green gas availability with demand and make sure we facilitate as much green gas entry as possible.

Following the initial technical evaluation, testing now begins. We will assess the feasibility of compression into storage at scale, the commercial and regulatory barriers, network reinforcement options and advanced demand forecasting tools based on insights from the Freedom project (WPD\_NIA\_023).



## Benefits

OptiNet will deliver detailed recommendations on how best to meet the optimisation challenges we face and the evidence we need to justify investment. This will help us develop a cost-efficient and reliable system of managing green gas injection that meets current and future demand for more flexible power generation or gas for transport.