|  |  |  |
| --- | --- | --- |
| Network Innovation Competition 2020 Supplementary Answer form | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Project Name | H100 Fife | | |
| Question number | #3 | Pro forma section | 2 |
| Question date | 20/08/20 | Answer date | 24/08/20 |
| Question summary | Please explain how you arrived at 300 homes as the ideal demonstration numbers, and please provide a minimum number of households required to take up hydrogen gas in order for the project findings to be robust. | | |

## 

## Answer (please retain document formatting and do not exceed 2 pages unless otherwise agreed with Ofgem)

The identification of 300 consumer properties as an optimum sample size for the H100 demonstration is derived from the use of gas industry diversity factors to estimate gas demand.

IGE/GL/1 (Planning of gas distribution systems of MOP not exceeding 16bar), sets out the planning parameters for gas network distribution systems including design curves that set out impacts of diversity within a single network system. Network diversity refers to the fact that consumers don’t all use gas at the same time, whether they are consumers of the same type or especially if they are consumers of different types. Appendix 5 of GL/1 sets out parameters based on property classification including central heating consumers for both pre 1977 and post 1976 housing as well as equivalents for non-centrally heated properties. For the range of property types outlined in the appendix, the point at which diversity normalises, meaning no further impact is seen on demand for additional consumers over and above this number, ranges between 180 and 250 consumers.

Network analysis and resultant network modelling is a critical element of network management, underpinning network investments. In order ensure the demonstration delivers results that inform a scalable and replicable impact on planning, to facilitate future projects, an understanding of demand and capacity is essential. This will inform wider system planning and provide an understanding of future hydrogen network investments. Furthermore, electricity and water networks will benefit from electrolyser demand profile data.

The selection of 300 consumers, monitored over a five-year demonstration period, will support an understanding of capacity requirements for the distribution network with considerations to both in day and seasonal demand. This will ensure a robust process offering additional confidence in the datasets obtained throughout the period of the demonstration, across various elements including; network supply requirements, demand for both annual and peak 6-minute period, demonstration of efficient network control, visibility of overall network performance as well as storage and generation requirements. An understanding of these parameters is essential in informing future demonstration systems. The H100 Fife network itself will be all PE, resulting in a demonstration of a network representative of >80% of the GB gas distribution network.

It has been identified that the local property population largely falls under a range of categories, mostly dating from late 19th to early 20th century. Details of relevant properties will be determined following customer engagement activities and subsequent sign up to the demonstration. The validity of the diversity of the consumer base can be evidenced through socio economic data alongside additional datasets including property classification. Work carried out on both Opening up the Gas Market and Real-Time Networks NIC projects have demonstrated an approach for deriving and statistical relevance and in the case of the latter developed a robust methodology for consumer categorisation. The learning from these projects informed the site selection process for H100 NIA.