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| Network Innovation Competition 2020 Supplementary Answer form | | |

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| Project Name | H100 Fife | | |
| Question number | #2 | Pro forma section | 3 |
| Question date | 20/08/20 | Answer date | 24/08/20 |
| Question summary | Please explain how the safety case for H2 requires an 'end-to-end' in a single project. | | |

## 

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

Construction and demonstration of an end to end system allows the interfaces and interactions between the power input, hydrogen production, storage and use within the customer home to be validated and understood for future application.

The customer experience is sacrosanct. Our approach ensures end to end control of the safety and technical management of the system, reducing cross chain risks for a first of a kind demonstration, supporting the delivery of our customer obligations, detailed in Section 8.4 of our submission.

The proposed H100 Fife project system seeks to evidence a key part of a future renewable energy landscape by demonstrating an achievable end to end solution for a hydrogen network derived from offshore wind. This contributes to the national evidence base for hydrogen networks, through the Gas Goes Green programme, via the BEIS Hydrogen Programme Development Group (HPDG) and by validating the research carried out under programmes such as H100 NIA, H21 and Hy4Heat. This demonstration and validation of the hydrogen evidence base can help to inform government heat policy decisions. Hydrogen networks must be demonstrated at a consumer level to prove the decarbonisation opportunity and enhance the business case for the gas network transition to hydrogen in advance of any strategic decisions or mandated change for hydrogen rollout. External funding has been sourced for elements outwith the usual gas distribution activities. This includes a £6.9m grant from Scottish Government to contribute towards the electrolyser and associated production infrastructure.

Prior to operating a hydrogen distribution network and accompanying production and storage facilities, it is necessary to evidence that it can be operated safely and is compliant with relevant legislation. Previously, the H100 NIA project reviewed the relevant sections of the Gas Safety (Management) Regulations GS(M)R together with the associated SGN procedures and standards to establish the differences between operating a natural gas and a hydrogen distribution network, in order to build a safety management framework (SMF) that reflects this. The distribution network elements for the H100 Fife SMF has been informed by the current information from the evidential reports conducted under H100 NIA.

An end to end SMF is needed in order to evidence the interfaces between the separate sections of the SMF, which encompasses:

* Production / Storage / Gas Treatment (based on lower tier COMAH requirements)
* Distribution Network (based on GS(M)R requirements)
* End user (covering downstream of the meter ECV)

A set of Local Operating Procedures are being produced, informed by existing SGN procedures and standards, specifying how to safely construct, operate and maintain the end to end system.