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| Network Innovation Competition 2020 Supplementary Answer form | | |

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| Project Name | H100 Fife | | |
| Question number | #22 | Pro forma section | 5 |
| Question date | 10/09/20 | Answer date | 14/09/20 |
| Question summary | What duplications does the H100 demonstration facility have with that of the Spadeadam site and why are these necessary? | | |

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

The DNV GL Hy4heat/ H21 facility, HyStreet, located on the MOD site RAF Spadeadam in Cumbria fulfils a very important role in the furthering of the evidence case for hydrogen. The experiments and findings carried out at HyStreet have informed the wider hydrogen safety management framework and feed into the overall QRA for hydrogen distribution and supply within homes. The advantage of HyStreet’s location, remote and not accessible by the public, affords it the ability to conduct testing that would not be feasible or safe in a public setting.

H100 Fife’s Hydrogen Demonstration Facility is a publicly accessible centre that is located in the vicinity of the demonstration participant homes. Initially this will aid customer engagement and in the mid to long term it will endure as a centre for hydrogen awareness and training (2.2.5 and 8,3 of our submission). The H100 Fife Hydrogen Demonstration Facility will demonstrate hydrogen appliances and educate stakeholders, it will not conduct testing in the way that HyStreet does as H100 Fife is a safe trial and not a trial for safety. The advantage as stated in section 6.1.1 of our submission, in working with DNV GL to deliver the H100 Fife Hydrogen Demonstration Facility is that they can carry over learning from the delivery and operation of HyStreet into the design and build of H100 Fife’s facility in relation to aspects that support the facilities enduring role as a training centre.

The HyStreet houses are fully instrumented with hydrogen detection equipment so that the concentration and location of any build-up of hydrogen is fully understood and mapped.  After an experiment is complete, the houses are ventilated by opening all the windows remotely and the windows remain open until the hydrogen sensors in the buildings indicate that it is safe for them to be closed and for people to enter.  HyStreet has now been running for a couple of years and DNV GL has a very good understanding of the way hydrogen behaves in homes.

The three ‘houses’ on the H100 Fife site will have two key purposes:

1. To allow customers and other stakeholders to experience what a hydrogen home looks and feels like.  The properties will need to be similar to those in the H100 Fife target area and to be fitted out with hydrogen services, excess flow valves, meters and appliances as they would be configured during the trial.
2. To be a training facility for SGN staff and local installers to allow them to familiarise themselves with a  new set of hydrogen specifications and procedures.  This will include installing pipework and hydrogen appliances in homes, making and breaking hydrogen fittings, using hydrogen detection equipment and what to do in the event of an emergency.

For the customer/stakeholder role, the hydrogen installations in the houses need to be similar to those that will be rolled out as part of the H100 Fife project - no special or additional equipment is likely to be needed.  However, as a training facility, there is a potential for hydrogen to escape and for trainees to need to experience hydrogen leak detection using new hand-held equipment.   Additional mitigations in the properties may be required such as emergency ventilation, alarms and sensors to detect dangerous hydrogen levels and to give the all clear after an emergency.  DNV GL has proven experience in keeping HyStreet safe even after the homes have been filled with high concentrations of hydrogen.  This knowledge will be shared with SGN during the construction of the H100 Fife demonstration properties.