

# *Network Innovation Competition Full Submission*

## *Supplementary Answer Form*

Tick if this answer is Confidential: ☐

Tick if this answer has been provided verbally: ☐

|  |   |                 |                              |
|--|---|-----------------|------------------------------|
| Project code:                          | WWUGN01   | Question Number | 3                            |
| Question date                          | 15 <sup>th</sup> August 2013  | Answer date     | 19 <sup>th</sup> August 2013 |
| Submission section question relates to | Section 2.4 section 7   |                 |                              |
| Topic                                  | Hydrogen injection levels   |                 |                              |
| Question                               | <p>The target level of hydrogen injection sought has been reduced from 20% to 2% since the ISP. Section 7 Regulatory Issues indicates that the size of the wind farm will mean that injection of hydrogen in excess of the current 0.1% limit will not be possible on a regular basis. Please indicate the forecast profile of hydrogen injection % in the form of a duration curve over the period of the trial.</p>   |                 |                              |
| Notes on question                      |   |                 |                              |
| Answer                                 | <p>The electrolyser (maximum kg/day hydrogen output) and hydrogen storage capacity (kg) have been sized in order to inject up to a maximum of 2% hydrogen into the Wadebridge medium pressure network based on the average gas flows in the Wadebridge medium pressure network, subject to achieving the necessary exemption to the Gas Safety (Management) Regulations 1996:</p> <p>100% of peak demand – 2,208 m3/hr</p> <p>75% of peak demand - 1,711 m3/hr</p> <p>50% of peak demand - 1,142 m3/hr</p> <p>25% of peak - 572 m3/hr</p> <p>10% of peak - 230 m3/hr.</p> <p>The proposed trials envisage the investigation of a number of different operational arrangements to determine the optimal use of the hydrogen. Hydrogen injection is one option but so is storage for use in the gas engine at times of higher local demand for electricity. The trials and commercial</p> |                 |                              |

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|   | <p>modelling will seek to identify the parameters that determine the best use of the hydrogen. The commercial viability of these projects will determine whether this technology can be rolled out nationally benefiting gas customers.</p> <p>We are therefore not able to provide a duration curve over the period of the trial as the trials will affect the volume of hydrogen available for injection.</p> |
| Attachments                             |   |
| Verbal Clarifications<br>(Consultants ) |   |