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| Network Innovation Competition 2020 Supplementary Answer form | | |

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| Project Name | QUEST | | |
| Question number | #19 | Pro forma section | Section 3 |
| Question date | 25/08/20 | Answer date | 27/08/20 |
| Question summary | What percentage of the current ENWL demand is fixed impedance rather than fixed power and how is that expected to change in the future? Has the present ratio been quantified and together with the future changes taken into account in the change benefit calculations. | | |

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

In common with many UK DNOs, we have not undertaken any analysis regarding the percentage of fixed impedance and fixed power demands on our network, and therefore we have no specific expectations around how this might change in future.

The voltage demand relationship used in the business case calculations was developed by the University of Manchester during our CLASS project, and is now well established across the industry. The Kp (voltage/demand ratio) values were determined by measurement at the 60 substations in the CLASS trial areas.

The substations were categorised as Domestic, Industrial and Commercial using the Elexon profile classes 1-8, and the measured Kp values were averaged for each respective category.

The CLASS trials were carried out after the significant demand change associated with the banning of incandescent light bulbs.

In our BaU operation of CLASS the intelligent AVC relays re-calculate the Kp in real-time, and these values have not varied since the trials. QUEST will use these intelligent relays and will have access to the real-time values to enable accurate assessment of the demand reduction.