

NGET 2015 NIC submission: Offline Substation Environment for the Acceleration of Innovative Technologies (OSEAIT)

ISP Questions 22 April 2015

Q1: Under criterion (a), please provide some quantification for how the project would deliver benefits that outweigh the costs

A1: National Grid Electricity Transmission (NGET) is seeking NIC funding support for this project of circa £17.2m out of a total estimated project cost of £32.5m. Over the five-year period following the completion of the centre in 2020, the facility has the potential to deliver £597 million. Furthermore, other areas of benefit, such as environmental fast tracking of SF₆ alternative gases into the network, are difficult to quantify.

New Technologies and Practices

Accelerated adoption of new technologies reduces both time and cost of these arriving into the market place. Savings produced by implementation of these technologies across the networks can potentially provide financial benefits to the consumer.

Over £300 million of tax payer funds are being spent every year on research and development of low carbon technologies for electricity networks, whether it be through DECC or BIS initiatives. A significant percentage of these projects do not involve electricity utilities. As a broad estimate, it could be argued that 1/3 of the investment results in a commercialised product or service 10 years after being conceptualised at TRL 0. If we assume successful commercialisation results in savings of 5 times the amount invested within the first 5 years of commercialisation, acceleration of commercialisation of these technologies by 3 years (conservatively ignoring the savings due to the reduced timescale) would result on an average saving to consumers of £373 million on top of the savings due to the successful innovation over the five years following the completion of the centre.

Managing Existing Assets

NGET is world leading in the area of asset management. To date, most of the new learning on assets has been developed through better understanding individual asset components. This has allowed NGET and other transmission licensees to extend the life of their assets through improved asset management and novel intervention techniques. In order to optimise interventions even further, the interaction between the various assets under operational conditions needs to be more fully understood. This project will create the capability and enable this to happen within shorter timescales.

NGET's non-load related business plan includes investment of £4.8 billion on interventions (maintenance, replacement, refurbishment) during the RIIO T1 period** to address what is considered one of the biggest challenges for electricity networks, "ageing infrastructure unable to cope with changing generation and needs"*. Due to the age profile of the GB electricity network assets, investment of this kind is likely to be required in future regulatory periods as well. Assuming savings from deferred investment continue to be shared between the utility and consumers, once the facility is complete in 2020, optimisation of this investment could potentially produce savings to consumers of 2.5% per year which, within 5 years equates to approximately £75 million of saving.

Furthermore, should UK distribution licensees start continue to be regulated by the same guidelines, the benefits from the facility could triple its impact to a 5-year consumer benefit of around £224 million.

*"Delivering UK Energy Investment: Networks", January 2015, Department of Energy and Climate Change.

**"Non-load related Business Plan", March 2012, National Grid Electricity Transmission.

Q2: Under criterion (b), please explain where the remaining project funding (beyond that requested from the NIC) will come from.

A2: The remaining project funding will come from NGET. NGET has also consulted and approached OEMs and Small/Medium Enterprise several of which have expressed an interest in supporting the centre through funding, equipment and innovation projects. However, it is important that the facility remains completely independent. As such, should the ISP be successful, NGET will aim to maximise the benefit obtained by involvement of these third parties, as well as new ones, whilst delivering an independent facility which can successfully deliver sustainable benefit to the UK electricity industry and the wider UK economy.