

## **Southern Electric Power Distribution**

### **LCNF ISP: LEAN - Low Energy Automated Networks**

**14 April 2012**

#### **Question 1**

**We note that the submission indicates that this projects meets first specific requirement – 'A specific piece of new (ie unproven in GB) equipment (including control and communications systems and software) that has a Direct Impact on the Distribution System)'. It is not clear from the Method described what specific new piece of equipment will be used in this project. Please clarify how this project meets the first specific requirement.**

#### **Answer**

The LEAN project will be testing 2 new operational methods of reducing losses, Auto Start and reconfiguration (including HV Meshing), both of these have been shown in a theoretical study to reduce losses very efficiently however implementation brings with it a range of challenges that require addressing including amongst others:

- Establish a combination of equipment, methods and control that will enable these losses benefits to be achieved in a repeatable way across UK networks at an affordable cost.
- Establishing and testing control algorithms to balance losses benefit against asset deterioration and supply security during a range of network status scenarios.
- Quantification of the impact of these switching patterns on asset life to allow the whole life cost of the solution to be validated as part of the solution.
- Identification and assessment of switchgear capable of minimising the magnetic inrush associated with reduced asset life of transformers from repeated re-energisation.
- Specification of substation topographies suitable for Start-Stop switching.

The intention is to tender many aspects of this to ensure that the best balance of innovation and proven equipment is utilised.

Specific new equipment is expected to include:

1. Automation software to manage 11kV network feeder parallels and to manage the energisation and de-energisation of 33/11kV transformers. Such automation is unproven in GB.
2. High-performance switchgear capable of energising 33/11kV transformers with a minimum of magnetising inrush current. This application of high performance switchgear is unproven in GB.

As a result it was decided this project met the necessary requirements as set out above, and was selected as a suitable idea to be developed due to its objective of reducing losses with the added benefits of providing learning on network optimisation and asset management to a DNO.

## Question 2

**As you know, under the 'Project Partners and external resourcing/funding' criterion, you are required to provide evidence of the processes that have been followed and the rationale for selecting BOTH (i) participants and (ii) ideas for the project.**

### Answer

Throughout our business we are in regular consultation with a range of stakeholders both in formal engagement sessions and more informal dialogues; during this process we meet many of the potential participants and identify new innovative ideas and approaches. In addition we have a number of specific organisation and mechanisms that allow us to capture potential partners and ideas. These include:

- Energy Innovation Centre (EIC focussing on SME and independent innovators)
- ENA LCN Fund Industry Collaboration Platform
- Academic partnerships
- Bilateral Stakeholder engagement with Vendors
- Attendance at a range of conferences and other networking events
- Stakeholder engagement more broadly across our customer base
- Internal innovation generating workshops and initiatives
- Our existing IFI programme partners and ideas

Through these mechanisms we record potential innovative ideas and associated partners for either participation or delivery.

In preparation for our ISP submission we hold selection events where a range of business experts assist in the evaluation of the ideas that have emerged from engagement or have reached a suitable TRL in our historic IFI and LCNF programme. In this workshop we consider factors such as:

- Existence of duplication with previous projects.
- Size and value of the project necessary to demonstrate (IFI, T1 or T2).
- Applicability of the idea to the LCNF criteria.
- Timeliness of the solution in relation to the challenges the industry and our stakeholders face.
- Replicability and relevance of the solution across the UK.
- Technical readiness.
- Value assessment.

We utilise the output of these workshops to present a short list to our Innovations Steering Board from which our strongest bids are put forward for submission to the LCNF.

We intend to tender the work associated with this project both at bid preparation and the delivery stage to ensure that the selection of vendors and partners results in the right skills and value for money.