



OFGEM,

19 September 2012

Dear Sir/Madam,

**RE: Open letter consultation on the Network Innovation Allowance for transmission**

In the early years of its launch, the OFGEM IFI Scheme was described by the then Technical Director of OFGEM, John Scott, as a scheme that will make the electricity networks “metamorphose”. Several years later, The UK’s electrical networks have seen significant levels of investments, several order of magnitude compared with pre-IFI, in new and innovative technologies and solutions, and are seen as leading internationally in terms of innovation and application of new “customer –friendly” technologies.

Parallel to this, several elite universities with strong power systems and high voltage engineering have engaged heavily in training provision and set up of research facilities to support the power networks companies in their strive to meet the challenges of the energy agenda and to refurbish / upgrade the ageing networks built in the early nineteen sixties. The university sector input to this process is crucial to the future of the networks and security of supply such that they contribute in knowledge growth and availability of home expertise, to allow better understanding of the innovation changes required to build and maintain a reliable and resilient electricity network.

Other government schemes, which were timely have also contributed to the new boost of the power industry which are in support of a better UK networks infrastructure and more skilled workforce, funding examples include EPSRC Grand challenge and SUPERGEN scheme, and TSB, ETI, PNRA, Power Academy and others.

National Grid has been the leader in many of these initiatives, driving innovation at all levels from research (in conjunction with EPSRC etc) to deployment. At Cardiff University, A Framework Agreement was set up with National Grid in 2004 and renewed in 2011 for the provision of research and services in high voltage engineering. In 2007, a Science and Innovation Award (£3.8M) was won from EPSRC to establish the Centre for Integrated Renewable Energy Generation and Supply. The above schemes are now collaborating with the electricity utilities on several research projects at various technology readiness levels (TRL) but mostly at earlier levels of innovation as the IFI scheme supports this. Because of the relocation of generation centres and advent of smart grids and smart metering, we foresee an extremely challenging future for the UK transmission network to deliver secure and reliable power to all. In particular, the following are of immediate importance: the connection and integration of new large onshore and offshore wind farms with associated HVDC issues, the international interconnections, reinforcement of existing transmission corridors, line and substation compaction, new insulation systems, effective condition

monitoring of assets and control of the network. Such challenges require innovative research and solutions at all TRL levels, and their costs can vary from tens of thousands to several hundreds of millions of Pounds. The IFI scheme has so far allowed companies to engage with us in projects that have brought benefits to the network resilience and safety, the widening of knowledge and skill bases at both the companies and university, and the overall state of the power networks in the UK. Many of these projects were the seedcorn for demonstration projects.

The investigated projects and continuity of innovative research work was made possible through the IFI scheme which allowed companies to plan research/innovation activities based on availability of research and development funds. Removing this certainty from funding source could affect seriously the future planning of R&D activities, which in turn could affect the supply chain including universities providing the future generation of engineers and experts as well as new solutions for the system. It is well known from past experience that non-protected R&D budgets are always amongst the first to be affected when cuts are required within a company.

Examples of recent Cardiff involvement relate to improved safety assessment and better mitigation of electrocution hazard on electricity networks, Electrical design and insulation coordination of T-Pylons and lines, and compact air substations together with research into alternatives environmentally friendly gases to replace SF<sub>6</sub> gas used in GIS. Some of these have now reached a demonstration or deployment stage. Such new step changes will require a significantly increased investment. Other R&D projects elsewhere, which are related to transmission, also require equally or increased investment.

For the above reasons, we feel that there is a strong need for the Network Innovation Allowance for transmission to be further enhanced; the potential increased incentive of 1% is necessary to allow National Grid to continue to drive innovation to address the new challenges and facilitate successful innovation and achievement of future reliable electricity system.

Yours sincerely,



Professor Manu Haddad