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### For the attention of Anna Rossington

30<sup>th</sup> July 2013

Dear Madam,

### **Re: RIIO-ED1: Electricity Distribution Networks Operators' (DNOs) business plans – Stakeholder views**

In response to your letter of 1<sup>st</sup> July 2013 seeking stakeholder views in regard to the business plans as published by the DNO's, we have pleasure in submitting our views as per the attached document entitled "Northern Powergrid Holdings Company Ltd: Business Plan – Stakeholder response with regard to the issue of safety".

Yours faithfully,

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Operations Manager

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## **Northern Powergrid Holdings Company Ltd: Business Plan – Stakeholder response with regard to the issue of safety.**

### **Overview**

In common with many others, we believe that there now exists a unique and ideal opportunity to improve electrical safety in the UK in conjunction with the proposed roll-out of smart meters. Our aim is to raise awareness of one particular problem associated with electrical supply and distribution in order to canvas opinion and promote debate. We further believe that the RIIO-ED1 procedure as currently being undertaken presents a legitimate platform for expounding our opinions.

### **The link between electrical intakes (cut-outs) and fire**

According to the Fire Statistics for 2011 – 2012<sup>1</sup>, as a source of ignition and cause of accidental fires, Electrical Distribution accounted for a total of 6,622 fires attended to by the Fire Services, equating to approximately 11% of the combined total number of fires in dwellings and other buildings. It is highly likely that this figure is significantly under-estimated due to the vagaries of the Incident Recording System, adopted nationally on 1<sup>st</sup> April 2009, which is not configured to capture specific details of fires originating at the point of supply. In addition, the Fire Services generally do not have sufficient resources to forensically investigate each fire as to specific causation hence many fires suspected to be electrical in origin are recorded as appliance faults.

There is a growing realisation among the Fire Services and others that electrical intakes and meters are a significant cause of electrical fires and that High Resistance Connections (HRC) are a primary source of ignition. This phenomenon was highlighted in a report written by Mark Hobbs in his capacity as Lead Fire Investigation Officer with East Sussex Fire & Rescue Service in 2010<sup>2</sup> and resulted in a Position Statement from the Chief Fire Officers Association (CFOA)<sup>3</sup>, leading to a growing awareness of the problem among other Fire Services. With so little research having been carried out to date, it is difficult to estimate the true extent of the problem and its effects, either in human or monetary terms but with an ageing infrastructure, less frequent inspections and the possibility of disturbance during the smart meter roll-out the chances are that the number of fires directly related to intakes and meters will increase.

The Electricity Supply Regulations 1988 and the subsequent Electricity Safety, Quality and Continuity Regulations 2002 (ESQCR) provide the legal basis for the provision of an electricity supply to the public of adequate quality and reliability with due regard to safety. In respect of the latter, Regulations 3, 5 and 24 make reference to the requirement for generators, distributors and meter operators to ensure that their equipment is constructed, installed, protected, used and maintained to prevent danger, so far as is reasonably practicable. Hence, there exists a duty of care for DNO's and electricity suppliers to ensure that their equipment installed within a consumers premises (but which is not under the control of the consumer) is safe to use and, as part of the Regulations, remains so through a programme of inspection and maintenance.

Gas and electricity suppliers are required under the terms of their licence to inspect their customers' meters; as an accepted industry standard, this inspection should be carried out every two years. This

inspection is an important consumer safeguard, as it requires suppliers to check for evidence of deterioration that might affect the safety of the meter or its proper functioning and for evidence of tampering or theft. In August 2009 British Gas requested, via Ofgem, that it be allowed to vary this particular condition of its licence by extending the period of inspection from two to five years. In a decision published 14<sup>th</sup> December 2012<sup>4</sup> Ofgem consent was given (with certain conditions) for British Gas to do so, beginning 1<sup>st</sup> April 2013. With regard to the possible effects of such a decision, consideration has been given to the implications for networks as electricity DNO's rely on the inspections to meet their obligations under ESQCR and any reduction in the frequency of inspections could have an impact upon them. Ofgem's conclusion was to the effect that it is for DNO's to satisfy themselves that they have "appropriate arrangements in place"<sup>4</sup>. The legal duties and responsibilities of the various parties involved, together with a concise explanation of the problem of intake/meter fires is well documented in a case heard before the High Court (Royal Courts of Justice London) in 2012<sup>5</sup>.

The smart meter roll-out programme will also have its own impact in terms of electrical safety – removing the old meter and installing the new one may mean that the meter tails to the consumer unit are disturbed such that the connections within the consumer unit are loosened, potentially creating a High Resistance Connection (HRC) and increasing the risk of fire. The smart meter will not require a meter operator to visit in order to ascertain the accuracy of the reading or to check that the meter has not been tampered with, thus increasing the likelihood that the period between inspections will continue to increase in the future. Indeed, seeing as how a saving of £2.7 billion has been proposed for no longer having to physically read the meter it may be that no visits are planned following installation. Similarly, given the sheer number of smart meters to be installed, suppliers will need to take on many more meter installers than they presently employ; a process which will require close scrutiny to ensure that those charged with the works are fully trained and comply with any accepted code of practice in force at that time.

### **Recognising the Opportunity**

The Electrical Safety Council considers the safety of consumers and meter installers to be an important aspect of the smart meter installation programme and has been working with interested parties to raise awareness of the safety issues and how to address them<sup>6</sup>. It recognises that the programme represents a unique opportunity to carry out safety checks on the electrical intakes in all of the UK housing stock and has taken a leading role in promoting the idea in tandem with the likes of the CFOA, MOCOPA and the Fire Services<sup>7</sup>. The DECC First Annual Progress Report on the roll-out of Smart Meters<sup>8</sup> acknowledges the fact that there are prime opportunities for energy suppliers to undertake safety checks as part of the installation works and the DECC Smart Meter Equipment Technical Specification (SMETS) programme has, at various points throughout the design specification process, referred to the possibility of using the smart meter to detect excessive contact temperature. This was often stated as an additional functionality which "may be able to militate against a less frequent inspection regime due to the discontinuation of manual meter reading coupled with the possibility of increased loading on the service equipment"<sup>9</sup>. It would since appear to have been removed from the agenda possibly because, at the time of consideration, no suitable means of monitoring temperature existed. Similarly, the Court case referred to previously<sup>5</sup> indicates that in 2005, with funding provided by Ofgem, UK Power Networks (Operations) Ltd had embarked upon the testing of temperature strips affixed to cut-outs in order to monitor excessive

temperatures associated with HRC. After carrying out a programme of testing, the conclusion was to the effect that the temperature strips were not ideal whereas the proposed roll-out of smart meters presented an opportunity to install an electronic sensor in conjunction with the smart meter to monitor the cut-out temperature and send a warning message in the event of an excessive temperature being recorded. In summary, the electrical distribution and supply industry in the UK has, in the past, acknowledged the need for some form of monitoring of the electrical intake and meter, agreed that the smart meter roll-out programme represented an ideal opportunity to install such but was unable to identify a suitable means of achieving the objective.

A suitable means now exists in the form of non-resettable thermal switch designed to operate at a specific temperature. This provides a unique pre-ignition solution to electrical fire safety by ensuring that electrical connections are prevented from reaching a temperature which would result in a fire.

### **Northern Powergrid Holdings Company Ltd Business Plan**

- Section 2.3: Safety: Running a safe operation (page 10): “The safety of our employees, contractors, customers and the general public will always be our top priority”.

Question 1 – How does Northern Powergrid currently comply with ESQCR, specifically in terms of ensuring that their equipment within a customer’s premises is safe?

- Section 2.3: “Our safety proposition for 2015-23” (Page 10):

Question 2 – The plan refers to investment programmes aimed at reducing specific risks (site security; safety awareness programmes ; equipping employees with innovative workwear). Does Electricity North West not consider electrical fire risk within customer’s premises a specific risk?

Question 3 – Does Electricity North West carry out a planned programme of cut-out replacement?

Question 4 – Does Electricity North West maintain up to date records of inspections carried out on electrical intakes/cut-outs?

Question 5 – Does Electricity North West maintain up to date records re. problems involving cut-outs in customers premises, specifically fires?

- Annex 2.5: Safety risk of smart meters - Introduction: “Although smart meter operatives are trained by their employer, we carry out a robust competency assessment of those operatives to ensure they can safely remove and replace our service fuses”.

Question 6 – Will meter operators be sufficiently well trained and experienced enough to carry out an electrical safety inspection of cut-outs on behalf of Northern Powergrid ?

Question 7 – If the installation of smart meters ultimately means that inspection visits by meter operators become a thing of the past, how will Northern Powergrid then comply with its duties under ESQCR?

- Annex 2.5 Section 3: “Our plan assumes that there is a likelihood that 2% of meter installations will have defects that require us to do some work, in line with Ofgem’s guidance”

Question 8 – If one considers that as many as 30 million meters could be changed as part of the roll-out programme and takes the lowest 2% estimate as best case scenario, there could be anything in excess of 500,000 defective cut-outs in the UK. Is this not a serious problem?

Question 9 - Should the opportunity be taken at the same time as the meters are changed to install a system capable of monitoring the temperature of the cut-out, thus lessening the risk of fire due to HRC?

Question 10 - Would such a monitoring system assist in compliance with statutory duties under ESQCR?

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2. Mark Hobbs ESFRS – Fires Originating in Electrical Intakes – July 2010  
<http://www.esfrs.org/blackmuseum/electricalIntake3.shtml>
3. Chief Fire Officers Association – Position Statement: Reducing Electrical Intake Fires – March 2011
4. Ofgem – British Gas’s Request for Changes to its Meter Inspection Licence Obligations [Ref. 167/12]
5. High Courts of Justice Queen’s Bench Division – Technology & Construction Court – Citation No. [2012] EWHC 2541 (TCC)
6. Electrical Safety Council (ESC) – Smart Metering : Industry Guidance
7. Electrical Safety Council – Industry Summit – White Paper 2013
8. DECC - Smart Meter Implementation Programme – First Annual Progress Report on the Roll-out of Smart Meters (December 2012)
9. Energy Networks Association (ENA) – Smart Metering System Requirements – April 2010