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**Response by SP EnergyNetworks to National Grid Initial Consultation
Operating the Electricity Transmission Networks in 2020**

I am responding on behalf of SP EnergyNetworks to the above consultation. SP EnergyNetworks is responsible for the three licensed network businesses; SP Distribution Ltd, SP Manweb plc and SP Transmission Ltd.

1. The Role of Distribution Network Operators

With the range of emerging technologies in generation, networks and supply, there will be a change in the utilisation and the amount of energy used. At this stage it is difficult to assess which technologies will succeed over others but no matter what the outcome there will be a significant effect on the shape and size of the networks required. This change will need to be managed by both by the GBSO and also by the GB Distribution Network Operators (DNOs).

By 2020 there will be a much higher penetration of variable renewable generation resources at all voltages – including distribution voltages. Distribution networks that were originally designed as “passive” transport networks to accept electricity from the transmission system will need to become more “active” as more embedded renewable generation - from domestic micro-generation to larger scale commercial units - connects. Distribution networks will therefore play a key role in supporting the GBSO to ensure the provision of secure energy. The DNO will have to become much more involved in real time distribution system operation, making use of innovative solutions such as smart metering, voltage control, power flow management, dynamic circuit ratings and energy storage technologies.

We see the move towards more active system management at distribution voltages as complementing and supporting the GBSO. However, a pre-requisite of meeting this challenge will be to ensure that there continues to be effective, two-way communications between the DNOs and the GBSO.

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2. The Application of New Technology

The TSORG report published in October 2007 noted that there is scope for measures such as the application of dynamic circuit capacity enhancements, real-time monitoring and intertrips to facilitate the local connection of renewable generation. However, as we reinforce the GB transmission system to accept more renewable generation capacity, we anticipate that the first constraint condition on major transmission circuits moving from a voltage/stability issue to a thermal issue. Hence it is likely that the above measures will also help to cost-effectively reduce wider network constraints. We are therefore encouraged by the recent developments instigated by Ofgem to look at potential incentives to help minimise constraints.

The TSORG report also referred to the potential for wide area monitoring. In Scotland the growth in renewable generation capacity has led to the application of HVDC and series compensation technologies to maximise the capability of the existing GB transmission system, and reduce the need to build new overhead lines. It will therefore be important to continuously monitor the interaction of these technologies with the large portfolio of renewable and conventional generation and this will require the development of real time wide area monitoring techniques. We see considerable potential for real time system monitoring tools to help the system operator to drive the system closer to voltage and stability limits, while ensuring that the appropriate safety margins and security standards are maintained. We are therefore pleased that National Grid is now working with us to facilitate the development of such tools.

I would be delighted to discuss with you in more detail any of the points raised in this response.

Yours faithfully,



Alan Michie
SP EnergyNetworks