# Project TransmiT

## Prospect submission to Ofgem call for evidence

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## INTRODUCTION

**1.** Prospect is a trade union that represents over 122,000 professional, managerial, technical and scientific staff across the private and public sectors. In the utilities sector, Prospect represents engineers, managers and other professionals in the electricity supply industry and increasingly within the gas and water sectors.

## PROJECT TRANSMIT

### Background

**2.** Given the pressures to replace electricity generation plant that has reached the end of its operational life and the need to reduce carbon emissions from electricity generation, this submission focuses on electricity. In relation to gas transmission, we believe that the auction system and charging should reflect the changing physical shape of the gas transmission network as United Kingdom Continental Shelf (UKCS) output declines and is replaced by imports, especially LNG. We believe that there is a role for National Grid in anticipating demand for gas transmission and reinforcing the network so existing industrial and domestic consumers do not see their supplies interrupted by system constraints.

**3.** Turning to electricity transmission, current transmission charging arrangements have evolved from the rules needed to ensure that the monopoly transmission owners (National Grid, SSE and Scottish Power) charged reasonable prices to electricity suppliers and generators for connections to, and the transmission of electricity through, the National Grid. Whilst the operation of the electricity market determines which generation plant should operate, there is also the need for National Grid as the System Operator to manage the physical constraints of the system in a manner that is equitable to all parties. For instance, by ensuring that constraint payments are minimised and only paid to plant that is economically efficient but physically inoperable due to the configuration of the transmission network.

**4.** Whilst this system has encouraged the efficient and economic operation of the existing Grid network *and* has ensured that costs of reinforcement of the Grid has been moderated, the reconfiguration of the Grid to accommodate different patterns of generation and demand and to maintain system resilience remains a significant cost. Given the rapid change in generation patterns that is likely to occur over the next decade [as much existing nuclear and coal plant is retired from active service and a continued shift to renewable power] and even with efficiency savings to match sector best practice, the costs of transmission will inevitably rise.

**5.** Whilst the Central Electricity Generating Board (CEGB) prior to privatisation in 1990 designed the transmission system to meet technical requirements to supply a rapidly increasing demand for electricity in an efficient manner, this had the consequence of neglecting commercial impacts. Moreover, as the network was designed before general awareness of the environmental impact of carbon dioxide emissions, the environmental goal of the CEGB was to ensure operational efficiency and the operation of a national transmission system that delivers this.

**6.** As a result of privatisation, the system has been redesigned to facilitate the operation of a commercial market for electricity whilst ensuring the best use of the transmission network. Many of the technical issues relevant to the operation of the Grid and connections are managed through industry Codes, such as the Connections and Use of System Code (CUSC), which are set by agreement and approved by Ofgem. In principle, we believe that this system allows a pragmatic response to the technical issues of electricity transmission. It has delivered a more robust solution to the issues of charging for connections where the deep charges of connection are shared amongst customers, if the project is complete, but requires the generator to provide financial guarantees to underwrite the costs incurred if the project is cancelled.

**7.** One consequence of the current system is that, historically, it favoured the construction of plant in areas with low levels of generation. Whilst this approach has a commercial logic, it neglects the logistical constraints behind the sites of new power stations and distorts decisions on construction. In practice, due to the location of the gas transmission system, this has possibly become one of the factors favouring the construction of gas-fired power stations in the South of England. Whilst there are good commercial and operational reasons for a significant contribution of gas to the electricity fuel mix, we agree that the review of locational charging for both Balancing Services Use of System (BSUoS) charges under the proposed but rejected CUSC modification GB ECM-18 and transmission charges should consider the impacts of locational charges on all types of generation.

**The Low-carbon challenge**

**8.** Given government policy substantially to reduce the UK's carbon emissions from electricity generation, Prospect believes that a balanced energy policy is required to encourage a wide range of low-carbon technologies including renewables, nuclear and CCS (carbon capture and storage) for coal and gas. The operation of the transmission system should complement this change in generation and reconfigure the transmission network so it can respond to significant changes in the location of generation and changes in the availability of plant. With the rundown of existing coal and nuclear capacity over the next decade, we believe that energy policy should encourage the construction of new plant to maintain price stability and security of supply. Given the locational and financial constraints on large-scale production of electricity from offshore wind, nuclear new build and CCS coal plant, there is a need to ensure that the transmission charging regime and connections do not create barriers to investment in new plant.

**9.** Given the volume of new generation, especially wind power, we believe that there is a need for National Grid to use the CUSC process to plan for likely scenarios of future power generation. The considerable uncertainty about the development and timing of introduction of new low-carbon generation technology means there is a need to anticipate the need for reinforcement, especially given the recent acceleration of constraint charges; this is especially important given the likely location of new plant and the significant planning and logistical barriers to construction that exist.

**10.** Whilst the use of constraint charges provides signals for reinforcement, we believe that the current system runs the risk of deterring investment if generators believe that they will have to bear a high proportion of reinforcement charges related to individual projects. Similarly, whilst we recognise the principle of competitive tendering for connections between offshore wind farms and the Grid, we believe that anticipatory planning should group this work together to reduce the costs to the consumer and to enable more effective planning and deployment of scarce staff.

**11.** The scale of the low-carbon challenge is such that CUSC requires assessment to assess whether the current system of connections does ensure that new generators meet only the shallow costs of connection with the deep costs being shared between all users of the transmission network who benefit from reinforcement. In practice, ensuring that the pricing system for connections is both cost-reflective and gives sufficient certainty to prevent the cost of capital rising due to perceptions of risk is a judgment that requires industry–wide consultation and some long-term certainty. The multi-national nature of most large generators means that the UK's system of transmission regulation must avoid complexity and give clear long-term price signals, where possible, so investors can make an informed analysis of potential returns on investment in the UK compared to other countries.

**12.** Prospect is minded of the ageing nature of the workforce in transmission, amongst both network owners and major contractors, and the commensurate need for substantial workforce renewal through recruitment and the retraining of existing staff over the next 15 years. The numbers of new entrants are likely to match existing staff levels. The National Skills Academy for Power has produced substantial data forecasting this. Given the high skill levels required in transmission, which are likely to increase further due to the complexity of new technology and the challenges of more intermittent generation, the pricing system will need to account for both the high training costs likely to be incurred by the transmission sector and to meet the need for long-term stability and long-term price signals if operators are to make this significant investment in staff.

**Responding to intermittent generation**

**13.** A consequence of high levels of wind power is increased variation in unplanned plant non-availability due to the unpredictable nature of wind flows around individual wind farms. This intermittent pattern of generation places a higher premium on back-up capacity which is largely un-rewarded. And the market for responding to unexpected peaks in demand is highly inefficient as there is no predictable reward for constructing and operating fossil-fuel plant with low level and unpredictable patterns of operation. The charging mechanism for transmission should recognise the need for considerable amounts of reserve capacity, largely fossil-fuel, to ensure system stability and security of supply as we move to more intermittent generation.

**14.** Similar concerns apply to new nuclear build. Prospect understands that an effective mechanism already exists to meet the need for spinning reserve to cover the loss of output from existing nuclear plant which will be extended to new 1300 to 1600 MW nuclear plant. By specifying the level of reward in advance, we believe that investment in reserve fossil-fuel capacity will be cheaper and more likely to occur. Uncertainty is a barrier to investment particularly in plant that is ineligible for subsidy through the renewable obligation and which is certain to have low load factors. Therefore we believe that Project TrasmiT should consider the most efficient way of providing a long-term reward to generators who provide reserve capacity to cover intermittency since we fear that without this adjustment prices shall become highly volatile and investment will be deterred. The effects of both will be to increase consumer prices.

**Conclusion**

**15.** Prospect welcomes the opportunity to comment upon Project TransmiT and we believe that the consultation process should continue. We broadly agree with the areas of focus but we believe that the process should consider the following three factors if the transmission network is to meet the considerable challenges of the low-carbon economy:

- **Long-term planning framework;**
- **Need for long-term price signals on costs and connections;**
- **Stability to enable staff recruitment and training.**

**Prospect**
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