

Electricity Transmission

Gas Transmission

Potential for 50 GW of new capacity and connections – creating multiple options for network configuration

No new transmission capacity needed due to spare capacity previously used for gas export – network reconfiguration only

Changes in the direction and scale of energy flows around the network require substantial investment across boundaries to optimise system capacity

Changes in the direction of gas flows require investment in compressors and multi-junctions to manage the balanced network in a different way

Changes in the energy mix including new nuclear and large-scale wind power require new connections from new peripheral locations in Scotland, Wales and the West Country

Changes in the source of natural gas, including imported LNG, requires much greater flexibility in the movement of gas across the network

Transmission over long distances may require the adoption of innovative technologies such as High Voltage Direct Current (HVDC) transmission, adding complexity to the network

Increased demand in some locations (e.g. south-east England) will result in increased network utilisation and may require network reinforcement

Greater use of the transmission network as a real-time supply reservoir means that there is a greater within-day variation in the volumes of gas held, requiring greater flexibility in the operation of the network

A more diverse set of generator customers means increased system operation complexity in terms of day-to-day operation, the delivery of capacity upgrades and maintenance activities

Different supply customers manage their use of the network in real-time to maximise revenues – this means that gas flows around the network have become less predictable.

Use of more intermittent sources of energy generation affect the stability of the network and the quality of energy supply

Gas-fired energy generation is expected to become the swing supplier of electricity, compensating for fluctuations in wind-power generation – making patterns of demand for gas more difficult to predict.

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