

Locational charging on Britain's gas and electricity networks

Factsheet 72

24.10.07

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The costs of running Britain's high voltage electricity networks and the high pressure national gas transportation system are recovered through charges that are met by gas importers, power generators and business and domestic customers.

▶ Locational charging on Britain's networks

Demand for energy in the UK is highest in the south of England. But most power stations and sources of gas have traditionally not been located near to these centres of demand, so energy has had to be transmitted long distances to reach customers.

In general the further a source of gas or electricity is away from its end-user, the more it costs to transport the energy to that user. National Grid has overall responsibility for running the high-voltage electricity and high-pressure gas networks at a combined annual cost of around £3 billion. Locational charges, which reflect the cost of transporting power or gas, ensure power generators and gas producers take into account the costs of transporting energy when deciding where to locate new sources of supply. Similarly,

they influence large users in decisions on the location of premises. This encourages business to locate near to existing generation or gas importation facilities. Transmission charges therefore encourage generators to locate close to demand and give users an incentive to locate close to supply so the networks are used as efficiently as possible.

Locational charging has been in place on the high-voltage network in England and Wales since the early 1990s. It was extended to Scotland when the British Electricity Trading and Transmission Arrangements were introduced in 2005. The charges are non-discriminatory and ensure any generator, gas importer or supplier properly takes account of the costs of transmission when deciding where to locate.

▶ Has locational charging worked?

Locational charging is helping to encourage new power plant to be built closer to high demand or to existing network infrastructure.

- Plans have been announced for new power stations for the south of England in areas including Plymouth, Southampton and the Isle of Grain, Kent. Proposals have also been made to build new power stations in south Wales, close to new gas import sources at Milford Haven.
- Renewable projects have been built in the south of England as well as in Scotland (where conditions for such generation are often more favourable). One major development being proposed for the south of England is the 270-turbine London Array windfarm in the Thames estuary.
- In gas, locational charging has encouraged the development of gas import links closer to centres of high demand and avoiding expensive reinforcement of the existing onshore network. An example of this is the Langeled pipeline bringing gas from Norway which terminates in Easington, North Yorkshire, rather than at St Fergus in Scotland.

► What are the benefits of locational charging for customers?

Locational charging ensures that the gas and electricity networks are run as economically as possible keeping costs to customers low. Over time, in electricity, locational charges will encourage large generators to site themselves at the most efficient locations reducing the amount of electricity lost when it is transported large distances. This will reduce costs to customers and help cut carbon emissions. Transmission

charges make up a significant portion of an industrial and commercial customer's electricity bill. Locational charging can also benefit individual customers in certain parts of the country. In Scotland charges to customers are substantially less than in the south of England because the electricity does not have to travel as far to reach them.

► Locational charging and low carbon energy

Renewable generators such as wind farms receive a subsidy through the Renewables Obligation which requires electricity suppliers to take an increasing portion of their power from green sources. However, there are other low - or zero - carbon energy sources such as carbon capture and storage and nuclear power which do not receive this subsidy.

- Ofgem does not consider that the introduction of locational charging has had a negative impact on renewable generation. Locational charging simplifies charges for all Scottish generators. Prior to its introduction they had to pay a number of separate fees for accessing the network and transmitting power. These have now been replaced by a single locational transmission charge.

- Locational charging does not harm the viability of renewables in Scotland given the support these schemes receive through the Renewables Obligation. This is demonstrated by the fact that since the launch of the GB-wide electricity market in 2005, a queue has built up of around 165 renewable projects in Scotland awaiting connection. This is significantly more than is needed to meet the Scottish Government's targets. The major barriers to these projects going live are planning delays and the time needed to build transmission connections.

► Locational charging and the environment

The gas and electricity networks have an impact on the environment and on the UK's carbon emissions:

- Electricity pylons and gas pipes impact on the landscape, particularly on Areas of Outstanding Natural Beauty. The manufacture and maintenance of network infrastructure also has its own carbon footprint.
- Transportation of energy impacts on carbon emissions. More electricity is lost as heat the further it travels down the wires to people's homes. Extra electricity has to be generated to cover these losses, which in turn creates additional costs and carbon emissions. Currently these losses total around £260 million a year - in terms of emissions this equates to around 680,000 tonnes of carbon.

- The further gas is transported on the national gas network the more energy is needed to drive compressors. These compressors are mostly powered by gas and the total cost for running them is £70 million to £82 million per year, dependent upon gas prices.

All of these impacts could be reduced by encouraging electricity generation or sources of gas supply to locate closer to centres of demand.

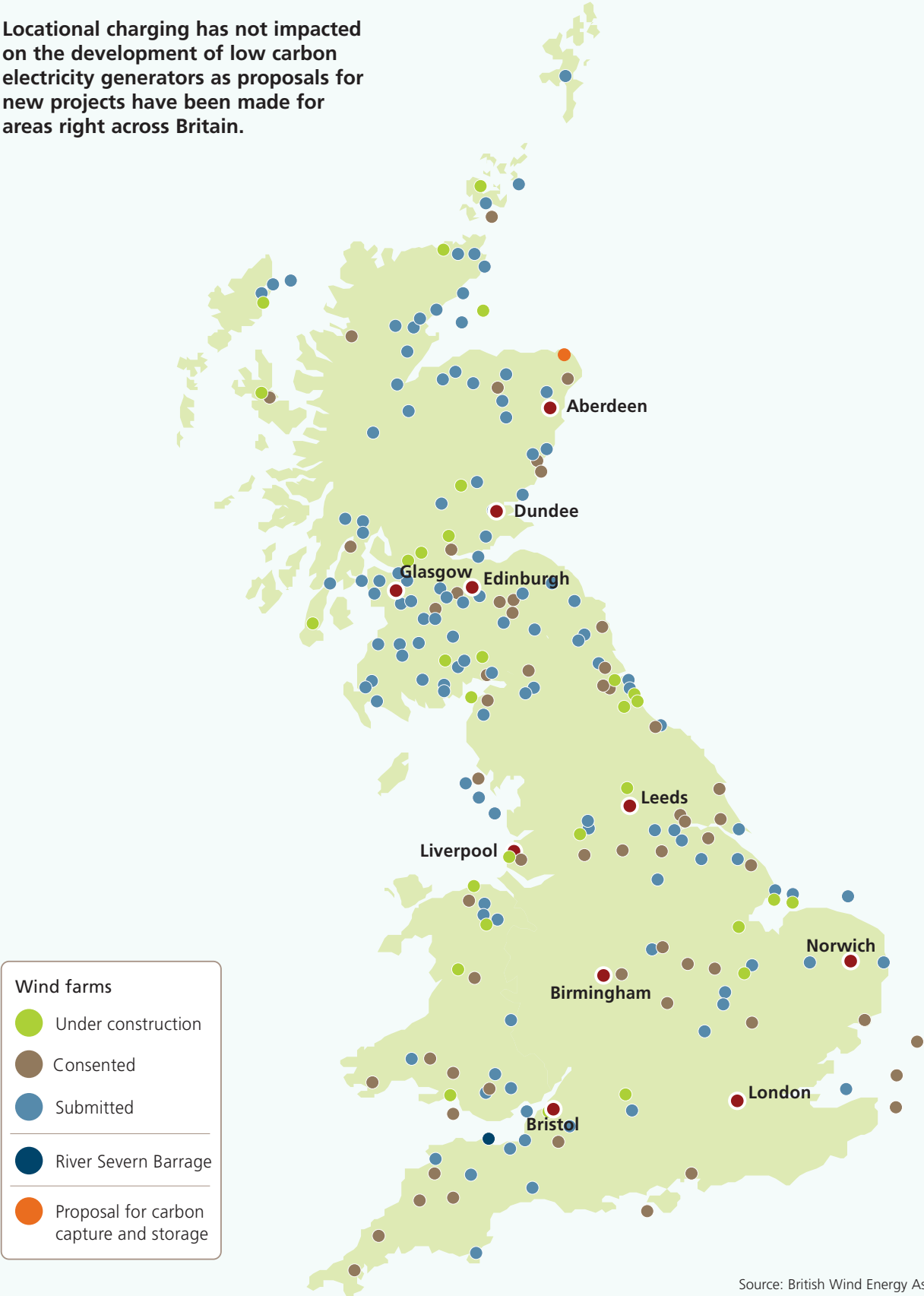
► Tackling losses of electricity from the transmission system

- Losses from the electricity transmission system are paid for by generators and suppliers. Currently the amount each of them pays is regardless of location. Proposals have been made by the industry to increase charges to generators further away from demand whereas those located nearer would pay less. The opposite would apply to suppliers' charges so those closer to centres of generation (such as

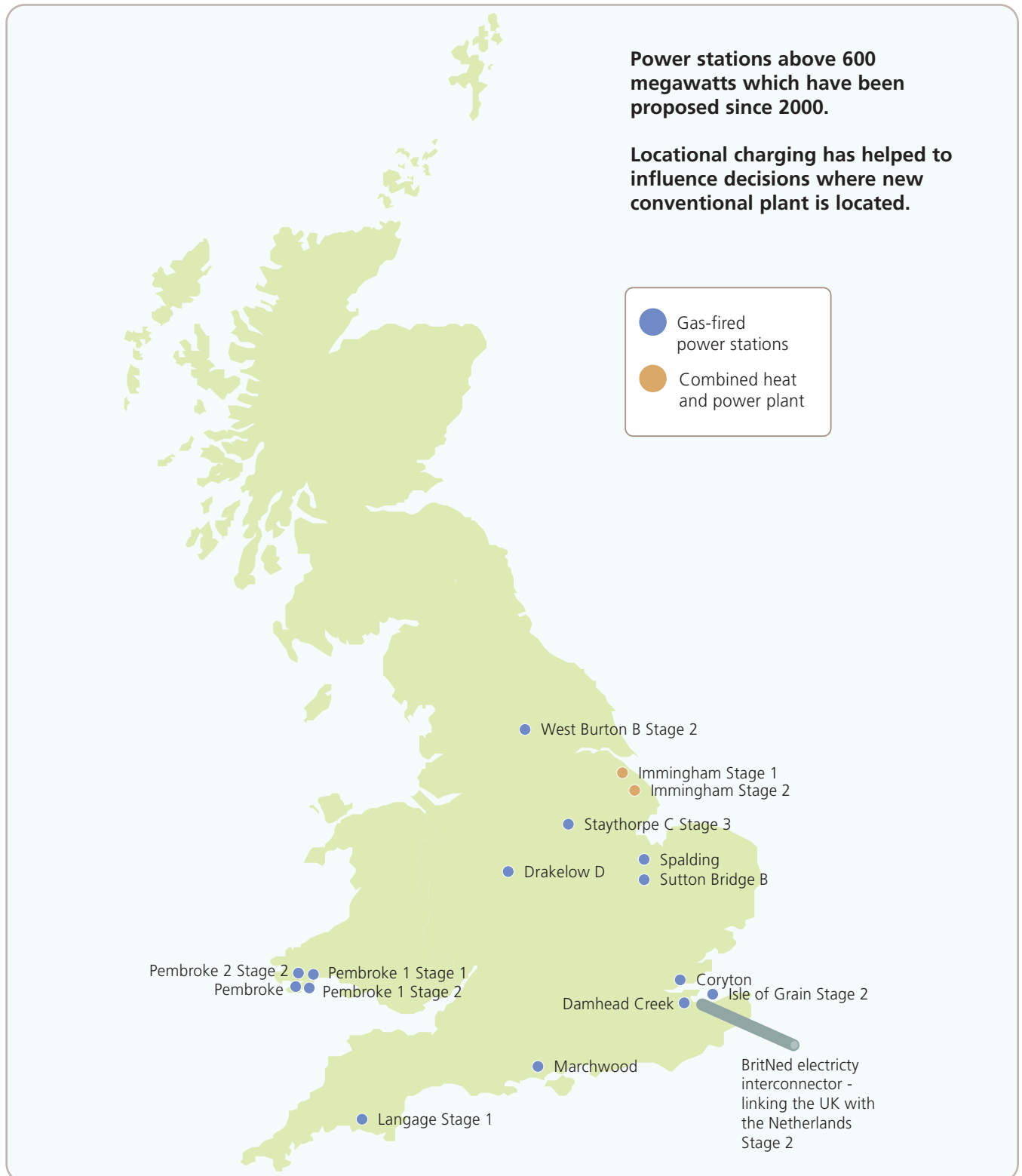
Scotland) would pay less. The impact on renewable generators in Scotland would be minimal given the subsidy they receive through the Renewables Obligation.

- Ofgem indicated in June 2007 that it was minded to accept one of these proposals but it has not yet made a final decision.

Locational charging has not impacted on the development of low carbon electricity generators as proposals for new projects have been made for areas right across Britain.



Source: British Wind Energy Association



For further information please contact:

Mark Wiltsher, Head of Media Relations

020 7901 7006

email mark.wiltsher@ofgem.gov.uk

Chris Lock, Communications Officer

020 7901 7225

email chris.lock@ofgem.gov.uk

Rebecca Hill, Communications Officer

020 7901 7217

email rebecca.hill@ofgem.gov.uk