

Connecting low carbon generation

Key points

- National Grid is currently managing 16GW of signed connection contracts for new renewable generation projects.
- National Grid is playing a pivotal role in driving forward reform of grid access arrangements aimed at making the best use of existing capacity.
- National Grid proposes strategic investment of around £3.5bn to reinforce the onshore transmission system.



Introduction

Much of the transmission system in the UK was originally built to transport and distribute electricity from large fossil fuelled power stations rather than a large number of small localised sources. For example in Scotland, there are no high voltage transmission lines in the North West where wind speeds are high and the East of England will also require substantial transmission system reinforcement to support the contracted level of generation.

With the Government's renewable energy target requiring up to 40 percent of electricity from renewable sources by 2020, this will require the transmission system to be reconfigured to accommodate the increased amount of renewables.

The transmission system between Scotland and the North of England will also need to be reinforced. Reinforcements will also be required further south to accommodate extra energy flows from the North as well as that from

the proposed renewable projects in the East of England.

National Grid is committed to supporting the Government to achieve the renewables target. In the efforts to facilitate renewables, National Grid is working to find innovative solutions to connecting renewables while balancing licence obligation not to discriminate between forms of generation.

Connecting renewables

Throughout Great Britain, National Grid is currently managing 16GW of signed connection contracts for new renewable generation projects - 7GW of which is in England and Wales and 9GW is in Scotland. In total 50GW of new generation have signed connection agreements with National Grid compared with the 77GW of generation capacity currently connected to the transmission system.

In 2005, the government introduced the British Electricity Transmission and Trading Arrangements (BETTA) to harmonise the different arrangements under which the wholesale market operated in England, Wales and Scotland. The

transition to BETTA and in particular, the transition of Scottish connection contracts to the new GB framework agreements resulted in an unprecedented number of speculative applications to connect renewables to the transmission system.

National Grid, as Great Britain System Operator, has made around 180 offers to connect new generation projects to the transmission system. They have connection dates to 2015 and beyond. The long lead-time is mainly due to delays in securing planning consent and system capacity constraints.

The Challenge

Since the privatisation of the electricity industry in the early 1990's, over 22GW of new electricity generation has connected to the high voltage transmission system. This is a significant churn and compares especially well with other countries. In the next twelve years to 2020, National Grid is preparing to connect over twice that amount of new generation to the transmission system.

Planning consent

Delays and uncertainty in securing planning consent are the most significant blockers to the timely connection of projects and the development of network capacity. Some three quarters of the 180 agreements to connect to the system that National Grid is currently managing are being held up by the planning and consents process.

National Grid fully supports reform of the planning regime. In particular, the government's Planning Bill will allow more certainty in the delivery of essential transmission infrastructure and timely connection of new generation.

System capacity

The Security and Quality Supply Standards (SQSS) require the capacity of all generation stations not to exceed the capacity of the transmission system. The change in fuel mix to accommodate up to 40 percent renewables will require a locational and geographical shift of generation to areas with insufficient infrastructure.

Infrastructure projects such as the Beaulieu-Denny line are crucial to facilitate the transfer of energy from those projects proposed in the North of Scotland.

Speeding up the connection of renewables

Projects were normally offered grid dates on the basis of their application date rather than project status. National Grid has since moved to actively managing applications for connections to ensure that projects that are ready to proceed are not being held back by those without planning permission.

National Grid has developed this approach alongside other framework changes. These include:

- Making information about projects and associated transmission works more transparent. This enables generation projects to make decisions on where to connect.
- A new approach for the provision of financial securities to trigger the start of transmission investment in order to allow projects to connect earlier. National Grid is consulting with industry over these proposals during 2008.
- Helping to reduce the upfront costs that individual projects face. By clustering projects together, the cost of triggering network investment can be spread over several projects.

Changes to the access regime

Transmission access arrangements dictate the transmission capacity available for a generator to use. As wind, in particular, does not require access all the time, National Grid is committed to developing new transmission access arrangements. These improvements will make the best use of available capacity, and facilitate the connection of additional renewable generation.

National Grid is playing a pivotal role in driving this forward with BERR and Ofgem within an industry wide discussion as part of the Transmission Access Review (TAR).

In June 2008, Ofgem published their final report on the TAR. The report welcomes changes to the existing arrangements that aim to

make the best use of existing capacity while incremental system reinforcements are underway by introducing options and flexibility for generators in the way they connect to the system.

There are three broad models being considered as part of the TAR which National Grid is leading the industry in developing.

- Arrangements to allow generators to connect ahead of wider transmission system reinforcements to accommodate their required capacity.
- Short-term access arrangements to free up some of the existing capacity.
- A system of capacity auctions that would allow renewables, with the support of ROCs, to compete with fossil fuelled generation in gaining long term access rights.

National Grid has put forward modifications to several industry codes. Amendment proposals will be delivered to Ofgem for determination by the end of 2008, with the aim of implementing any reforms by April 2010.

Network investment

National Grid is working with Ofgem and BERR to put together an investment model which will allow network investment to take place ahead of time.

National Grid proposes strategic investment of around £3.5bn to reinforce the onshore transmission system. This will ensure that infrastructure can be put in place to meet the EU renewables target by 2020.

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