

UK transmission

New build transmission

Power shortages in the UK would be caused predominantly by the decommissioning of its oldest coal-fired stations and ageing nuclear plants. To counter this, the UK will see a significant increase in the number of power stations built over the next decade. With this new demand, a number of material issues loom large when considering how the new plants will be connected to the existing transmission network.

In this article we critically examine the challenges surrounding site selection, connection timing and locality pricing, which project developers will need to surmount before embarking on any new-build project. These issues are vital to developers and, it follows, their potential sources of funding. Transmission issues present developers and financiers with technical, financial, regulatory and timing risks that they will need to address in an ever-more crowded market.

Site selection and timing

One of the key decisions during the initial planning stages of any new power plant will be the vicinity of the plant to the transmission network and the associated cost in connecting to it. This will depend on a number of factors, including, inter alia, the capacity of the grid network and the distance of the proposed connection.

Historically, investment in the transmission network has tended to be reactive, with transmission networks only being extended once in agreement with project developers, and having the necessary security in place in order to minimise the risk of the transmission owner being left with "stranded assets".

Any economic analysis of a proposed power station will clearly have to ascertain whether or not it would be commercially feasible to connect to the transmission network from a particular location by virtue of its proximity to the grid. Unless there is already sufficient capacity on the grid,

UK energy regulator Ofgem predicts that the UK could suffer severe shortages of power by 2015. By **Cam Brockie** and **David Birchall**, partners in the global energy and infrastructure practice in the London office of **McDermott Will & Emery** and associate **Alistair Dunstan**.

new generators will need to wait until their connection is upgraded to reflect the proposed generation. This is a major issue. There is a reported 60GW to 80GW of combined generation capacity currently queueing for transmission connection, with at least half of these projects needing to wait at least five years.

► *Planning permission* - The timeline for getting planning permission has always been a lengthy one, particularly in relation to transmission infrastructure. A recent report issued by the House of Commons Energy and Climate Change Committee commented on how, from conception to completion, it will have taken approximately 11 years to upgrade the power line between Beaulieu (Inverness) and Denny (Falkirk). Of this, about five years has been spent in the planning process.

In order to speed up the planning process for major infrastructure projects, the Planning Act 2008 introduced the Infrastructure Planning Commission (IPC) to deal specifically with planning applications for "nationally significant infrastructure projects". National policy statements (NPS) developed by the government will be a primary consideration to the IPC when deciding on planning applications.

Under the Planning Act, a number of projects are in the remit of the IPC, including, inter alia: (i) the construction or extension of generating stations (having at least a capacity of 50MW if onshore, or 100MW if offshore); and (ii) the installation of electric lines above ground (where 132KV or above).

When the relevant NPSs have been formally designated, following a preliminary hearing, the IPC is required to complete its examination of the accepted application within six months, and a decision should be made within three months following this period. Although these timeframes may be extended, if they are adhered to this potentially represents a considerable improvement on the glacial pace of the previous system.

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► *The waiting game* - As touched on above, one of the issues is the timing of access of new-build generators to the transmission networks. As a transmission licence holder, the National Grid, which is regulated by Ofgem, has a statutory duty under the Electricity Act 1989 to develop and maintain an “efficient and economic” transmission system. Its decisions should therefore be geographically and technology neutral. As connections to the grid are normally awarded on a “first-come, first served” basis, the “queue” that forms as a result has colloquially become known as the GB Queue.

The GB Queue has arisen for a number of reasons including a high level of demand for network capacity, a lack of historic investment in transmission infrastructure, and delays in planning and construction. Not only does the GB Queue result in project developers waiting, but it also leads to peculiarities, such that there are currently projects in Scotland that have had connection offers, despite not having applied for planning permission, whereas other projects, which have already gone through the planning process, have not yet been offered network connections.

In 2007, the National Grid published a series of reports in relation to the approach it considered best to manage the GB Queue. The final report identified a number of ways to tackle the queue, including the use of capacity reduction clauses, and advancing projects if they were ready to connect earlier than envisaged, which will be assessed on the basis of project developers’ quarterly reports.

As part of their ongoing transmission access review, Ofgem and the Department of Energy and Climate Change (DECC) have sought to improve access to the transmission grid and remove barriers to new renewable energy generators. Further to this, Ofgem has been promoting enhanced transmission investment incentives to develop funding arrangements to help grid investment, and at the end of March 2010 modified GB transmission owner licences to allow for the recovery of construction costs associated with transmission reinforcement.

In addition, in 2009, Ofgem recommended that the Secretary of State implement new transmission access arrangements following widespread industry discontent. Subsequently, the DECC has published a number of consultations encouraging “Connect and Manage” reforms on an enduring basis, whereby access will be granted once local infrastructure is complete, but before reinforcements have necessarily been made to the wider network. These reforms represent an interesting juggling exercise on behalf of Ofgem and the DECC, constantly weighing up the interests of electricity consumers, transmission owners, generators and climate change.

Recognising the reactive approach of transmission investment, in an interview in June 2009, Nick Winsor of the National Grid stated that “in the past, we [the National Grid] reinforced the grid on user commitment, which meant waiting until a power station was definitely

going ahead” and how that was “not going to work in the future. The scale and speed of change are going to be such that we [the National Grid] need to get ahead.”

Encouragingly, signs of investment have appeared, whether reactive or proactive, in the form of, inter alia, a new substation in Stoke Bardolph, cable replacement projects in Woodhead and Kirkby/Lister Drive, and connection projects in King’s Lynn and Hinkey Point. In addition, National Grid recently announced a rights issue valued at about £3.3bn to finance its investment in the electricity and gas transmission networks. While this new investment is welcomed, it remains to be seen if it will reduce the waiting game that a number of frustrated generators have found themselves playing.

► *Renewables?* - As well as affecting traditional power plants, the GB Queue impedes the introduction of many renewable energy and smaller-scale, community-driven projects. Despite the government encouraging the deployment of renewable technologies, in too many cases these technologies are simply unable to commence generation due to the reduced grid access.

Renewable energy projects suffered a further setback in May 2010, when Ofgem announced that it would not be able to confirm the winning bid for the Offshore Transmission Network Owners regime (OFTO), as the required ministerial sign off was delayed due to the new incoming government. The OFTO regime was introduced as a new regulatory regime for licensing offshore electricity transmission, using competitive tendering to ensure that cable connections were delivered promptly and at a reasonable cost. The £15bn programme is set to link offshore wind farms, which could total 33GW by 2020, to the UK mainland.

Zonal pricing and transmission losses

One of the factors that could have a very significant impact on the economic analysis of project developers is the possible introduction of zonal transmission loss charges, which would differ depending on the locality of generators. It is estimated that around 2% of British power demand is lost through transmission. This equates to a cost of around £250m per year.

Since 1989, the cost associated with these transmission losses has been recovered from generators and suppliers on a uniform, or “smear”, basis. In 2007/08 a system of zonal pricing was nearly introduced by Ofgem, which would recover transmission losses from generators based on their location. A successful judicial review in relation to the timeframe for these implementations stopped the process, but there is always the possibility that such changes are introduced in the future. The introduction of zonal pricing may impact the revenues of power stations located in zones perceived to cause the greatest transmission losses, and, for this reason, should be considered by project developers.

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