

COMPETITION EARLY IN THE LIFE CYCLE OF INFRASTRUCTURE PROJECTS

Introducing competition in the provision of onshore electricity transmission networks

Since the privatisation of the electricity sector in 1990, the transmission of electricity, mainly through a network of pylons and high voltage cables, has been the preserve of three monopoly businesses that are regulated by the energy markets regulator, Ofgem. Recently, however, Ofgem has suggested that it might be better for British consumers if competition were to be introduced into the sector. This briefing explores how, in practice, this might be done.

Jason Mann

Senior Managing Director at FTI, discusses the potential for the introduction of competition in electricity transmission

Competition in transmission

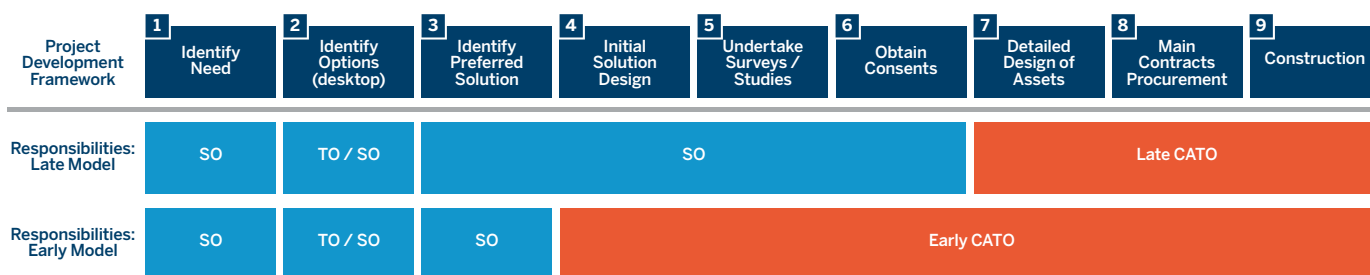
Britain's high voltage electricity transmission network, that conveys electricity from the country's power stations to the local networks for onward distribution to homes, factories and offices, is currently owned and operated by three regional monopolies. National Grid is responsible for the network in England & Wales and SSE and ScottishPower undertake the same role in regionally distinct parts of Scotland. Monopolies since their creation at privatisation in 1990, the revenue the three companies are allowed to earn from charging for the use of their networks is set by Ofgem – the energy market regulator.

The electricity transmission network has, since the mid 2000s, expanded significantly to connect windfarms sited offshore to the existing onshore transmission network. In contrast to the onshore regime, Ofgem has chosen to adopt a form of competition for the provision of these offshore transmission networks – on the grounds that this will deliver lower costs than a system of regulation and therefore ultimately be beneficial to consumers. To date 12 different offshore transmission owners (OFTOs) have been created, which own and operate offshore transmission networks worth £2.2bn.

Following the perceived success of the offshore regime, Ofgem is now keen to extend a similar competitive approach to the provision of new transmission assets for the onshore electricity network. Under this regime, new transmission assets that meet certain predefined criteria would be the subject of competitive provision by so-called Onshore Transmission Operators (ONTOs) rather than being provided by the three incumbent monopolists. However, in contrast to the offshore assets where only the financing of the asset was subject to competition, the onshore ONTO responsibilities would include construction and operation of the asset and may also include parts of the development works such as asset design and consenting.

A key issue in the development of a process to introduce competition is to decide where, in the typical lifecycle of an onshore transmission project, the competitive process should be initiated. There are two broad options: a so-called “late model” under which bidders compete to provide transmission assets to meet relatively detailed technical specifications that have, crucially, received the necessary planning consents; the alternative, the “early model” introduces competition earlier in the lifecycle of an investment project when only a high level outline of the requirements has been specified.

Figure 1: Understanding when an CATO would take responsibility during the project life cycle under the Early or Late model



To date, Ofgem and the industry have concentrated on the detailed development of the late model on the grounds that it is less complex and has reduced risks for bidders. As such, it can be implemented, and therefore deliver benefits to consumers, more quickly. The relative simplicity and lower risks of the late model also offers the prospect of a greater number of tenderers and more intense competition which, in turn, would be beneficial to consumers.

However, the early model holds the prospect of other benefits of consumers. Most notably, because only the high level requirements are specified, it offers the potential of greater scope for bidders to develop innovative solutions to meet the specified requirements – which, in turn, may offer the prospect of lower consumer bills and a more secure transmission system. A significant downside of this approach, however, is that it is necessarily more complex than the late model. Hence, the regulator has been wrestling with how such an early model of competition might, in practice be introduced.

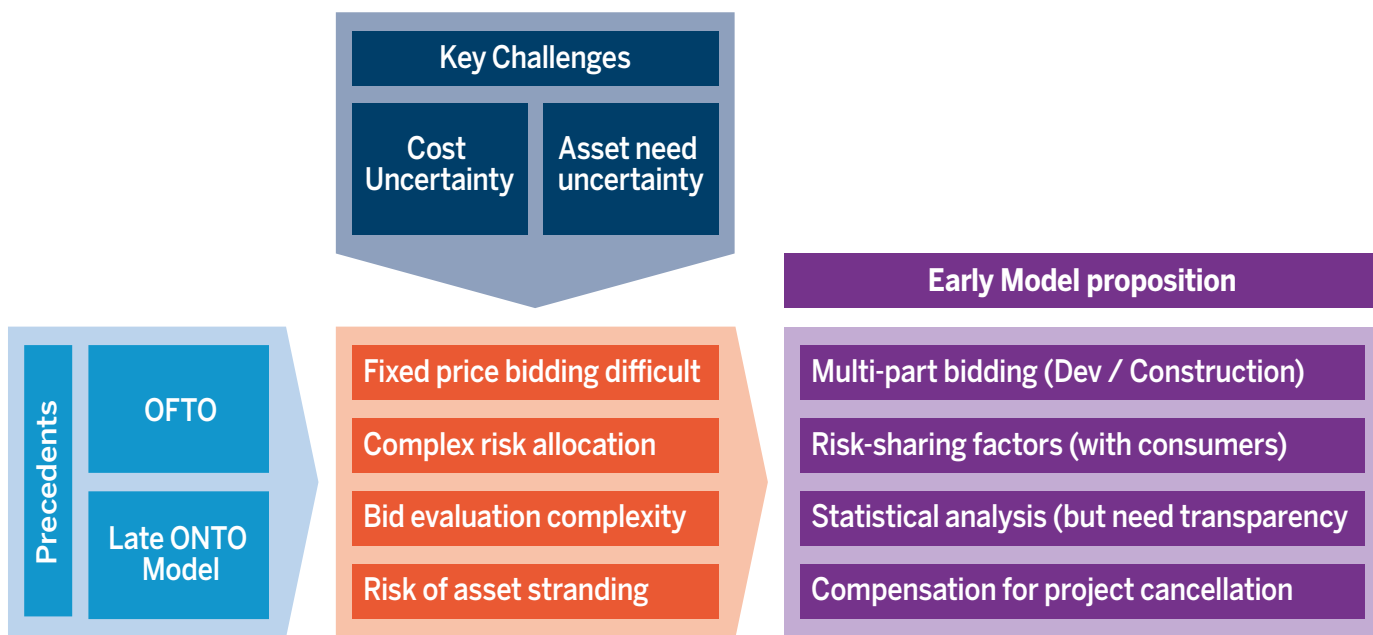
The Early and Late models of competition

In solving the problem of how to introduce competition early in the life cycle of a project, two key uncertainties need to be managed:

- first, lead times for transmission investment mean that the actual need for transmission projects is highly uncertain. Currently, investment in transmission assets occurs against a background of a highly uncertain outlook for the evolution of GB generation and GB demand requirements. That is to say, a decision to invest in transmission needs to be undertaken recognising that, because of changes in expected generation and demand outturn, it might not be required. This risk will continue to exist were an early model to be adopted.
- second, the cost of transmission projects is also highly uncertain. Notably, planning consents that are required for a project to proceed to the construction phase of a project are costly in themselves and, depending on the specific circumstances, can have highly uncertain outcomes. Any design changes that are required to meet planning requirements may significantly increase the outturn cost relative to initial expectations.

FTI Consulting was appointed by National Grid to work with the electricity industry and potential investors to develop a solution that, despite these significant uncertainties, would allow the introduction of competition at an early stage in a transmission project.

Figure 2: Summary of the Early CATO model design



Our first conclusion was that the competitive regime that has been successfully introduced for offshore transmission networks and a variant that is intended to be implemented for the late model – in which bidders effectively bid a fixed price for the rights to the project – would not work for the Early model due to the inherent uncertainties that need to be managed.

Therefore, significantly more complex bidding arrangements will be needed. While many variants are conceivable, a key feature of the early model would be the use of multi-part bids. For example, bidders could submit a two (or more) part bid – a certain amount to undertake, say, the preliminary parts of the project (notably the detailed planning and the consenting) as well as a bid for the cost of the project itself.

To manage the cost uncertainty, another important part of the bidding process would be risk sharing: as well as submitting a bid to recover the costs of delivering the project, bidders would also submit sharing factors in the tender. Cost overruns or underruns on a project relative to the bid amount would be shared with consumers at the specified sharing factors. These might, potentially, differ through different stages of the project or for different categories of costs.

Evaluation of competing bids with different bid structures and risk sharing becomes increasingly complex as the complexity of the bid increases. At the limit, as the number of bid parameters increases, relatively complicated statistical approaches would be needed to judge between competing bids. Hence, the regulator will need to decide how to balance the competing desires for a complex bidding structures to manage risks yet a simple and transparent the evaluation process.

Finally, to manage the project uncertainty risk highlighted previously – namely that the project is no longer required because of events outside of the control of the developer – a further key feature of the regime is that the regulator must commit to keep the developer whole for financial expenditure incurred to date. Hence should a project be cancelled because the generation expected to locate at a point on the network does not actually choose to proceed with the project, the transmission developer should still receive the funds invested today. That is to say, the risk of asset stranding should remain with the consumer – as it does, for the main part, today.

Next steps for competition

In Ofgem’s view, the introduction of more competition in the transmission sector could benefit GB consumers. For this to be the case, the competitive model needs to be appropriate for the situation. The Early model and the Late model both have their advantages and disadvantages from the consumer perspective.

While this briefing note shows how the Early model could work in practice and could unlock incremental value through innovation, it will not always be the preferred model. In some cases (for example where the project need uncertainty is larger-than-usual), the Late model may be more beneficial to consumers. In other cases, a non-competitive approach may in fact trump both the Early and the Late model. We hope that this Briefing note and the [attached] report will contribute to the wider industry debate about the potential for onshore competition in the transmission sector, including the investor community, developers and other interested stakeholders.



Jason Mann
Senior Managing Director
+44 (0)20 3727 1338
jason.mann@fticonsulting.com

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