Benefits of competition in onshore electricity transmission

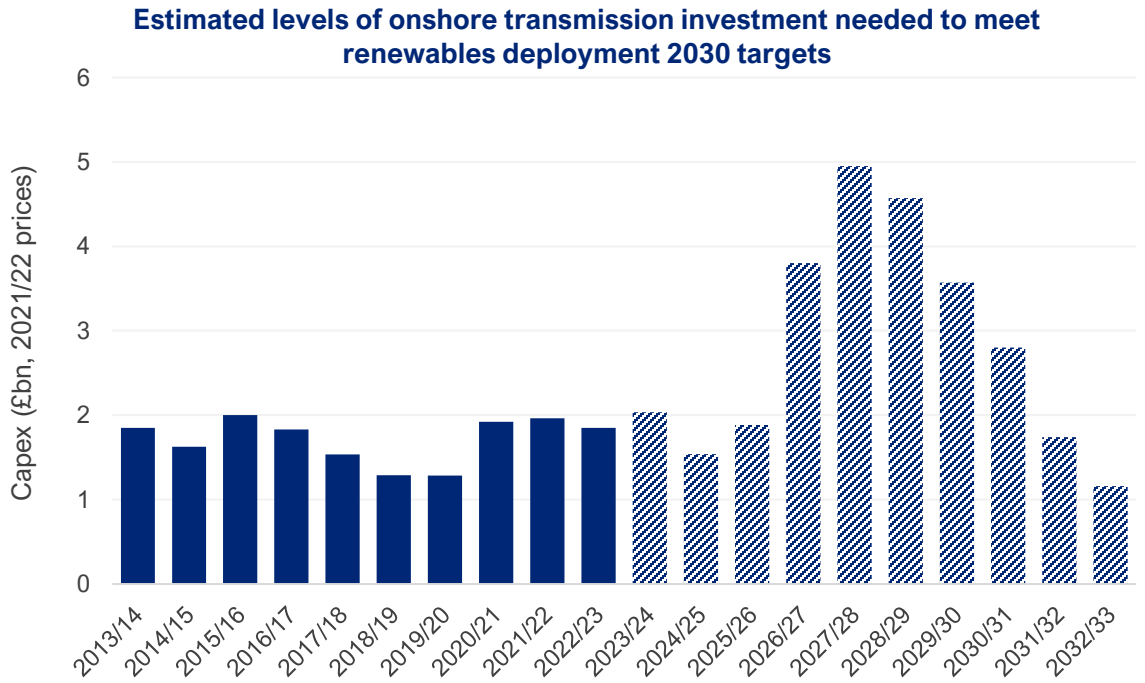
A Report for Transmission Investment

9 February 2024

Context

- The Government is aiming to deploy 50GW of offshore wind capacity by 2030 and targeting net zero by 2050 through extensive electrification of the transport, heating and industrial sectors.

- To meet these targets, substantial investment in reinforcing the onshore transmission network will be required.
  - Approximately £21 billion in investment will be required by 2030
  - At least a further £7 billion in investment has already been identified beyond 2030



- The 2030 target, in particular, creates a degree of urgency to the required investment.
  - Projects currently take 12-14 years to develop, though meeting the targets would require this lead time to be halved
  - Without delivering such investment in a timely manner, customers face large costs, as constraints on the transmission network mean that new renewables capacity cannot be delivered to where it is required

Purpose of this report

- Ofgem has taken steps that it considers will accelerate investment in transmission infrastructure, through the ASTI (Accelerated Strategic Transmission Investment) framework, including:
  - Taking project approval and review outside the standard price control cycle
  - Shortening timescales for its regulatory review processes
  - Exempting a large proportion of projects from competition
- This has contributed to the narrative that heavy reliance on accelerating processes for incumbent delivery is the faster, lower risk route to delivery of large infrastructure programme

In this report, we explore the case for the narrative that incumbent delivery is faster and lower risk. And we explore the merits of prioritising a sufficient pipeline for competition for some projects as an alternative pathway to total reliance on incumbent monopolies delivering timely transmission network infrastructure.

Summary findings

The scale of new transmission investment required means that there are significant savings to be achieved through competition, not just on individual reinforcement projects but across the whole programme.

Competition can encourage innovation in the design, delivery, and operation of new transmission infrastructure, in a way that delivers benefits to customers more quickly and cheaply.

While there is a perception that introducing competition risks delays to the delivery of new transmission infrastructure, such a narrative ignores the stronger incentives faced by third-parties to identify solutions that provide benefits sooner and to deliver projects to schedule.

However, these benefits are only likely to be realised if there is a large and stable pipeline of projects that are competed. Competing projects on an ad-hoc basis risks setting it up for failure.

Nevertheless, delivering a large capital programme, like that being proposed for new transmission infrastructure, is challenging – whether being delivered through incumbents or through competition. Utilising both approaches provides greater resilience to the programme.

What does this mean?

1. It would be mistaken to assume that prioritising incumbent delivery of transmission network infrastructure is the safer way of ensuring such infrastructure gets delivered.
2. Instead, prioritising a sufficient pipeline for competition provides an additional and alternative pathway to delivering timely transmission network infrastructure.
3. As such, there are advantages to maintaining a presumption in favour of projects being competed unless there is evidence that incumbent delivery would deliver better value for customers.
4. And any cost-benefit analysis looking at whether an individual project ought to be competed should also consider the pipeline and programme effects. In other words, the cost-benefit analysis should consider the wider benefits of competed projects through applying innovation and learning to the rest of the programme.

Reviewing the case for competition in relation to transmission investment

In this section, we explore the benefits of introducing competition in the delivery of onshore transmission infrastructure, both for individual projects and across the whole programme of transmission network reinforcement.

What are the benefits of competition in the context of developing transmission infrastructure?

- There is compelling evidence that infrastructure like transmission assets can be delivered at lower cost through competitive delivery than regulated delivery by incumbent monopoly providers. This is achieved by effective competition:
  - Continuously maintaining pressure on bidders to bid their true cost
  - Creating incentives to find cheaper, quicker and more effective ways of doing things
  - Imposing greater discipline around risk allocation
  - Encouraging investment in developing the supply chain
- While the size of the benefits will vary from project to project, it is reasonable to assume that competed transmission projects will, on average, deliver at lower cost than a regulated alternative. Total savings in the region of 20% relative to a regulated counterfactual, as estimated by Ofgem, are plausible.
- Competition, and particularly 'early-competition', can lead to innovation in onshore transmission throughout the project lifecycle. The benefits from these innovations extend to the broader programme.
- Competition can also provide 'regulatory learning' – in other words, showing the opportunities and constraints when competing out the development of infrastructure, and providing learnings that can be applied to the development of regulated infrastructure.

Competition can directly lower project costs by imposing pressure on bidders to bid their true costs

There is compelling evidence of infrastructure like transmission assets being delivered at lower cost through competitive delivery than regulated delivery. While this will vary from project to project, it is reasonable to assume that competed transmission projects will, on average, deliver at lower cost than a regulated alternative. However, as we explore later, this depends on competitions being run effectively.

There is evidence of competition encouraging cost efficiency for each element of the cost base, such that total savings in the region of 20% relative to a regulated counterfactual are plausible:[1]

- For **capex**, observed cost savings generally range between 10% and 30% when compared against benchmark estimates.[2] It is expected that cost savings under an early competition model will be at the higher end of the range.
- For **opex**, the savings have been estimated at between 0% and 20%. Our study for Ofgem evaluating the early OFTO tender rounds estimated savings of 19-23%.[3]
- The Thames Tideway Tunnel competition and successive OFTO competitions have also led to a process of price discovery around **financing costs**. The winning developer for the Thames Tideway Tunnel bid a WACC of 2.5%, less than Ofwat's estimate of 3.3%, and below the industry average of 3.6%-3.7%.[4]

The information revealed from competitions can and has been used to benchmark the costs of regulated projects. This means that the opportunity for further cost savings, particularly around financing costs, are likely to be more limited.

However, price discovery is not static. When an industry is exposed to a shock that affects its cost base (e.g. inflation, new technologies etc.), competitive models can be quicker and more efficient at revealing the new price than regulatory models through later rounds of competition.

For example, recent Contracts for Difference auction rounds have quickly revealed that the cost of developing renewable capacity has increased due to rising materials costs and a higher cost of capital. They have also revealed that while the costs of developing solar and onshore wind capacity have risen, the costs for developing offshore wind have increased further.

Footnotes:

1. Ofgem (2022) Early Competition Impact Assessment. Available at https://www.ofgem.gov.uk/sites/default/files/2022-03/Transmission%20Early%20Competition%20IA.pdf
2. This is based on a review of reports by National Grid ESO, Ofgem and other studies, looking at the experience of both transmission investments and other competed infrastructure projects. We note that quoted savings have been as high as 60%.
3. CEPA (2016) Evaluation of OFTO Tender Round 2 and 3 Benefits. Available at https://www.ofgem.gov.uk/sites/default/files/docs/2016/03/ofgem_tr2_tr3_evaluation_final_report.pdf
4. Ofwat (2015) PN 02/15 Ofwat awards licence for Thames Tideway Tunnel. Available at https://www.ofwat.gov.uk/pn-0215-ofwat-awards-licence-thames-tideway-tunnel/. As the project nears completion, the estimated bill impact remains as it was originally estimated in 2015.

Competitive pressures also drive dynamic benefits that can be difficult to fully replicate under a regulated model

Through innovation, discipline around risk allocation, and investment in upstream markets, competition can also deliver cost savings, time savings, and a more resilient supply chain.

- **Firstly, competition creates pressure to find cheaper and more effective ways of doing things.** As we explore later, this can lead to solutions that are cheaper, provide greater benefit and at shorter timescales.

  In theory, the indirect benefits from competition can also be achieved by incumbent transmission owners running competitive procurement for contracts for the construction of new transmission infrastructure. However, Ofgem notes that:[1]

  "the largest benefits under early competition will be unlocked through innovation in the design, delivery, and operation of electricity transmission infrastructure."

  We observe from other jurisdictions where models of early competition have been introduced, that a wide range of novel solutions have been proposed.[2]

- **Competition can also impose greater discipline around risk allocation.** Competitive, contractual models, particularly those that are delivered through project finance structures, require a comprehensive understanding of a project's risks and how they are allocated to various parties. The discipline imposed by such models, which can be difficult to replicate under the incumbent regulatory model, can in turn reduce financing costs by providing greater clarity and discipline.[3]

- **Competition can open up the market to new suppliers and investors.** Greater competition in the development of transmission infrastructure can support more resilient and more competitive upstream markets. For example, project finance structures would open up onshore transmission to new sources of financing that would not typically consider investing under regulatory models. It would also allow financing to be split between the development phases of a project and the operational phase.

Footnotes:

1. Ofgem (2022) Early Competition Impact Assessment. Available at https://www.ofgem.gov.uk/sites/default/files/2022-03/Transmission%20Early%20Competition%20IA.pdf
2. See for example PJM (2021) Artificial Island Project Nears Completion. Available at https://insidelines.pjm.com/artificial-island-project-nears-completion/
3. Norton Rose Fulbright (2016) Alberta's Fort McMurray West 500 kV Transmission Project. Available at https://www.nortonrosefulbright.com/en-mh/knowledge/publications/3aaf6332/albertas-fort-mcmurray-west-500-kv-transmission-project

Competition, and particularly early-competition, can deliver longer-term benefits through innovation

These innovations can then be applied to provide benefits in future transmission projects delivered by other parties – both onshore and offshore

Competition encourages the identification and testing of innovations at each stage of the project lifecycle:

- Scheme design, including technical standards
- Obtaining consents and access rights
- Financing
- Contracting, supply chain management, and construction
- Operation and maintenance

Innovations at each stage have the potential to deliver transmission infrastructure quicker and more cheaply.

Importantly, in a world where projects are competed regularly, competition allows innovations to be identified and tested quickly, with learnings disseminated, and successful innovations adopted widely.

On the other hand, incumbent transmission owners are unlikely to be set up to identify and test such innovations – they will often have standardised technical designs and approaches to obtaining consents, and limited appetite to take risks on new approaches.

Successful innovations also have a multiplier effect on the benefits they provide to customers – successful innovations for one project can then be implemented on future projects delivered by different parties.

Bank Station Capacity Upgrade Project[1] (London Underground)

The Bank Station capacity upgrade project, costing approximately £700m, provides a helpful demonstration of the benefits that can be achieved under an 'early competition' model – savings in both costs and time.

The project pioneered the use of contractors at an early stage of the project. Bidders were asked to innovate on an established base case option, within a broad set of technical parameters. Bids were legally binding, and bidders were compensated if their innovation was used in the final solution, even if they were not the winning bidder. There were 24 registered innovations – 10 from the winning bidder. These innovations led to:

- The Northern Line being closed for 23% less time, and the whole programme being 10 months quicker than the base design.
- More effective step-free access solution direct from the street to the platforms.
- A 10% reduction in the final cost compared to initial estimates.

Footnotes:

1. Department for Transport (2017) Transport Infrastructure Efficiency Strategy. Available at https://assets.publishing.service.gov.uk/media/5a8206b740f0b6230269a707/transport-infrastructure-efficiency-strategy.pdf

Competition also delivers benefits through regulatory learning

Competition can also provide ‘regulatory learning’ by demonstrating the opportunities and constraints of competing out the development of infrastructure

Introducing competition (or contestability) can also support regulators more widely, by:

- Providing benchmarks for cost-efficiency and timeliness that can be used to assess projects delivered under a monopoly model.
- Uncovering what works and what does not in relation to infrastructure competition and developing ‘template’ models for competition.

There are some clear opportunities for learning in relation to the introduction of competition in transmission investment. For example:

- How to define outputs such that competing proposals under early competition can be assessed on a comparative basis.[1]
- How strong the incentives for cost-effective and timely delivery can be.
- How to run a tender process that is quick whilst still being robust.

There is a risk that running a small number of competitions on a sporadic basis provides limited opportunities for learning, such that the benefits of a competitive pipeline cannot be fully realised.

Footnotes:

1. https://www.aer.gov.au/system/files/AEMC%20Transmission%20Planning%20and%20Investment%20Review%20-%20Contestability%20options%20paper%20-%20AER%20submission_0.pdf

Examples of regulatory learning

Midcontinent Independent System Operator (Duff-Coleman EHV 345 kV Competitive Transmission Project). MISO received 11 responses to its RFP for this project, including several innovative proposals for transferring cost risk away from customers, which was previously atypical – such as caps on operation and maintenance costs, willingness to take inflation risk, caps on a large proportion of capital costs, etc.

Thames Tideway Tunnel and Direct Procurement for Customers. The successful experience of competition with regards to the Thames Tideway Tunnel, allowed the concept of third-party delivery to be developed further and deployed more widely. It also provided Ofwat with greater confidence to progress development of a full model for competition, in the form of the Direct Procurement for Customers.

OFTO regime price discovery. Ofgem has been able to use learnings from the OFTO regime to inform its estimates of the cost of capital for the RIIO-2 price control.

Rail franchising. The challenges of the rail franchising model has exposed that train operating companies can only bear limited revenue risk, given the number of factors affecting revenues that are outside their direct control and not easily predictable. It has also demonstrated that the companies can innovate to provide a more customer-centric service.

The direction of travel for regulatory regimes is towards introducing more competition in infrastructure development

As we explore in the next section on where competition works well, there is no compelling argument for why onshore transmission would not also benefit from competition. Furthermore, the passing of the Energy Act 2023 and moves towards creating an independent FSO remove the barriers to running projects through a competitive process.

Footnotes:

1. Department for Transport (2017) Transport Infrastructure Efficiency Strategy. Available at https://assets.publishing.service.gov.uk/media/5a8206b740f0b6230269a707/transport-infrastructure-efficiency-strategy.pdf

Department for Energy Security & Net Zero

"Competition can lead to increased innovation, greener solutions, and provide savings to consumers by incentivising lower cost, more efficient business plans. For the design and delivery of infrastructure, all regulators should harness competition to unlock opportunities for strategic investment. As such, the Government is supportive of removing strategic investments, including sustainable, nature-based solutions, from the standard price control process and opening them up for competition where appropriate."

Department for Energy Security & Net Zero

"Introducing competition [to onshore electricity networks] will provide new opportunities to invest in networks where it is efficient to do so. The creation of a new competitive market should improve efficiency in investment, foster innovative solutions to network needs, including increasing the opportunities for smart and flexible solutions, and reduce costs to consumers."

Ofwat

"We believe that there is an important opportunity for competition to unlock further strategic investment in the water sector, primarily to support the delivery of major infrastructure in water and wastewater."

"There are several ways in which competition can support strategic investment in major infrastructure in the water sector…. We have grouped these benefits under three broad themes: lower cost, increased speed and effectiveness, and wider benefits."

Labour

So today, working closely with Ed Miliband, I can announce Labour's plans to rewire Britain: Securing the supply chain we need for lower bills. And to build faster and cheaper, opening up new grid construction to competitive tendering.

When can policymakers be most confident of realising the benefits of competition?

While competition can deliver benefits, there are instances where competition has not worked effectively. In this section, we review these examples and highlight the key learnings from them.

What can we learn from the successful and unsuccessful implementation of competition?

- Over the past few decades, many infrastructure and utility sectors previously served by monopoly incumbents have been introduced to competition. Some of these attempts have been successful whereas others have been less so.
- The main learnings about conditions for successful implementation of infrastructure competition are as follows:
  - Outputs ought to be easy to define and there should be limited (and fixed) dimensions of performance
  - There need to be opportunities to transfer risk away clearly and cost-effectively from customers or taxpayers
  - There should not be a presumption that competition needs to be restricted to the largest projects
  - Competition works best when projects are competed regularly
- There are significant benefits to all parties from there being a regular pipeline of projects being competed. Without such a pipeline, there is a material risk that competition is unwittingly set up to fail:
  - Sporadic competitions are unlikely to attract as much interest, given the limited opportunities to spread one-off, upfront costs associated with understanding the risks involved, reviewing the contractual model, and putting together a credible bid.
  - Without the potential to win a substantial volume of work, developers will have a limited incentive and ability to invest in the supply chain
  - Without running regular competitions, there are limited opportunities for the procuring body to learn from previous procurement rounds and develop the expertise required to run effective competitions.

Learning 1: Outputs ought to be easy to define and there should be limited (and fixed) dimensions of performance

Competition tends to be less suitable for projects where the requirements will evolve over time, or where it is difficult to simply and objectively assess performance.

What can we learn from other applications of competition?

Competitions for the delivery of infrastructure are typically associated with long-term contracts.[1] By design, these contracts provide limited flexibility to vary outputs over time. This has been one of the key factors in the challenges associated with operational PFI projects, where the requirements have evolved, leading to expensive contract variations.[2]

Similarly, under contractual models, outputs and performance metrics need to be clearly defined.[3] While such requirements also exist under regulatory models, the periodic nature of regulatory reviews allow such outputs and performance metrics to evolve over time.

How does this apply to electricity transmission?

Investment in separable transmission infrastructure projects is well-suited to such long-term contracts, given the relatively simple nature of the outputs and performance measures (i.e. availability).

However, consideration will need to be given to interfaces between system-wide outputs and the outputs defined in individual contracts.

Footnotes:

1. While contracts are long term (~15-30 year), they often do not extend to the useful economic life of the asset.
2. NAO (2008) Making Changes in Operational PFI Projects. Available at https://webarchive.nationalarchives.gov.uk/ukgwa/20170207052351/https://www.nao.org.uk/wp-content/uploads/2008/01/0708205.pdf
3. 4ps (2005) 4ps Review of Operational PFI and PPP Projects. Available at https://www.bipsolutions.com/docstore/pdf/11980.pdf

Learning 2: There needs to be opportunities to transfer risk away from customers / taxpayers clearly and cost-effectively

Competitions often fail when risks are not fully understood, or inappropriately transferred (or not transferred) to the private sector. Competition in the delivery of electricity transmission provides opportunities to transfer more cost and timings risk away from customers.

What can we learn from other applications of competition?

There have been several high-profile failures of rail franchising competitions, which helpfully illustrate the limits of risk transfer. Many franchises failed when their revenues were affected by macroeconomic demand shocks or affected by the failures of third parties to deliver on planned improvements.[1] These examples highlighted the limited potential for transferring revenue risk away from taxpayers, as identified in the Brown Review[2] and Williams Review,[3] given the dependence on other factors outside a train operating company's control.

On the other hand, the various subsidy regimes for offshore wind have demonstrated that project-specific risks (such as installation costs and timings) can be cost-effectively transferred away from customers. And even with recent increases in materials costs and supply chain constraints, expectations remain that such risks are better held by developers.[4]

How does this apply to electricity transmission?

In the context of electricity transmission, the experience of other jurisdictions has demonstrated that third-parties have been more willing to take on some project risks than incumbents.[5]

In a UK context, competition potentially allows more cost and delay risk to be transferred away from customers than would be feasible in an incumbent delivery context. This is especially the case in early competition models.

However, where there are interdependencies between various projects and existing assets, the case weakens for competition as a means of transferring risk away from customers.

Footnotes:

1. See for example, the multiple failures on the Intercity East Coast Mainline.
2. Brown (2013) The Brown Review of the Rail Franchising Programme. Available at https://www.gov.uk/government/publications/the-brown-review-of-the-rail-franchising-programme
3. Department for Transport and Williams Rail Review (2021), Great British Railways: The Williams-Shapps Plan for Rail. Available at https://www.gov.uk/government/publications/great-british-railways-williams-shapps-plan-for-rail
4. While some successful projects in the AR4 auction round have been put on hold, others have continued to progress, with developers facing strong incentives to mitigate these unanticipated cost increases. Developers also continue to express interest in bidding into auctions where they retain project specific risks.
5. For example, bids in the Duff-Coleman Transmission Project competition run by MISO, included several mechanisms for transferring risk away from customers.

Learning 3: There should not be a presumption that competition needs to be restricted to the largest projects

While current proposals are to apply late competition only to high-value projects, the experience of other jurisdictions shows that competition can work for smaller projects that are less than £100 million, provided that contractual models are relatively standardised.

It is common to apply value thresholds when deciding which infrastructure projects are considered for competition. The value threshold exists based on the assumption that competition can deliver greater value on larger projects, particularly given the transaction costs associated with running a competition and participating in one.

This also seems to be supported by the investor community, as larger projects provide sufficient value to make it worthwhile to invest in:

- understanding a project,
- understanding the regulatory and contractual model, and
- putting together a bid[1]

Ofgem propose applying a threshold of £100 million when determining which onshore transmission projects are considered for competition under a "late-competition" model, but do not apply any threshold under the "early-competition" model.

In Ofwat's Direct Procurement for Customers (DPC) model, a threshold of £200m in whole-life totex is used.

However, experience from other jurisdictions demonstrates that competition can be applied to smaller projects. For example, in Victoria (Australia) projects greater than $10 million (£5 million) are competed, while the MISO electricity market (United States) applies a threshold of $5 million (£4 million) for higher voltage lines and $20 million (£16 million) for lower voltage lines.[2]

The experience of PFIs also demonstrates that projects can become smaller, provided that the contractual models become standardised, and the projects become 'cookie cutter'.

How does this apply to electricity transmission?

Therefore, there should not be a presumption that competition needs to be restricted to the largest projects. Or that only projects comfortably larger than £100 million in value should be competed under the late competition model. And in the longer-term, consideration should be given to eventually lowering the threshold for late competition.

Footnotes:

1. Bush and Earwaker (2017) Direct procurement of water industry projects. Available at http://www.first-economics.com/directprocurement.pdf
2. KPMG (2022) Contestability in transmission – International and domestic examples. Available at https://www.aemc.gov.au/media/99620

Learning 4: Competition works best when projects are competed regularly

The key lesson we draw from other instances of infrastructure competition, is that it works most effectively when there is a pipeline of projects that are to be competed.

The success of the OFTO regime and of successive CfD auction rounds has been partly due to the development of a clear pipeline of projects, with a standardisation of terms.[1] This typically reduces transaction costs associated with the competition process and delivers greater investor interest.[2]

Conversely, where there are limited project pipelines, there is greater risk of participants bidding aggressively for individual projects to gain access to the market, leading to subsequent failures.[3] Or alternatively, investors may be more likely to opt out of bidding into the competition.[4]

The Dutch roads Public-Private Partnership (PPP) programme[5]

Rijkswaterstaat, the Dutch Department of Waterways and Public Work, has a long-running sustainable pipeline of roads projects, where the design, build, finance and maintenance of the schemes are competed out to third parties. It first developed a roads PPP pilot programme using around six standardised projects: they had the same revenue stream type and duration, and the same PPP format. This simplified the process for investors to get used to a new industry for PPPs and is cited as one of the key reasons for the success of this PPP programme.

While the threshold for PPPs was initially set at €112.5m, this was later reduced to €60m as transaction costs fell over time.

Benefits of regular auctions for renewable electricity capacity[6]

IRENA have found that moving towards regular auctions for renewable electricity capacity has often led to more bidders participating in the auctions, more credible bids and lower prices:

- In South Africa, moving from standalone auctions to regular auctions led to the number of bids increasing by 75% over three auction rounds, and to the number of qualifying bids more than doubling.
- In India, the contracted price of a solar PV auction reduced by 28% over two auction rounds.
- In California, the number of bids increased by over 50% over two auction rounds.

Footnotes:

1. Bush and Earwaker (2017) Direct procurement of water industry projects. Available at http://www.first-economics.com/directprocurement.pdf
2. EBRD (2018) Competitive Selection and Support for Renewable Energy.
3. Oxera (2012) Disincentivising overbidding for road toll concessions. Available at https://www.oxera.com/wp-content/uploads/2018/03/Disincentivising-overbidding-for-toll-road-concessions.pdf
4. Department for Business, Energy & Industrial Strategy (2019) Rapid Evidence Assessment: The Role of Auctions and their Design in Renewable Energy Deployment. Available at https://assets.publishing.service.gov.uk/media/627e3c27e90e0721abb2376a/CfD_evaluation_phase_1_scoping_phase_-_Rapid_evidence_assessment.pdf
5. CEPA (2017) Financing for infrastructure: Background evidence. Available at https://nic.org.uk/app/uploads/UK-infrastructure-pipeline-analysis.pdf
6. IRENA (2015) Renewable Energy Auctions: A Guide to Design. Available at https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2015/Jun/IRENA_Renewable_Energy_Auctions_A_Guide_to_Design_2015.pdf

The efficiency / innovation benefits from competition can only be achieved if applied to a relatively large pipeline of projects

From observing the experience of competitive procurement of infrastructure, we conclude that maintaining a pipeline of transmission projects that will be competed and running regular competitions is essential for delivering the benefits of competition.

Below, we outline our reasons why:

- **Better opportunity to understand the risks involved:** The running of regular competitions allows bidders to better understand the risks involved with both the contractual / regulatory model, as well as the projects itself. Over time, we would expect to see this result in more competitive bids, delivering further benefits to customers. It also lessens the likelihood of overoptimistic bids that subsequently lead to project failure.[1]
- **Higher likelihood of investor and developer interest:** In previous work,[2] we have found that investing the time involved in bidding for a project and hiring the necessary expertise to appraise project risks is only considered worthwhile if there is a planned programme of repeatable bidding opportunities, or if the project on offer is sufficiently large to stand on its own. Whilst many of the specialised infrastructure investors and experienced project finance banks have existing expertise in-house, institutional investors often do not. The more interest there is from both developers and investors, the likelier it is that bids will be competitive.
- **Development of experience of bidding for projects:** As tenders are run repeatedly, bidders are likely to improve their understanding of the bidding process allowing them to put together more compelling bids. The cost of preparing bids can also be spread across multiple tenders.
- **Ability to develop independent supply chains:** A pipeline of projects available for competition provides greater incentives to third-parties to develop supply chains that are independent of the incumbent. This in turn improves the diversity of labour and capital and provides greater resilience to supply chains.

Footnotes:

1. This has been argued to be a factor in overoptimistic bids for renewable tenders in Poland, Ireland and Denmark. See https://assets.publishing.service.gov.uk/media/627e3c27e90e0721abb2376a/CfD_evaluation_phase_1_scoping_phase_-_Rapid_evidence_assessment.pdf
2. CEPA (2017) Financing for infrastructure: Background evidence. Available at https://nic.org.uk/app/uploads/UK-infrastructure-pipeline-analysis.pdf

Similarly, the 'learning' benefits can only be achieved if competitions are run regularly

- **Greater value from initial set-up costs:** The costs of setting-up the first CATO competition are likely to be substantial, having been estimated at between £3m and £7m plus 1% of the asset value. The procuring authority, whether ultimately the FSO or Ofgem, will be required to upskill substantially given the differences in the OFTO regime and the likely CATO regime. Developing an onshore competition model for only a handful of projects is unlikely to deliver value for money for customers.[1]
- **Learnings from earlier procurements being used to refine future competitions:** There is limited hard evidence of costs associated with running competitions reducing over time as procuring authorities gain experience. However, we do observe procuring authorities adapting their approach over time to incorporate learnings from previous rounds, simplifying administrative processes and adapting the design of competitions to reduce bidding costs.[2] We also observe the timelines for running tender processes reducing over time.[3]
- **Develop in-house expertise in running auctions to maximise the value:** It has been observed that organisations with greater expertise in running procurement competitions have been more successful in extracting value for money from those competitions.[4]
- **Ability to regularly market test and ongoing price discovery:** The running of regular competitions allow dynamic price discovery of efficient capital costs, operating costs, and financing costs. This can deliver benefits to customers more frequently than might be achieved by a five-yearly price control cycle.

Competitive transmission procurement by MISO (USA)

According to MISO, the independent system operator for the Midwest, bidders for later tender rounds that had participated in earlier tenders, had *"brought forward meaningful insights and experience they gained in that process."*

Whereas only one bid (of eleven) scored higher than 80 (out of 100) for the first tendered project, seven proposals (of nine) did so for the fourth tendered project. Bids demonstrated extensive due diligence and innovative cost containment mechanisms, like schedule guarantees and caps on construction costs and revenue requirements.

The experience in MISO demonstrates the effects of pipelines over only two tender rounds. Bidders apply their previous experience in innovative ways, and all participants gain increased confidence in the process.

Footnotes:

1. Ofgem's impact assessment from 2021 suggests that two projects being competed with a total value of £100m would broadly be the breakeven point.
2. See, for example, KPMG (2022) Contestability in transmission – International and domestic examples. Changes have included adapting RFP templates to allowing more flexibility around which projects participants could bid for.
3. See for example: Competitive Transmission Administration (misoenergy.org)
4. https://www.nao.org.uk/wp-content/uploads/2013/11/Savings-from-operational-PFI-contracts_final.pdf

How do competitive and incumbent delivery models compare when delivering a large capital programme?

In this section, we explore the challenges associated with the scale of investment being proposed to deliver a reinforced transmission network to 2030 and beyond.

Delivering a large programme of transmission infrastructure at short timescales

- It is widely recognised that a step-change in investment in transmission infrastructure is required to ensure that the 2030 targets for renewable capacity and generation can be cost-effectively absorbed by the electricity grid.
- While the scale of investment being proposed is not unprecedented, with similar levels of investment being undertaken in the 1950s and 1960s, it is beyond what any of the incumbent transmission owners have delivered since privatisation. There are only a few organisations in the UK that have the experience of delivering capital programmes of this scale.
- There are several risks to the incumbent delivery model that may be underestimated, particularly around resilience and delivery capability across a large programme.
  - Large capital programmes are likely to stretch management bandwidth, in a way that could leave other aspects of performance compromised
  - Reliance on a few companies concentrates risk and creates single points of failure
  - Similarly, a lack of financial resilience on the part of the incumbent transmission owner can act as a barrier to new transmission investment.
- Healthy competition can go some way towards mitigating those risks.
  - Introducing competition to the delivery of transmission infrastructure supports with building wider capability in the market, which provides mitigations to the risk of non-delivery by another party
  - The models employed under competition encourage a greater focus on delivery

The scale of transmission network reinforcement required to meet renewables targets in 2030 and beyond is substantial

It is widely recognised that a step-change in transmission infrastructure investment is required to ensure the 2030 targets for renewable capacity and generation, can be cost-effectively absorbed by the electricity grid. This level of investment will likely need to be sustained beyond 2030.

To meet the 2030 ambition, annual investment in transmission infrastructure will likely need to increase by over 80% when compared against the previous decade.[1]

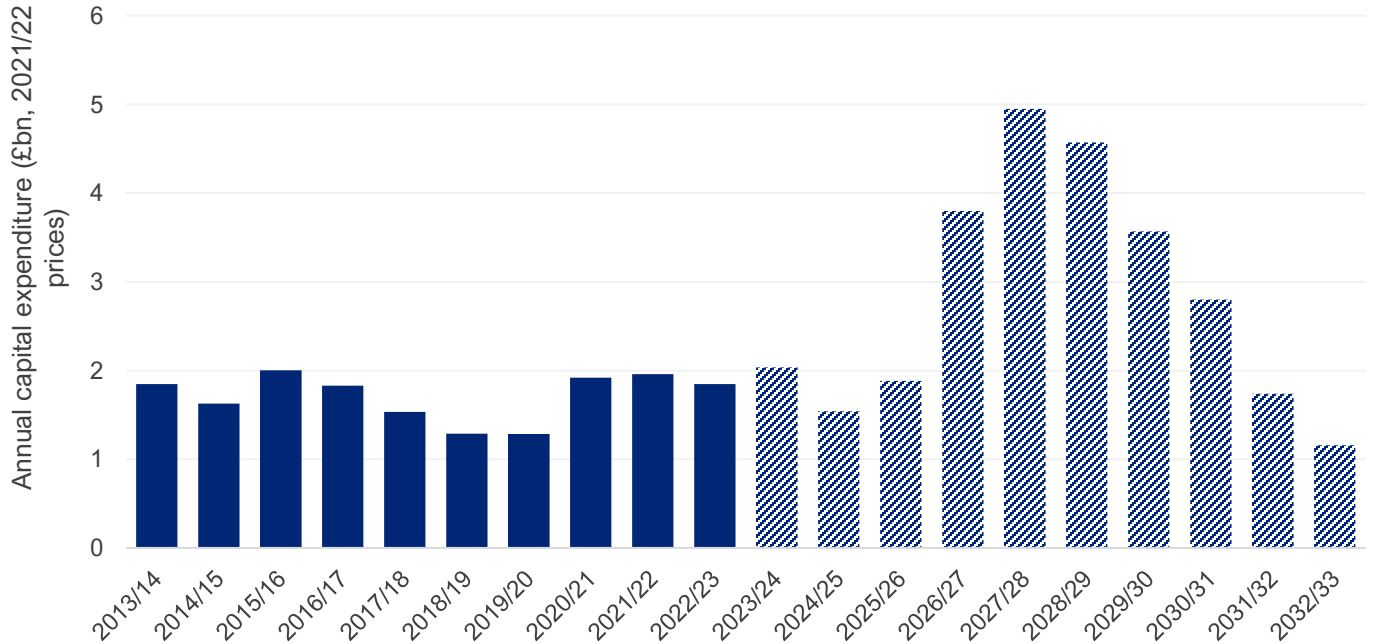
In the figure, we present the scale of investment required to meet 2030 goals (based on those identified within Ofgem's ASTI document). Historically, annual capital expenditure has peaked at £2 billion per annum. When considering just the projects identified as part of the ASTI programme, we estimate that expenditure will need to increase to the order of £5 billion per annum by the end of the decade. The scale of expenditure required over the next seven years is greater than what has been delivered since before privatisation.[2]

We expect that the scale of investment required beyond 2030 will be of similar orders of magnitude to the period before 2030, given the need to electrify other sectors and given forecast constraint costs.[3]

Footnotes:

1. We compare annual expected capital expenditure from 2023/24 to 2030/31 against the previous decade.
2. See for example https://www.eprg.group.cam.ac.uk/wp-content/uploads/2023/04/text-2307.pdf
3. https://www.nationalgrideso.com/document/266576/download

Electricity transmission expenditure including ASTI projects



Source: CEPA analysis of TO annual accounts, Ofgem RIIO-ET2 financial model and Ofgem ASTI decision document. We conservatively assume that all load-related capital expenditure from 2023/24 comes from the ASTI projects.

The challenge of delivering such a step-change in investment should not be underestimated

There are only a few organisations in the UK that have the experience of delivering capital programmes that are of this scale.

We estimate that over the five-year period to 2030-31:[1]

- NGET's capex will average roughly £2.5 billion per annum,
- SSE's capex will average roughly £1.5 billion per annum, and
- SPT's capex will average roughly £0.5 billion per annum.

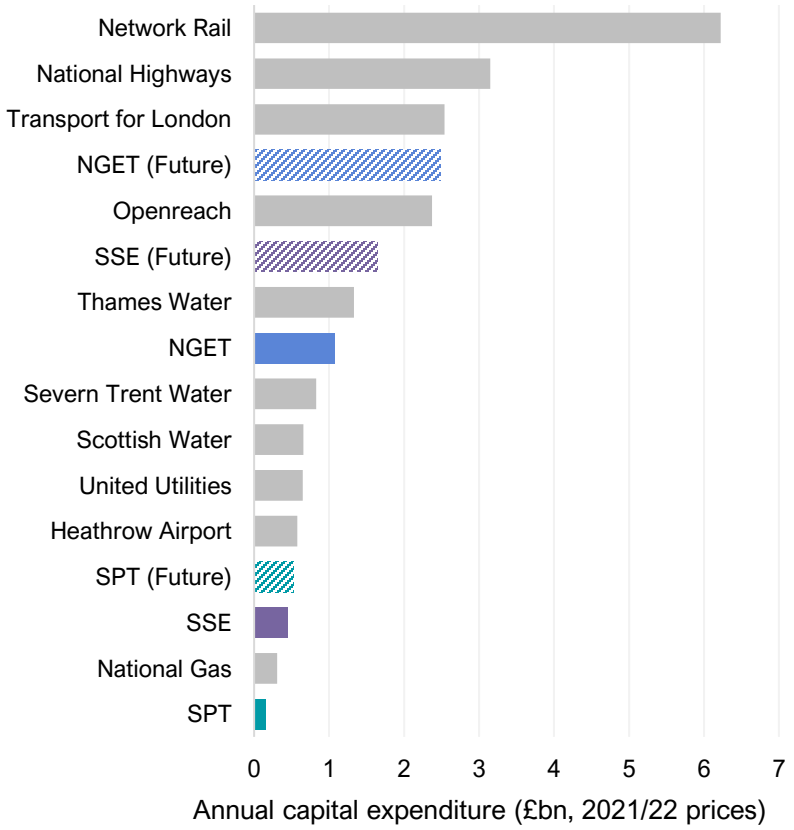
The figure on the right shows that there are only five regulated organisations outside the energy sector that have experience of delivering a capital programme that involves annual expenditure greater than £1 billion. Of these, only Openreach and Thames Water are privately financed.

We also understand that some of the projects being delivered through ASTI have a capex value greater than £1 billion and, therefore, would be considered megaprojects.[2]

Megaprojects tend to come with their own unique set of challenges.[3] They are at greater risk of cost-overruns and delays, and typically require ringfenced resources and a specific set of skills to deliver.[4]

Of the organisations presented in the figure, only some have experience of delivering £1 billion+ mega projects within those capital programmes.

Scale of capex over the five years to 2022/23



Source: CEPA analysis of company annual accounts

Footnotes:

1. Based on an analysis of the Ofgem ASTI decision document and the RIIO-ET2 financial model. As the Ofgem ASTI decision document does not provide a breakdown of cost estimates per project, we have apportioned cost estimates roughly.
2. As above, this is an estimate based on the aggregate information provided within the ASTI decision document.
3. See https://arxiv.org/ftp/arxiv/papers/1409/1409.0003.pdf
4. PwC (2013) Correcting the course of capital project. Available at https://www.pwc.co.uk/assets/pdf/pwc-correcting-the-course-of-capital-projects.pdf

It is important to heed the risks in heavily relying on incumbents to deliver this scale of investment programme

We observe an implicit assumption that delivering the transmission investment programme through incumbent transmission owners provides greater certainty of delivery. It is important that this assumption is properly tested so that it does not unduly influence decisions on which projects to exempt from competition.

Delivering such a programme through a few organisations can amplify the risks associated with large capital programmes. The impact of portfolio-wide risks ought to be given proper consideration.

Large capital programmes are likely to stretch management bandwidth, in a way that could leave other aspects of performance compromised

In any organisation, management has limited bandwidth. Delivering large-scale transmission infrastructure quickly, innovatively, and cost-effectively, while investing in supply chain resilience and continuing the maintenance and operation of the existing network, will be challenging for any organisation.

Under a delivery model with very high reliance on incumbents, the strain on management bandwidth will rest with the incumbent transmission owners.

Under a model where more projects are competed greater strain will be placed on the procuring body, which may not yet be set up to handle many complex procurements. However, using both incumbent monopoly and competitive models together reduces the risk of stretched management bandwidth affecting delivery.

Reliance on a few companies concentrates risk and creates single points of failure

Given the number of high-value network reinforcements expected to 2030 and beyond, there is a likelihood that some of these projects will perform poorly. In an incumbent delivery model, a disruptive event such as a poorly performing project risks the delivery of the entire capital programme. This has been observed in other sectors, as we show in the box overleaf.

Similarly, a lack of financial resilience on the part of the incumbent transmission owner can act as a barrier to new transmission investment.

For example, the existence of financing constraints on Thames Water was a major factor in the decision to compete out the ownership and financing of the Thames Tideway Tunnel.

In Australia, there are concerns about whether the incumbent transmission owners are sufficiently financeable to deliver the large, required increase in transmission investment in a timely manner.[1] While the market operator, AEMO, has consulted on changing depreciation rules to aid financeability, some incumbent transmission owners have requested a higher rate of return to compensate what they consider to be higher risks.[2]

The regulator, on the other hand, has suggested that the introduction of competition is a more appropriate solution to dealing with financeability concerns.[3]

Footnotes:

1. Baringa (2022) Transmission planning and investment for clean electricity. Available at https://ceig.org.au/wp-content/uploads/2022/08/Baringa_CEIG_Advice-on-Transmission-Reform_Report_FINAL.pdf
2. See for example https://www.transgrid.com.au/media/hksjfmlz/30-september-2021-submission-to-aemc-s-transmission-planning-and-investment-review-consultation-paper.pdf
3. See https://www.aer.gov.au/system/files/AEMC%20Transmission%20Planning%20and%20Investment%20Review%20-%20Contestability%20options%20paper%20-%20AER%20submission_0.pdf

Case study: The electrification of the Great Western Mainline and the disruption to Network Rail's Capital Programme

The experience of Network Rail provides a compelling demonstration of how project failure can affect an incumbent monopoly's ability to deliver the rest of its capital portfolio. It also demonstrates how a monopoly position can create moral hazard, lead to an underestimation of risks and disincentivise cost discipline.

During its fifth control period between 2014 and 2019, Network Rail was responsible for delivering a programme of large-scale electrification projects across the GB rail network.

One project within this programme, the electrification of the Great Western Main Line, was beset by problems and eventually cancelled. The project was originally proposed in mid-2000s and was progressed despite large elements of the project being at an early stage of development, with highly uncertain cost. As the scale and complexity of the project became clear, and as Network Rail's inability to manage the project became clear, it was repeatedly delayed and de-scoped until a large part of it was cancelled entirely in 2017. Cost estimates for the project had increased from £0.8bn to over £2.8bn. Prior to this period, "Network Rail was able to finance cost increases through increasing the amount it borrowed from the financial markets".

The failure of the project initially led to a 'pause' in the delivery of Network Rail's wider electrification programme. Eventually, most of the electrification programme was also indefinitely delayed or cancelled, along with several other projects within the CP5 capital plan. Despite this, Network Rail overspent its CP5 capital allowance by £10bn. According to the 2021 Williams-Shapps plan for rail, the capital portfolio was characterised by "overspecification, gold-plating and disconnected decision making".

The experience of Network Rail contrasts with other enhancement projects delivered by other organisations (e.g. the Project Evergreen upgrade of the Chiltern Railways) and financed fully privately. Many other rail enhancement projects – East West Rail, Heathrow Southern Railway – are now being developed independently of Network Rail.

There needs to be sufficient competition in practice to diversify against the risk of non-delivery

Introducing competition to the delivery of transmission infrastructure supports market building and provides mitigations to the risk of non-delivery by another party

There are material risks that come with delivering a programme of transmission investment at this scale, given the urgency of the need and the complexity of some of the individual projects.

It is inevitable that a few will fail to be delivered to the expected cost or schedule. Some may also not deliver on the expected benefits (e.g. due to reliability issues). This is possible under both the incumbent and competitive delivery models. And under a model where developers take on more project-specific risks, it is also possible that projects are abandoned entirely.

One of the key advantages of developing a pipeline of competition is that it develops the capability of third-party suppliers to deliver projects of this scale. And in turn, this provides alternative options when things do go wrong. For example:

- Where an existing developer is struggling to deliver on its existing projects and has no capacity to undertake any new projects. In such instances future projects can continue to be competed without slowing down the timetable.
- Where a project is abandoned due to developer failure, there are a set of alternative developers who could take on the project.

The models employed under competition encourage a greater focus on delivery

The business model for competitively appointed transmission owners is likely to be almost entirely focused on delivering new transmission investment, whereas incumbent transmission owners necessarily have multiple objectives that they need to balance.

If such projects are delivered under an SPV model, the sole focus of management will be to deliver the project to time and to cost. And given the risk of losing market share if they fail to deliver on projects, there are much stronger incentives on delivery than would be practicable to implement for incumbent transmission owners under a regulatory model.

This is recognised by Ofwat:[1]

"Competitive delivery models allow for major infrastructure projects to be isolated from the incumbent water company and focussed in special purpose vehicles, whose sole purpose and focus is to deliver the project to time and to cost."

Footnotes:

1. Ofwat (2022) Competition in strategic investment: a high-level stocktake. Available at https://www.ofwat.gov.uk/wp-content/uploads/2022/07/Competition_stocktake_report_final.pdf

How does competition affect timescales for delivery?

While competition adds an extra step to the delivery of new transmission infrastructure, competitively appointed providers face stronger incentives to deliver to schedule. This often translates to quicker delivery of transmission infrastructure once appointed.

Timescales for delivery under competition

- Running a tender process is an extra step required that does not exist under a regulated model. However, the ultimate impact of the tender process on timetables is limited:
  - The experience of other jurisdictions suggests that there are opportunities to reduce the length of the tendering period over time. We note that National Grid ESO has already reduced the number of tendering rounds from two to one.
  - Many other project development activities overlap with the tender process.
  - As such, the impact of the tender process may be as limited as six months before accounting for the time savings that could be achieved through competition.
- Competitively appointed providers face stronger incentives to identify solutions that deliver more quickly and face stronger incentives to deliver to schedule once appointed. This often translates to much shorter timescales.
  - There is evidence from competed transmission projected elsewhere, and from other examples of competition in other sectors, of competed projects being delivered more quickly than the non-competed projects.
  - While some of the delay risk under a regulated incumbent monopoly model will be mitigated through the ASTI framework and other initiatives, these are likely to remain second best solutions.
- Currently, one of the key constraints to timely delivery is access to the supply chain. While providing certainty to incumbents around which projects they will be required to deliver is one mitigation of supply chain risks, alternatives exist - and are being actively explored by the UK Government.

The time taken to design and run the first tender process are extra steps that would not be required for incumbent delivery

The running of a tender process is an extra step required when transmission projects are competed. However, the experience of other jurisdictions suggests that there are opportunities to reduce the length of the tendering period.

The tender process will take some time to develop – experience from other jurisdictions suggests that it can take up to three years.[1] The timescale for development of onshore competition tender processes should be shorter as Ofgem and the ESO have already undertaken preparatory work.

The tender process also takes time to run – bidders need to undertake detailed design work, the procuring body need to pre-screen and evaluate bids, and the post-tender contractual arrangements may take time to finalise.

The expectation that the tender process adds time to development timescales has also been reflected in the feedback we have received from industry stakeholders.

The ESO's recent update to its Early Competition Plan contains an indicative timeline consisting of 16 months to run the tender process plus an 11-month pre-tender stage, as shown in the figure below.[2]

This revised timetable of a 16-month competition is broadly in line with our observations from other jurisdictions:[2]

- Late competition tender exercises have typically been conducted over 6 to 9-month timeframes, while
- Early and very early competition tenders have run over 12 to 18-month timeframes.

However, we also observe some evidence of tender processes reducing over time as procuring bodies gain further experience of running the tender exercise.[3]

The extent to which there are opportunities to reduce the length of the tender period will depend somewhat on the complexity of the contractual arrangements and the degree of risk transfer; for example, tender exercises run in North American have typically had less risk transfer than is expected within the GB onshore framework.

Footnotes:

1. See Alberta example in Brattle (2014) Contrasting Competitively-Bid Transmission Investments in the U.S. and Abroad. Available at https://www.brattle.com/wp-content/uploads/2017/10/6031_ubs_-_brattle_competitive_transmission_presentation_051314.pdf
2. National Grid ESO (2024) Early Competition Implementation – Update. Available at https://www.nationalgrideso.com/document/301786/download
3. We have reviewed competitions run in Alberta, New York, California and by PJM and MISO, all under different models.
4. See for example, https://new.misoenergy.org/planning/competitive-transmission-administration/

The ultimate impact of the tender exercise on timescales is unlikely to be material

As many activities overlap with the tender process and as competed projects do not need a project assessment, the ultimate impact of the tender process on timetables is more limited.

In its early competition CBA, National Grid ESO assume that the impact on final timetables from running a tender process could range from 0 to 2 years.

Much of the procurement period would overlap with the development of a detailed design, early consenting activities and early engagement with the supply chain. When considering overlaps, and when considering the experience of other jurisdictions, the impact may be as little as six months.

Also, running a tender process means that certain regulator activities are no longer required, such as the cost assessment process. Some of these activities are being accelerated through the ASTI framework.

There is evidence that competitive models provide stronger incentives to deliver more quickly

Competitively appointed providers face stronger incentives to deliver to schedule, given payments are only received once a project is operational. This often translates to quicker delivery of transmission infrastructure once the tender exercise has been completed.

Competition can reduce delivery timescales by encouraging the introduction of solutions that deliver benefits sooner.

The tender process itself can be designed to facilitate timely delivery – under an early competition model, bidders can be encouraged to put forward solutions that reduce delivery timescales. Likewise, such competitions could encourage innovative new approaches to consenting processes, thereby cutting down on a key source of delivery delay.

One example is the Path 15 Upgrade project (USA), in which a public-private partnership with the Western Area Power Association facilitated cheaper consenting, and an innovative contracting approach incentivised on-time completion. The project was ultimately completed on time and under budget.[1]

Competition also reduces timescales by providing stronger incentives to deliver to schedule.

The experience of Private Finance Initiatives and PPPs within the UK and in Australia also provide demonstrable examples of timely delivery.[2] In Australia, a comparison of projects delivered under a PPP model found that they were on average delivered 3.4% ahead of schedule. This compared with an average delay of 23.5% for projects delivered using traditional procurement, mostly due to delays on larger projects.[3]

There are several examples of competitively-procured projects being completed ahead of schedule in North America. The Duff-Coleman project was completed in 2020, over six months ahead of schedule and within its cost commitments,[4] while the Fort McMurray West transmission line was completed in March 2019, three months ahead of schedule.[5]

New Appointments and Variations (NAVs)

NAVs are multi-utility providers of water and wastewater services. Competition in the market for provision of these services has facilitated new solutions and better service into the market, but has also had spillover effects on incumbents, pressuring them to improve their service offerings. Lower lead times for open excavation and more flexible solutions have led to leaner build cycles, expediting the construction of housing throughout the UK.

Footnotes:

1. Brattle Group (2019) Cost Savings Offered by Competition in Electric Transmission. Available at brattle.com
2. NAO (2009) Performance of PFI Construction. Available at webarchive.nationalarchives.gov.uk
3. Infrastructure Partnerships Australia (2016) Performance of PPPs and Traditional Procurement in Australia. Available at infrastructure.org.au
4. See "LS Power Completes 'Republic Transmission', MISO's First Competitively Awarded Transmission Project" (2020). Available at https://www.lspower.com/miso-first-competitive-transmission-project-completed/
5. Concentric Energy Advisors (2019) Building New Transmission. Available at ceadvisors.com

On the other hand, incumbent delivery carries underappreciated delay risk

Some of this delay risk may be mitigated through the reforms to the planning regime, accelerated regulatory processes and stronger incentives to deliver to schedule. However, these are likely to remain second best solutions to competitive delivery.

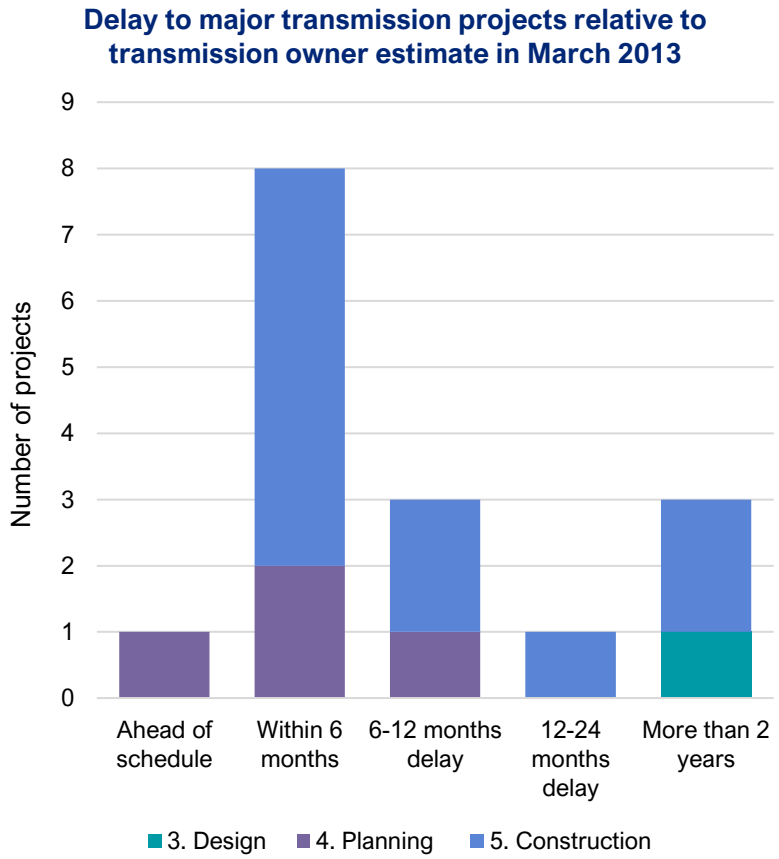
Delivery of a large portfolio of transmission investments to tight timescales carries significant risk of delay. When taking a programmatic approach to investment, a delay on one project can have knock-on delays to other projects within the portfolio.

To illustrate, we have reviewed the performance against expected completion dates of the Transmission Owner Major Projects, as monitored by the Energy Networks Strategy Group.[1]

We reviewed the 16 projects that were in either the design, planning or construction phases in March 2013, and have since been completed. We then compared the actual completion date against the expected completion date as originally proposed in March 2013.[2]

As can be seen from the chart, just under half of these projects were delayed by more than 6 months, a quarter were delayed by more than 12 months, and three projects were delayed by more than 2 years.

While the ASTI framework introduces stronger incentives to deliver on time with penalties imposed for delayed delivery, the incentives only apply to delays that are longer than 12 months.



Footnotes:

1. Department for Business, Energy & Industrial Strategy (2022) Electricity transmission networks: major projects update. Available at https://www.gov.uk/government/publications/electricity-transmission-networks-major-projects-update
2. Where projects have been delivered jointly, we have treated them as single projects. We have also excluded projects that were identified with delivery dates prior to 2023 but have not been delivered yet, and those that have been put on hold.

Competition does not need to create uncertainty around access to the supply chain

Currently, one of the key constraints to timely delivery is access to the supply chain. While providing certainty to incumbents around which projects they will be required to deliver is one mitigation, alternatives exist (and are being actively explored by the government).

The existence of supply chain constraints for certain materials has been widely documented, with lead times of up to seven years.[1] Skills gaps for several key roles have also existed since the early 2010s.[2]

It has been suggested that this can be mitigated by providing incumbent transmission owners with greater certainty around the projects they will deliver, as opposed to being competed. While this may be an appropriate short-term solution, it is likely to be unsustainable and overly simplistic in the longer term:

- While competing projects may create temporary uncertainty around the investment pipeline for individual firms, the need for large-scale transmission investment is not uncertain. As such, where supply chain constraints are likely to affect timely delivery, coordinated or centralised procurement may be a more effective solution. The UK Government is actively exploring this as an option.
- Providing certainty that in the medium-to-longer term, transmission projects will be competed more routinely, will encourage more widespread investment in the supply chain, providing greater resilience in the longer run.
- While incumbents have the ability to invest in and develop supply chain, their incentive to do so is more limited. This is exemplified by the continued existence of skills shortages.

Staff shortages within the aviation sector and monopoly power

We observe that the persistence of staff shortages within the aviation sector following the Covid-19 pandemic has been broadly correlated with the degree of competition within the specific segment of the supply chain.

The extent of competition within the aviation supply chain varies significantly, ranging from airlines and ground handlers operating under full competition to air navigation service providers (ANSPs) operating as monopolies. During the Covid-19 pandemic, all companies within the sector took steps to reduce costs following the downturn in aviation traffic, though ANSPs received significant revenue protection.

Despite this, ANSPs across Europe have continued to suffer from staff shortages into Summer 2023. By contrast, airlines and airports have largely resolved the staffing issues they experienced in 2022.

Footnotes:

1. Winser (2023) Accelerating electricity transmission network deployment: Electricity Networks Commissioner's recommendations. Available at https://www.gov.uk/government/publications/accelerating-electricity-transmission-network-deployment-electricity-network-commissioners-recommendations
2. Department for Business Innovation & Skills (2011) Infrastructure supply chains: barriers and opportunities.

Summary findings and key takeaways

Summary findings

The scale of new transmission investment required means that there are significant savings to be achieved through competition, not just on individual reinforcement projects but across the whole programme.

Competition can encourage innovation in the design, delivery, and operation of new transmission infrastructure, in a way that delivers benefits to customers more quickly and cheaply.

While there is a perception that introducing competition risks delays to the delivery of new transmission infrastructure, such a narrative ignores the stronger incentives faced by third-parties to identify solutions that provide benefits sooner and to deliver projects to schedule.

However, these benefits are only likely to be realised if there is a large and stable pipeline of projects that are competed. Competing projects on an ad-hoc basis risks setting it up for failure.

Nevertheless, delivering a large capital programme, like that being proposed for new transmission infrastructure, is challenging – whether being delivered through incumbents or through competition. Utilising both approaches provides greater resilience to the programme.

What does this mean?

1. It would be mistaken to assume that prioritising incumbent delivery of transmission network infrastructure is the safer way of ensuring such infrastructure gets delivered.
2. Instead, prioritising a sufficient pipeline for competition provides an additional and alternative pathway to delivering timely transmission network infrastructure.
3. As such, there are advantages to maintaining a presumption in favour of projects being competed unless there is evidence that incumbent delivery would deliver better value for customers.
4. And any cost-benefit analysis looking at whether an individual project ought to be competed should also consider the pipeline and programme effects. In other words, the cost-benefit analysis should consider the wider benefits of competed projects through applying innovation and learning to the rest of the programme.

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