Memorandum

TO: **National Grid ESO**

FROM: **FTI Consulting**

DATE: **29 November 2019**

RE: **Case Studies of Early Competition**

1. Introduction and key findings

Onshore transmission competition has been implemented in various regions around the world. The processes through which system operators in these jurisdictions competitively procure transmission differs greatly, with varying degrees of success. In the context of informing the development of early competition in onshore transmission in Great Britain (GB), we examine experiences from other jurisdictions.

This memorandum identifies key lessons and learnings for early onshore competition in GB by looking at examples of:

- Established onshore transmission competition;
- New onshore transmission competition; and
- Design competitions.

1.1 Our key findings from these three groups of case studies is summarised in Figure 1 below.

200 Aldersgate | Aldersgate Street | London EC1A 4HD
T: +44 (0)20 3727 1000 | F: +44 (0)20 3727 1007 | fticonsulting.com

FTI CONSULTING

Figure 1: Key findings

Established onshore transmission competition	New onshore transmission competition	Design competition
• Practical implementation of FERC Order 1000 differs by ISO: both Early and Very Early models • Relatively few projects (approx. 25) competitively awarded as many fall under 'exceptions'… • …and we have not identified any operational projects • Project value has ranged from $14mn to $750mn	• First-of-a-kind tender run to date… • ...but plans to run more tenders • Only one project tendered in each jurisdiction • High value projects have been tendered ($0.8bn, $1.6bn)	• No design-only tenders in transmission identified • In other industries, winners involved during construction
• **Transparency** appears to be critical, in particular transparency on assessment criteria and the rationale for selecting a preferred bidder. • **Cost metrics** should not be overvalued at the expense of other factors in evaluating tenders. • **Cost containment mechanisms** can be "bid in" but stakeholders appear concerned that they have limited effectiveness (track record better indicator, too simplistic evaluation metric, doesn't account for uncertainty, limited incentives for cost efficiency). • **Pre-qualification** seems effective regardless of whether it occurs inside or outside the tender process. • **Very Early model** seems to allow for a broader and more creative range of proposals, but makes it harder to compare bids. • In practice, ISOs have dealt with **issues in an ad hoc manner**. • **Participation fees** and requirements to pay evaluation costs do not appear to deter participation. • **No US ISO stands out as the "best example" of competition**, in particular with respect to ex-post accountability.	• It may be beneficial to run an **initial project** and then modify the competition rules accordingly. • **Transparency** appears to be important to stakeholders, in particular with respect to bid evaluation criteria and rationale for selecting a preferred bidder. • Stakeholder feedback suggests that it is better for **competition rules not to be overly prescriptive** and instead allow market forces to derive efficient solutions to needs. • **Early models** appear to elicit fewer non-network solutions compared to very early models.	• **We have not been able to identify a design competition in transmission,** nor have we been able to identify any jurisdictions that have considered implementing one. • Experience from other industries suggests that either the **competition winner should be involved through to project completion** (i.e. architect model)… • …or the **project client (i.e. competition organiser / developer) should closely oversee the process from start to finish** (subject to contractual liability). • **Lack of transparency** in the selection process may result in a preferred solution that is not credible. • Best practice guidelines from RIBA are for the **competition format to flex** to project specific needs and the client's risk attitude.

1.2 Furthermore, the key differences between each of the Design, Build and Own (DBO) models included in this memorandum is summarised in Figure 2 below.

Figure 2: Key differences between DBO models

	PJM	NYISO	CAISO	Ontario	Alberta	Western Victoria
Process frequency	Regular – tender part of transmission planning			Ad hoc tender initiation		
Opportunity frequency	Very few due to exclusions (e.g. upgrades, located in single zone, <200kV)			One project has been awarded through competitive tender		First tender is ongoing (2019)
Tender point	Very Early – Bid against need (no reference design)		Early – Bid against implicit reference design provided by party running tender			
Prequalification	• For all tender opportunities • During annual qual. window	• For all tender opportunities • Submit at any time	• Part of tender process	• Must hold transmission licence to participate • Can apply for licence at any time	• Part of tender process – up to 5 bidders invited to participate in tender	• Part of tender process – only shortlisted bidders invited to respond to ITT
Scope of competition	• Multi-phase • Multiple proposals from same bidder • Short term needs excl. (<3yrs) • Had a trial run (Artificial Island)	• Multi-phase • Incumbent TO must participate • NNS can be bid & are compared against network solutions	• Multi-phase • Appears that only transmission solutions are tendered and NNS bypass comp. process • CAISO discretion to adapt tender process	• Single-phase (except in exceptional circumstances) • TO bidder of last resort • Relative importance of criteria determined on case-by-case basis	• Multi-phase • Ad hoc selection of projects for comp. tender • Detailed reference design from SO (incl. cost estimate)	• Multi-phase • Ad hoc competition that is integrated with existing process (RIT-T) • First comp. & AEMO will adapt based on key learnings
Competitive tension between participating parties	No formalised / planned point after tender awarded where incumbent is re-assessed and can be displaced					
	• Need & solution can be re-assessed due to unexpected changes • Ad hoc re-assessment can result in incumbent being replaced	• Backstop can displace (winner non-compliance, NYISO revokes pref. selection) • TO must provide info to 3rd parties	• If winner later unable or unwilling to build, can direct TO to build or open new solicitation window • Re-evaluation on case-by-case basis	• Regulator runs tender • Winning bidder can be displaced if project milestones not met	• Significant stakeholder engagement before final route decided	• Contract negotiations after tender awarded to set terms
Changes to bid	• Cost containment incl. in bid • Bid improvements allowed only when requested by PJM as part of review	• Bid improvements to address deficiencies	• Changes to bid or bidder qual. submission if do not meet min. standards	• Cost containment not incl. • Project need can be reviewed upon request, but no bid improvements	• Fixed price bid • Change and incentive mechanisms outlined ex-ante • Bid changes in some cases	• Unclear

Tender cost	• Proposal fee (non-refundable)	• Dev ex recoverable for:
		  • Backstop if not triggered or halted
		  • Pref. solution if halted
		• $100,000 deposit applied to study costs
			• CAISO assessment costs born by bidders (capped at $150,000)	• Eligible for wind-up costs if project stopped (not needed or no longer economically viable)	• CAD $1mn proposal deposit	• Unclear

1.3 The remainder of this memorandum sets out detail on competitive processes as follows:

- **Background**: a brief introduction to the entity running the competition.
- **Competitive process**: background to the competitive process and competition criteria.
- **Tender point**: point in the transmission lifecycle where competition is introduced and how the tender information is communicated to participants.
- **Scope of competition**: whether the tender is single- or multi-phase and the extent to which development costs incurred by bidders are recoverable.
- **Tender design and evaluation**: how the tender mechanics work and the evaluation criteria used to select a preferred solution.
- **Ex-post accountability**: how the winning bidder is kept accountable in relation to the bidding stage, e.g. in terms of costs and timings of their proposal.[1]
- **Backstop solution**: whether a "backup" solution is run in parallel to the preferred ("winner") solution.
- **Specific use case**: where possible, how the competitive process was applied in practice.

[1] This includes handover and IP issues.

2. Established onshore transmission competition

2.1 The Federal Energy Regulatory Commission (FERC) is the United States (US) federal energy regulator and has jurisdiction over the Independent System Operators (ISOs) and Regional Transmission Organisations (RTOs).[2]

2.2 The requirement for ISOs and RTOs to have a competitive process stems from FERC Order 1000, which came into force in July 2011. FERC Order 1000 sets out rules requiring that there be "*opportunities for non-incumbent transmission developers to propose and develop regional transmission facilities through competitive transmission planning processes*".[3]

2.3 In the years following the introduction of FERC Order 1000, stakeholders began raising concerns about elements of the Order. Many of the concerns stem from a lack of transparency about Order 1000 and the competitive processes themselves.

2.4 FERC is concerned that ISOs and RTOs have too much flexibility in interpreting Order 1000, which has resulted in a *"profusion of the types of projects and categories that are not subject to competition such as local and near-term projects and a relative dearth of projects, bigger projects that are subject to competition"*. This *"goes against the central purpose of the rules"*.[4] **FERC's experience appears to show that it is important to be transparent with the rules and objectives of competition.**

2.5 It has also been suggested that there are further issues with the implementation of Order 1000 driven by RTOs (or ISOs) not having the appropriate skills to administer competitive processes. At a 2016 FERC led stakeholder conference on competitive transmission, PSE&G (a transmission operator) raised the concern that RTOs / ISOs have expertise in engineering and planning, but do not have the full set of sufficient skills to administer Order 1000 competitive windows properly.[5] **This suggests that it is import for the entity responsible for running early competition in GB to have appropriate capabilities.**

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2 An ISO normally operates within a single state, whereas an RTO operates across multiple states. For the purpose of this memorandum, the terms are effectively the same and used interchangeably.

3 Brattle Group report for LS Power, Cost Savings Offered by Competition in Electric Transmission, April 2019.

4 FERC, Competitive Transmission Development Technical Conference, 27 June 2016, accessed at https://www.ferc.gov/CalendarFiles/20160721092004-AD16-18-06-27-16.pdf

5 FERC, Competitive Transmission Development Technical Conference, 27 June 2016.

2.6 Stakeholders have also raised concerns about the effectiveness of cost containment measures, in particular that:[6]

- Sound transmission planning requires consideration of more than just construction costs;
- Cost containment is an overvalued bid metric as reputable developers have internal project execution processes and a track record to show whether they can deliver projects on budget;
- Imposing pre-determined weights, mathematical formulas and simplistic rules does not work and can dictate inappropriate selection, as least cost does not mean cost effectiveness. Instead, should take a holistically look at all proposals in selecting a winner;
- It may not be useful to use cost containment as a deciding factor when project construction begins two to three years from project award, as the environment is inherently uncertain this far in advance and the cost containment parameters may not be relevant by the time construction begins; and
- Developers are able to recover the lower of their capped expenditure and actual cost, therefore there are potentially limited incentives for cost efficiency.

2.7 Feedback from stakeholders has been that there should be transparent guidance from FERC with respect to the evaluation and enforcement of cost containment mechanisms. Never-the-less, stakeholders appear to consider that cost caps have the potential to bring consumer benefits if ISOs / RTOs develop the financial and legal capabilities to evaluate them.[7] **It therefore seems important to have transparency on the assessment criteria and for tender evaluators not to overvalue cost metrics at the expense of other factors.**

2.8 There also appears to be some positive learnings from Order 1000. In particular, **despite the pre-qualification processes differing across the regions, it is generally considered a success** as competitive processes are attracting highly qualified participants. Prior to the implementation of Order 1000, there was a concern that "*two men and a laptop*" would try to compete for complex transmission projects.[8] Furthermore, **new entities have been formed specifically to compete for projects and have been active across the planning regions.** It is difficult however to assess the benefits brought about through competition as we are not aware of any operational projects.

6 FERC, Competitive Transmission Development Technical Conference, 27 June 2016.

7 FERC, Competitive Transmission Development Technical Conference, 27 June 2016.

8 FERC, Competitive Transmission Development Technical Conference, 27 June 2016.

2.9 The practical implementation of Order 1000 has differed across the ISOs, which will be discussed in this section. Furthermore, only a small number of small and medium projects[9] have been competitively awarded to date as many transmission projects have fallen under Order 1000 (or ISO specific) exemptions.[10]

2.10 The remainder of this section sets out the competitive processes of:

- PJM Interconnection ("PJM")));
- New York Independent System Operator ("NYISO"); and
- California Independent System Operator ("CAISO").

PJM

Background

2.11 PJM is a RTO that operates across 14 states in the Eastern part of the US.[11]

2.12 PJM identifies and assesses economic, reliability and public policy needs for transmission (or equivalent) investment.[12] This case study focuses on reliability needs only as they are most relevant for GB. The same model structure – a Very Early[13] DBO model – is used for all types of needs, but the assessment criteria differs.

9 There have been approximately 25 projects competitively awarded in PJM, NYISO and CAISO. These have ranged from $14mn to $750mn in value.

10 FERC Order 1000 exempts projects that are upgrades to existing infrastructure and projects that fall entirely within a single zone.

11 PJM operates in all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Colombia. Accessed at https://www.pjm.com/about-pjm/who-we-are.aspx.

12 Reliability needs relate to the potential violation of reliability criteria, Economic needs relate to relieving congestion costs, and public policy needs relate to assets required by local of federal policy action.

13 In the current discussions in GB, there are various points of a project lifecycle where a competitive tender is introduced. These points are Very Early (after a transmission need is identified), Early (after an initial solution is proposed), and Late (after consenting and preliminary works, before construction).

Competitive process

2.13 PJM projects are eligible for competition unless they fall under one of the following exemptions:[14]

- Need is immediate (required in-service date less than three years and PJM determines that there is insufficient time to run a competitive process);
- Need is below 200kV;
- Relates to substation equipment; or
- Excluded per FERC Order 1000 rules (system upgrades and local projects[15]).

2.14 Between 2013 and 2017, 16 competitive solicitation windows were completed and seven projects were approved.[16]

2.15 Participant pre-qualification occurs during an annual 30-day pre-qualification window. Once pre-qualified, the bidder is eligible to participate in all future tenders (subject to renewing its pre-qualification information).[17]

Tender point

2.16 PJM uses a Very Early DBO model, where the tender is initiated after the need is identified.

2.17 The Very Early model is also known in the US as the "*sponsorship model*". FERC notes that "*the sponsorship model certainly **allows a more creative and broader range of proposals but perhaps a tougher selection process***" as opposed to an Early model that is "*more structured and easier to compare but perhaps loses some of that creativity*".[18]

[14] PJM, Manual 14F, April 2017.

[15] Local projects are cost allocated to a single zone and geographically located within that zone. The need for local transmission investment is normally determined by local transmission owners and not through coordinated regional planning.

[16] Brattle Group, Cost Savings Offered by Competition in Electric Transmission, prepared for LSP Transmission Holdings LLC, April 2019.

[17] PJM, Manual 14F, April 2017.

[18] Emphasis added, https://www.ferc.gov/CalendarFiles/20160721092004-AD16-18-06-27-16.pdf

2.18 Reliability needs are communicated via 'Problem Statements' posted on PJM's webpage. Problem statements outline:[19]

- The need (quantitative elements, such as MW output, and qualitative elements, such as reducing operational complexity);
- Tender requirements (minimum performance requirements for the solution, info to be provided by the bidder); and
- Technical information (e.g. fault list, transfer trip delays and generator capabilities).

2.19 Once the need is identified, PJM solicits proposals from Transmission Operators (TOs) and non-incumbent bidders during 'proposal windows'. 'Proposal windows' are conducted on overlapping 18- and 24-month cycles, with the length varying based on the type of system reinforcement (long-lead time >5yrs, short term 3-5yrs, immediate need and sufficient time for competition, interregional proposals).[20]

2.20 No reference design is provided as part of PJM's tender process.

Scope of competition

2.21 Bids are assessed through a multi-stage tender process, with bids not meeting the required standard at each stage removed from consideration (see 'Tender design and evaluation' for criteria). Following all assessment rounds, a single preferred solution is selected.[21]

2.22 The rationale for selecting the preferred solution is reviewed by the Transmission Expansion Advisory Committee (TEAC) before the preferred solution is approved by the PJM Board. Once a preferred bidder is confirmed, they are responsible for all remaining steps in the project lifecycle.[22]

[19] PJM, Manual 14F, April 2017.

[20] PJM, Manual 14F, April 2017.

[21] PJM, Manual 14F, April 2017.

[22] PJM, Manual 14F, April 2017.

Tender design and evaluation

2.23 Bids are assessed through three stages:[23]

- **Stage 1**: Initial review (does proposal meet the need? Is it feasible? Are cost estimates and scope reasonable?).
- **Stage 2**: Primary considerations (does it meet reliability standards, PJM reliability requirements, industry codes of practice?).
- **Stage 3**: Additional considerations (more detailed review of cost estimate, cost containment mechanisms, contribution to grid resilience, reliability margin, project risk and execution, sensitivity analysis).

2.24 Bidders can include cost containment mechanisms in their bids. For example, Artificial Island winning bid included a cap on construction costs, excluding project changes caused by unexpected events.[24]

2.25 Bidders pay a proposal fee to PJM based on their project cost estimate as follows:[25]

- $0 proposal fee for project cost estimate less than $20m;
- $5,000 proposal fee for project cost estimate between $20m and $100m; and
- $30,000 proposal fee for project cost estimate in excess of $100m.

Ex-post accountability

2.26 Construction responsibility is assigned to the winning bidder via a Designated Entity Agreement (DEA). This is an agreement between the Designated Entity (DE) and PJM that defines the rights and obligations of both parties during the construction period, including:[26]

- scope of work;
- key project milestones (including required in-service date);
- cost commitments;
- project modification process;
- circumstances that constitute a breach of the DEA and circumstances under which the transmission provider can be terminated;

[23] PJM, Manual 14F, April 2017.

[24] PJM, Artificial Island Project Recommendation White Paper, 29 July 2015.

[25] PJM, Manual 14F, April 2017.

[26] PJM, Open Access Transmission Tariff (OATT), effective September 2010.

- a requirement that the DE seek and obtain all required consents; and
- non-standard terms agreed by both parties and approved by FERC.

2.27 The coordination of responsibilities between the DE and relevant TO during the construction phase are formalised through an Interconnection Coordination Agreement (ICA). An ICA is only required when the DE is not a signatory to the Consolidated Transmission Owners agreement. An ICA outlines:[27]

- the scope of the DE's and TO's responsibilities with respect to facilitating the interconnection of the project to the TO's facilities;
- circumstances that constitute a breach of the ICA and associated remedies; and
- non-standard terms agreed by both parties and approved by FERC.

2.28 The DEA and ICA remain in effect until the asset is under operational dispatch. Once the asset is operational, the DE must become a TO by signing the Consolidated Transmission Owners Agreement.[28]

Backstop solution

2.29 No backstop solution.

Specific application – Artificial Island

2.30 PJM opened a proposal window (29 April 2013 to 28 June 2013) seeking solutions to *"improve operational performance on bulk electricity system facilities in the south New Jersey, Artificial Island area."*[29] This project was as a trial run of the competitive process.

2.31 During the proposal window, seven potential developers submitted 26 separate proposals with cost estimates ranging from $100mn to $1.55bn. These proposals covered a wide range of potential solutions, including new overhead and underground lines, new or upgraded substations, circuit breakers, system reconfigurations and dynamic reactive devices.[30] Of the 26 proposals received, 14 were submitted by PSE&G, the incumbent TO, with costs ranging from $692mn to $1.5bn.[31]

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27 PJM, Open Access Transmission Tariff (OATT), effective September 2010.

28 PJM, Manual 14F, April 2017.

29 PJM, RTEP 2013 Book 1, February 2014.

30 PJM, Transmission Expansion Advisory Committee (TEAC) Artificial Island Recommendations to the PJM Board, April 2017.

31 PJM, Artificial Island Project Recommendation White Paper, 29 July 2015.

2.32 Five of the 26 proposals were shortlisted and taken through to the second-phase.[32]

2.33 Initially, only two of the 26 proposals passed the first screening phase. The concern was that bidders had insufficient time to prepare proposals and that it was difficult for them to construct appropriate proposals. **PJM decided to modify certain proposals (sometimes significantly) in order to bring more proposals forward into the next assessment phase.**[33]

2.34 During phase-two of the tender evaluation process, LS Power (the ultimate winning bidder) amended its bid to include a cost cap of $146mn. PJM allowed other shortlisted bidders to also modify their proposals, with all but one updating their bid with a cost cap. The caps did not cover cost increases caused by unexpected circumstances.[34]

2.35 PJM recommended that LS Power be designated to construct a new 230kV transmission line and PSE&G be designated to construct a new SVC device and upgrade various circuits and transformers on 29 July 2015 (over 2 years after the proposal window closed).[35] The full recommended project had an estimated total cost of $280mn, which was 60% cheaper than PSE&G's lowest cost proposal for a new 500kV line.[36]

2.36 Throughout the tender and post-tender period, **PJM dealt with issues in an ad hoc manner**. In 2016, the project was suspended due to a significant increase in the incumbents' (LS Power and PSE&G) projected total project cost (estimated total project cost increased from $275mn to $420mn). **The project was suspended so that PJM could undertake analysis to decide whether the project remained necessary.**[37]

2.37 As part of PJM's review, the incumbent winners (LS Power and PSE&G) provided alternative options that were not part of the original competitive solicitation. Two of these were investigated further: one where LS Power remained responsible for constructing the transmission line and **one where LS Power was displaced and PSE&G constructed the line**.[38]

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32 PJM, Transmission Expansion Advisory Committee (TEAC) Artificial Island Recommendations to the PJM Board, April 2017.

33 John Dalton, Planning vs Partiality, A case study from PJM on competitive procurement of regional transmission under FERC Order 1000, December 2014, accessed at http://www.poweradvisoryllc.com/wp-content/uploads/2014/12/1412-PlanvsPart-lo-res.pdf.

34 PJM, Artificial Island Project Recommendation White Paper, 29 July 2015.

35 PJM, Artificial Island Project Recommendation White Paper, 29 July 2015.

36 PJM, Artificial Island Project Recommendation White Paper, 29 July 2015.

37 PJM, Letter to FERC Secretary Kimberly D. Bose, dated 5 August 2019.

38 PJM, Transmission Expansion Advisory Committee (TEAC) Artificial Island Recommendations to the PJM Board, April 2017.

2.38 In April 2017, PJM published its review that selected LS Power's modified proposal. These modifications reduced the estimated cost by approximately $150mn to $280mn (inclusive of sunk costs), bringing the project total cost back on track.[39]

2.39 The LS Power modifications were selected as they were considered more achievable and the limits on its cost cap exclusions provided greater certainty. Of the total revised project cost of $280mn, $133 was for LS Power's portion, meaning they remained under their cost cap of $146mn.[40]

2.40 The estimated in-service date is now June 2020, revised from April 2019.[41]

2.41 Many stakeholders were unhappy with how PJM ran this competitive process, in particular with the ad hoc nature of changes made during the tender process.[42]

NYISO

Background

2.42 NYISO coordinates the power system in the New York area and is responsible for identifying economic, reliability and public policy needs for transmission (or equivalent) investment. This case study focuses only on reliability needs.

2.43 The Comprehensive System Planning Process (CSPP) covers all three need types, although the process for tendering each type of need differs. For example, there is no provision to include a backstop solution in a tender for a public policy need.[43]

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39 PJM, Transmission Expansion Advisory Committee (TEAC) Artificial Island Recommendations to the PJM Board, April 2017.

40 PJM, Transmission Expansion Advisory Committee (TEAC) Artificial Island Recommendations to the PJM Board, April 2017.

41 Transmission Hub, PJM Board lifts suspension on approximate $280m Artificial Island project, 6 April 2017, accessed at https://www.transmissionhub.com/articles/2017/04/pjm-board-lifts-suspension-on-approximate-280m-artificial-island-project.html.

42 John Dalton, Planning vs Partiality, A case study from PJM on competitive procurement of regional transmission under FERC Order 1000, December 2014.

43 NYISO, OATT, Attachment Y.

Competitive process

2.44 Between 2013 and 2017, three competitively tendered projects have been awarded by NYISO: Western NY Public Policy Transmission, AC Transmission Public Policy Segment A and AC Transmission Public Policy Segment B. All three projects were selected as solutions to public policy needs.[44]

2.45 Projects are eligible for competition unless they meet FERC Order 1000 exclusions of:

- an upgrade to the existing system; or
- a project that falls solely in a single zone and hence relies strictly on local cost recovery.

2.46 Prequalification is a requirement for parties to participate and is a **separate process autonomous of any particular tender**. Developers can submit the required pre-qualification information at any time and will be notified of the outcome of their application within 30 days. Qualification lasts for three years, unless NYISO chooses to revoke this status due to a material change in the developer's qualifications.[45]

Tender point

2.47 A Very Early model is used as part of NYISO's CSPP.

2.48 Reliability needs are communicated via the Reliability Needs Assessment (RNA). The RNA includes the results of a forward looking study with 10-year horizon that considers if Bulk Transmission Facilities meet all reliability criteria in each year. If the reliability criteria are not met in any year, additional analysis is performed to quantify the level of additional resource / transfer capacity needed. NYISO describes needs in terms of required MWs or MVARs.[46]

[44] Brattle Group, Cost Savings Offered by Competition in Electric Transmission, prepared for LSP Transmission Holdings LLC, April 2019.

[45] NYISO, OATT, Attachment Y.

[46] NYISO, Reliability Planning Process Manual, January 2018.

2.49 Proposed solutions must be received within 60-days of NYISO's request for proposals. During this period, proposals are accepted for three types of solutions:[47]

- Regulated backstop: relevant TO must provide a single solution or combination of solutions. Can be generation, transmission or demand-side.
- Alternative regulated solution: accepted from TOs (at their option can bid against their backstop solution) and other developers.
- Market-based solution: accepted from all parties.

2.50 **The incumbent TO is required to provide all necessary information to any party wishing to develop a solution.**[48]

Scope of competition

2.51 Bids are assessed through a multi-stage tender process, although there is limited scope to modify bids. If a bid does not pass a given assessment, it is not considered further.[49]

2.52 **Costs incurred during the development phase (devex) are borne by the developer**, except under the following circumstances:[50]

- TO can recover costs incurred with respect to the implementation of a backstop solution (developing proposal and seeking necessary approvals) that is not triggered or halted. Costs are recovered via the Regulated Transmission Facilities Charge, which is collected from Load Serving Entities (an entity authorised by law, regulatory requirement or contractual agreement to supply energy, capacity, auxiliary services to retail customers).
- TO / other developer can recover costs incurred with respect to a preferred regulated solution, including if that solution is later halted.

Tender design and evaluation

2.53 First, NYISO undertakes an initial assessment of solutions to identify deficiencies. **Developers are then given 30-days in which they may remedy any deficiencies** (TO must remedy backstop deficiencies).[51]

47 NYISO, OATT, Attachment Y.

48 NYISO, OATT, Attachment Y.

49 NYISO, OATT, Attachment Y.

50 NYISO, OATT.

51 NYISO, OATT, Attachment Y.

2.54 NYISO then evaluates remaining solutions to determine if they are:[52]

- viable (technically practicable, likely to obtain consents, can be completed on time, etc.); and
- satisfy the need.

2.55 If a solution fails either assessment, it will not be considered further.

2.56 If the Trigger Date (date by which implementation must be requested to meet need on time) of any viable and sufficient solution is within 36-months, NYISO continues to progress and requests further information from remaining solutions in the competitive process. If the Trigger Date exceeds 36-months, the competitive process is halted until closer to the Trigger Date. This reflects that it is not necessary to make a decision so far in advance and it is likely that more information will be available in the future.[53]

2.57 The results of the viability and sufficiency assessments are published in the Comprehensive Reliability Plan (CRP). If the Trigger Date is within 36-months, the CRP will also select a preferred regulated solution based on criteria such as:[54]

- cost (total and per MW);
- expandability of proposed solution;
- operability;
- performance; and
- extent to which required rights obtained.

2.58 The preferred regulated solution will only be triggered if at the Trigger Date the market-based solution is insufficient to meet the need.[55]

2.59 **All developers pay a 'study deposit' of $100,000, which is applied to study costs and will be refunded once all study costs paid**.[56]

52 NYISO, OATT, Attachment Y.

53 NYISO, OATT, Attachment Y.

54 NYISO, OATT, Attachment Y.

55 NYISO, OATT, Attachment Y.

56 NYISO, OATT, Attachment Y.

Ex-post accountability

2.60 Construction arrangements are set out in the Developer Agreement (DA). If NYISO decides to terminate the DA (e.g. winning bidder breaks terms of agreement) or decides to revoke its selection of the preferred regulated solution, it may take one or more of the following actions to address the reliability need:[57]

- choose to address the need in the next planning cycle;
- direct the preferred bidder to continue developing its solution beyond the required in-service date;
- direct the relevant TO to proceed with its backstop solution (if not yet halted); or
- request that the relevant TO take over the preferred alternative regulated solution (but TO must agree).

2.61 If NYISO terminates the preferred bidder's DA and the relevant TO agrees to take over the preferred alternative regulated solution, the displaced developer is required to work cooperatively "in good faith" with the relevant TO to implement the project.[58]

Backstop solution

2.62 The RNA identifies the responsible TO with respect to each reliability need. This is the entity responsible for developing the backstop solution. If NYISO determines that the backstop solution does not meet the need, the TO must remedy the identified deficiency.[59]

2.63 If the backstop is not the preferred regulated solution, there are two circumstances under which it will still proceed:[60]

- Backstop Trigger Date later than preferred solution Trigger Date: at the backstop's Trigger Date (after preferred solution given the instruction to proceed), NYISO decides if it is necessary to proceed with the backstop or if the preferred solution is sufficiently certain to be delivered. If the backstop is progressed, it may later be instructed to stop if the preferred solution becomes sufficiently certain to work.
- Backstop Trigger Date earlier than preferred solution Trigger Date: NYISO instructs both the backstop and preferred solution to proceed in parallel.

57 NYISO, OATT, Attachment Y.

58 NYISO, OATT, Attachment Y.

59 NYISO, OATT, Attachment Y.

60 NYISO, OATT, Attachment Y.

2.64 If the backstop solution is asked to proceed but later told to stop, the TO can recover costs incurred to that point in time.[61]

2.65 **To date, a backstop solution has never been tested.**

CAISO

Background

2.66 CAISO is the ISO serving the California region.

2.67 The Oakland Clean Energy Initiative (OCEI) is an approved CAISO project that includes a combination of network and non-network reinforcements.

Competitive process

2.68 CAISO outlines system needs and the preferred solution to meet these needs in its transmission plan. Preferred solutions that are regional transmission facilities are subject to a competitive solicitation to select the entity to finance, construct, own, operate and maintain regional transmission facilities.[62]

2.69 Regional transmission facilities are assets that operate at voltages greater than 200kV and are not located entirely within a Participating Transmission Owners footprint. Regional transmission facilities that are subject to competitive solicitation include:[63]

- all projects with capital cost greater than $50 million; and
- projects with capital cost less than $50 million that are approved by CAISO management.

2.70 Every year, CAISO begins an overlapping two-year transmission planning cycle, the final phase of which is a competitive tender process. Bidder pre-qualification is part of the tender process.[64]

61 NYISO, OATT, Attachment Y.

62 CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

63 CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

64 CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

2.71 CAISO instigated a stakeholder group to review the 2012-2013 planning process in order to identify potential improvements to the efficiency and effectiveness of the process.[65] This review **identified potential issues with transparency of the tender process** and recommended that CAISO:[66]

- modify the collaboration period with bidders to coincide with the open application bid window and to extend the bid window by two weeks;
- provide clearer explanations of the key differences between different proposals and the factors most relevant in its decision-making process; and
- update the bidder application information to clarify the minimum level of detail required on cost estimates.

2.72 Furthermore, the review found that:[67]

- there were no changes required to the evaluation process as it is thorough and independent;
- there were no changes required to the financial comparison process as it is fair and non-discriminatory;
- there was no need to impose a requirement for all project sponsor applicants to post financial security if selected (instead to remain voluntary); and
- it remains favourable to undertake pre-qualification outside the bidding scheme.

65 CAISO, Competitive solicitation process enhancements, accessed at http://www.caiso.com/informed/Pages/StakeholderProcesses/CompletedClosedStakeholderInitiatives/CompetitiveSolicitationProcessEnhancements.aspx

66 CAISO, Competitive Solicitation Process Enhancements, Draft Final Proposal, 12 October 2015.

67 CAISO, Competitive Solicitation Process Enhancements, Draft Final Proposal, 12 October 2015.

Tender point

2.73 CAISO operates a two-year overlapping planning cycle (encompassing three phases), with a new cycle beginning each year.[68]

- **Phase 1** (assumptions): CAISO develops planning assumptions and study plan (approx. 4 months).
- **Phase 2** (identifying need and preferred solutions): CAISO develops transmission plan (approx. 12 months).
- **Phase 3** (tendering for solutions): CAISO evaluates proposals to construct and own regional transmission facilities that are subject to competitive solicitation (approx. 9 months).

2.74 During Phase 2, transmission planning participants help to identify solutions (network and non-network) through an annual "request window". With respect to reliability projects, the relevant TO must submit a proposal for a reliability transmission solution. CAISO may also propose solutions to which the TO must agree. Other interested parties may also submit transmission solutions, which are studied as alternatives to solutions submitted by the TO.[69]

2.75 Any regional transmission facility identified in the regional transmission plan and approved by the governing board is eligible for competitive solicitation (unless it is an upgrade to an existing facility).[70]

2.76 Demand response or generation solutions can also be submitted during the request window as alternatives to transmission solutions. Bidders must provide a pre-specified set of information that will allow CAISO to assess these non-network solutions against transmission solutions. CAISO notes in its transmission plan that it is actively exploring the use of non-transmission alternatives to meet reliability needs.[71]

[68] CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

[69] CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

[70] CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

[71] CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

2.77 To select a preferred solution, CAISO considers whether:[72]

- the solution mitigates the need;
- there is sufficient information to assess and compare against alternatives;
- the solution is technically sound (i.e. uses technology and innovation accepted by the industry); and
- the solution is cost-effective.

2.78 At the end of Phase 2, CAISO publishes a transmission plan with a description of the preferred solutions. **If a non-network solution is selected, it appears to bypass the competitive process as only regional transmission facilities are subject to competitive solicitation.** The transmission plan includes sufficient engineering detail to allow potential developers to submit a proposal to build and own tendered assets in Phase 3. CAISO specifies the line characteristics, but the rest of the project construction is at the bidder's discretion.[73]

2.79 Phase 3 begins when CAISO issues market notices to solicit proposals to build and own assets specified in the transmission plan. These notices specify the date by which proposals must be received (normally 10 weeks). For each regional transmission facility that is being competitively tendered, CAISO will release information on qualification criteria, selection criteria and binding cost containment commitments.[74]

Scope of competition

2.80 CAISO uses an Early, multi-phase tender process.

2.81 **The potential developer is responsible for actual costs incurred by CAISO in validating, qualifying and selecting a preferred option (capped at $150,000 per application).[75]**

Tender design and evaluation

2.82 Once tenders are received, CAISO posts a list of project sponsors with valid applications (i.e. submitted all required information) on its website.[76]

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72 CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

73 CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

74 CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

75 CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

76 CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

2.83 First, CAISO assesses:[77]

- Project sponsor qualification: CAISO determines whether the proposed team is physically, technically and financially capable of completing the project in a timely and competent manner.
- Proposal qualification: CAISO checks that the proposed facility design meets the identified need and satisfies applicable reliability criteria and CAISO planning standards.

2.84 CAISO posts on its website qualified project sponsors and proposals. **Those who do not meet qualification standards are given 10 business days to remedy deficiencies.[78]**

2.85 Comparative analysis is undertaken to select a preferred project sponsor. Amongst other factors, CAISO considers who will manage the project in the most cost-effective, efficient, prudent, reliable and capable manner over the asset's entire life.[79]

2.86 There is a $75,000 application deposit (refundable net of costs incurred by CAISO in validating, qualifying and selecting preferred option).[80]

2.87 **If CAISO is unable to select an approved project sponsor, or the approved project sponsor is unable to secure all necessary approvals, the relevant TO is obliged to construct, own and finance the asset** (although CAISO could decide to open another solicitation window instead).[81]

2.88 **Similarly, if the approved project sponsor is later unable or unwilling to build the asset, CAISO may direct the relevant TO to build the asset or alternatively open a new solicitation window.[82]**

2.89 Subject to the scope and number of applications for a given regional transmission facility, CAISO may shorten the solicitation window.[83]

77 CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

78 CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

79 CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

80 CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

81 CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

82 CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

83 CAISO, Business Practice Manual for Transmission Planning Process, Version 18.0.

Ex-post accountability

2.90 Bidders are asked to submit details of any offered cost containment mechanisms at the time that they submit their bid.[84]

2.91 The winning bidder is required to execute a transmission interconnection agreement with the Interconnecting Transmission Owner(s).[85] This agreement outlines the roles of both parties in connecting the new transmission asset, the specifics of which are negotiated by the parties.

2.92 The main contract between CAISO and the winning bidder is the Approved Project Sponsor Agreement (APSA). CAISO outlines an APSA *pro forma* in its Open Access Transmission Tariff, but it is unclear how long it takes for the parties to negotiate on specific points in the APSA and come to an agreement. This outlines the main terms, including:[86]

- the terms offered by the developer in its bid (i.e. capital cost);
- rules for making modifications to the project design;
- obligations on the winning bidder and CAISO with respect to operation of the transmission asset;
- the process in the event that either the winning bidder or CAISO are prevented from fulfilling any obligation due to force majeure; and
- project milestones, the party responsible for each milestone and the consequences of not meeting milestones.

2.93 General post-tender guidelines for reliability projects are defined in Section 24.6 of CAISO's Tariff. This outlines, amongst other things, that:[87]

- The winning bidder must provide to CAISO a construction plan, and then status reports every 90 days until the asset is energised. In these status reports, the winning bidder must inform CAISO of any changes to their ability to deliver the specified design within the expected time period.

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84 CAISO, Transmission Project Sponsor Proposal – Application, Version 6.

85 CAISO, Transmission Competitive Solicitation Questions Log, Question / Answer Matrix, 2018/2019 TPP – Phase 3, accessed at http://www.caiso.com/Documents/2018-2019CompetitiveSolicitationQuestionsMatrix.pdf

86 CAISO, Open Access Transmission Tariff, effective as of 1 January 2019.

87 CAISO, Open Access Transmission Tariff, effective as of 1 January 2019.

- If the project is delayed beyond the required in-service date, CAISO will issue a notice for the winning bidder and relevant TO(s) to develop a plan to address the reliability standards violation (as asset will not be operational on time) and any other issues arising from the delay. If these issues cannot be dealt with, CAISO can displace the incumbent winner in favour of an alternative entity.
- If the winning bidder cannot complete the project (e.g. cannot obtain consents or is otherwise unable to construct) CAISO may select an alternative entity to construct the asset. In evaluating alternative solutions, CAISO will coordinate with the relevant TO(s) and other affected market participants. For reliability driven projects, CAISO can direct a relevant TO[88] to build the transmission solution or may alternatively open a new solicitation.

Backstop solution

2.94 No backstop solution.

Specific application – Oakland Clean Energy Initiative

2.95 Pacific Gas & Electric (PG&E) proposed the OCEI during the 2017/18 transmission plan request window to meet a reliability need. OCEI is a combination of substation upgrades, in-front-of-the-meter energy storage and preferred resources designed to target thermal overload in the Oakland area. Other potential solutions assessed for this need were generation and transmission lines (115kV and 230kV).[89]

2.96 The preferred OCEI solution, with a total cost of $102mn, was significantly cheaper than the alternative transmission and generation solutions ($367mn to $574mn).[90]

2.97 In recent years, CAISO has been re-evaluating previously approved projects, including OCEI, due to downward pressure on peak demand load growth and lower energy consumption as a result of increased behind-the-meter PV generation. CAISO project reviews appear to occur on a case-by-case basis.[91]

2.98 The re-evaluation of OCEI led to changes to the project scope being recommended in the 2018/19 transmission plan. This included reclassification of the energy storage portion (storage no longer required to be a transmission asset) and defining a minimum need at Oakland L substation.[92]

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88 A relevant TO is a TO for the area where either terminus of the transmission solution is located.

89 CAISO, 2017-2018 Transmission Plan, 22 March 2018.

90 CAISO, 2017-2018 Transmission Plan, 22 March 2018.

91 CAISO, 2018-2019 Transmission Plan, 19 March 2019.

92 CAISO, 2018-2019 Transmission Plan, 19 March 2019.

2.99 The project is on track and has an estimated in-service date of 2022.[93]

[93] Business Wire, CAISO Approves PG&E Oakland Clean Energy Initiative, 23 March 2018, accessed at https://www.businesswire.com/news/home/20180323005573/en/CAISO-Approves-PGE-Oakland-Clean-Energy-Initiative.

3. New onshore transmission competition

3.1 There are also examples of onshore transmission competition from other jurisdictions that are first-of-a-kind tenders. This memorandum discusses jurisdictions in Canada and Australia that have competitively tendered one project to date, but plan to run more competitions in the future. These initial tenders have been for mid and high value projects.[94]

3.2 The remainder of this section sets out the competitive processes of:

- Ontario Energy Board ("OEB"); and
- Alberta Electricity System Operator ("AESO"); and
- Australian Energy Market Operator ("AEMO") in Western Victoria.

OEB, Ontario

Background

3.3 OEB regulates all electricity market participants, including the Ontario Independent Electricity System Operator (IESO). It also managed the competitive process used to select the entity responsible for building and owning East-West Tie Line.

3.4 Ontario Power Authority (OPA) recently merged with IESO. The merged entity is the current system operator for the area.

Competitive process

3.5 In 2011, the Minister for Energy asked the OEB to create a process for selecting the most qualified and cost-effective transmission company to develop the East-West Tie transmission line.[95]

3.6 Potential participants are **required to obtain a transmission licence before being able to participate.** In awarding a transmission licence, OEB assesses the financial viability and technical capability of the potential new licence holder. Licence applications are made in writing at any time, and a response is normally issued within 90 days.[96]

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94 East West Tie Line in Ontario had an estimated cost of CAD $0.8bn, Fort McMurray West in Alberta had an estimated cost of CAD $1.6bn and the preferred solution in Western Victoria is estimated to cost AUD $0.4bn.

95 Ontario Energy Board, Board Policy: Framework for Transmission Project Development Plans (EB-2010-0059), 26 August 2010.

96 Ontario Energy Board, Board Policy: Framework for Transmission Project Development Plans (EB-2010-0059), 26 August 2010.

3.7 "Network expansions" (construction to expand the transmission network) and "enabler facilities" (connection facilities designed to connect clusters of renewable resources to the existing network) are eligible for this competitive process. "Capacity enhancements" (modification to the system designed to relieve system capacity constraints) and "network reinforcements" (upgrades to the existing network, e.g. replacing existing lines with new lines with increased capacity) are not eligible for competition. These two types of projects are excluded as they are work on the incumbent TO(s) system and hence the incumbent undertakes it directly.[97]

3.8 Furthermore, amendments to the Electricity Act 1998, that came into force on 2 July 2016, have now given the IESO authority to enter into contracts for the development of transmission systems or any part of such systems. As a result of this legislative change, the IESO is developing a new competitive transmission procurement process. IESO began engaging stakeholders in September 2018 on its competitive procurement process and is expected to publish its final process document imminently. IESO's draft competitive process is not covered in this case study.[98]

3.9 As part of implementing competition, IESO is addressing the following issues that have been raised by stakeholders:[99]

- The currently project pipeline in Ontario may be insufficient to properly support a competitive process, meaning that there is limited scope for savings from competitive procurement.
- There is a risk of putting in place complicated rules that will hinder efficient completion of projects.
- Transparency in the rubric used to assess bids and in the rationale for selecting a preferred bidder is critical.
- Cost allocation should not be tied to eligibility for competitive solicitation as stakeholders may use this to drive a project into competition or withholds a project from competition. For example, if costs are allocated under a "beneficiary pays principle" to a specific customer, that customer will want to decide who builds the asset. On the other hand, if rate payers are paying for the project it is more appropriate for IESO to select the builder. In this situation, stakeholders may be able to influence the cost allocation decision to suit them.

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97 Ontario Energy Board, Board Policy: Framework for Transmission Project Development Plans (EB-2010-0059), 26 August 2010.

98 IESO, Development of an IESO Competitive Transmission Procurement Process, Backgrounder.

99 IESO, 2018 Technical Planning Conference, IESO Response to Stakeholder Comments and Questions, 30 November 2018.

- Competition rules should not be overly prescriptive but instead define the needs to be resolved and allow for market forces to derive the most cost-effective solution.

Tender point

3.10 OEB uses an early model to identify a preferred entity to construct an enabler facility or network expansion option.

3.11 To inform this process, OPA (now called IESO) identifies needs for new transmission investment and then undertakes an Economic Connection Test (ECT) to inform its view of whether the project is required and economically justified.[100]

3.12 OEB assesses the ECT received from OPA. Based on its assessment of the ECT, OEB may issue a Notice of a designation hearing. This Notice begins the process of designating a transmitter (i.e. tender) to undertake development work on the needed enabler facility or network expansion option. It will also specify the deadline for filing a plan (at least three months but may be as long as six months for larger projects).[101]

3.13 All licenced TOs (also known as "transmitters") are invited to submit bids to construct the identified asset. The form of the bid is mandated by OEB. The incumbent is only required to submit a bid if there are no other plans submitted.[102]

3.14 There is no explicit reference to non-network solutions in the competition rules.[103]

Scope of competition

3.15 OEB can shortlist bidders in "exceptional circumstances". When shortlisting is used, the final project selection will occur after the application for 'leave to construct' is submitted. "Exceptional circumstances" are when:[104]

- two proposed projects are significantly different (route or technology) and cannot be directly compared; or
- the amount saved in construction cost is more than the cost added by funding a second development project.

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100 Ontario Energy Board, Board Policy: Framework for Transmission Project Development Plans (EB-2010-0059), 26 August 2010.

101 Ontario Energy Board, Board Policy: Framework for Transmission Project Development Plans (EB-2010-0059), 26 August 2010.

102 Ontario Energy Board, Board Policy: Framework for Transmission Project Development Plans (EB-2010-0059), 26 August 2010.

103 Ontario Energy Board, Board Policy: Framework for Transmission Project Development Plans (EB-2010-0059), 26 August 2010.

104 Ontario Energy Board, Board Policy: Framework for Transmission Project Development Plans (EB-2010-0059), 26 August 2010.

3.16 The cost of producing a bid is not recoverable as OEB "*does not consider it appropriate for consumers to fund a transmitter's [TO's] efforts to expand its commercial business through preparation of a plan.*"[105]

3.17 The winning bidder is eligible to recover devex through project cost allocation and is assured of recovering budgeted costs. If costs materially increase above budget, recovery of this additional cost will be assessed in a prudence review.[106]

Tender design and evaluation

3.18 OEB is responsible for assessing and selecting a preferred bidder (designated TO). It performs this assessment using the following criteria:[107]

- organisation and experience;
- technical capability;
- financial capability;
- project schedule;
- cost;
- landowner and other stakeholder consultations; and
- other project specific factors.

3.19 The relative importance of each evaluation criterion is project specific in order to take individual project circumstances into account.[108]

3.20 Before proceeding to the construction phase, OEB must grant the winning TO 'leave to construct'. Once 'leave to construct' is granted, the TO's licence is modified to include the new asset.[109]

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105 Ontario Energy Board, Board Policy: Framework for Transmission Project Development Plans (EB-2010-0059), 26 August 2010.

106 Ontario Energy Board, Board Policy: Framework for Transmission Project Development Plans (EB-2010-0059), 26 August 2010.

107 Ontario Energy Board, Board Policy: Framework for Transmission Project Development Plans (EB-2010-0059), 26 August 2010.

108 Ontario Energy Board, Board Policy: Framework for Transmission Project Development Plans (EB-2010-0059), 26 August 2010.

109 Ontario Energy Board, Board Policy: Framework for Transmission Project Development Plans (EB-2010-0059), 26 August 2010.

Ex-post accountability

3.21 The winning bidder is assured of cost recovery for the budgeted cost. Material cost increases are at the risk of the developer, subject to a subsequent prudence review. If the project ceases to be needed or is no longer economically viable, the winning bidder is entitled to sunk costs and reasonable wind-up costs.[110]

3.22 The winning bidder must meet performance milestones that are based on the project schedule. If these milestones are not met, the incumbent winning bidder can be removed from the project and further expenditure may not be recoverable.[111]

Backstop solution

3.23 No backstop solution.

Specific application – East West Tie Line

3.24 This project is a 450km double circuit 230 kV transmission line between Shuniah and Wawa.[112] OEB undertook a competitive tender to select an entity to carry out the development of this project.

3.25 East-West Tie Line is the only project to be awarded through OEB's competitive process to date.

3.26 In June 2011, the OPA identified the need for a new transmission line in North-Western Ontario. In the Invitation to Tender (ITT), OPA outlined a set of minimum technical requirements that acted as a "reference option". Many of the bids received were based upon this.[113]

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110 Ontario Energy Board, Board Policy: Framework for Transmission Project Development Plans (EB-2010-0059), 26 August 2010.

111 Ontario Energy Board, Board Policy: Framework for Transmission Project Development Plans (EB-2010-0059), 26 August 2010.

112 NextBridge Infrastructure, NextBridge East-West Tie Ribbon Cutting Celebrates the Start of Construction, 2 October 2019, accessed at https://www.globenewswire.com/news-release/2019/10/02/1924335/0/en/NextBridge-East-West-Tie-Ribbon-Cutting-Celebrates-the-Start-of-Construction.html.

113 Transmission Hub, Ontario East-West Tie project attracts bids from AltaLink, TransCanada, NextEra, others, 11 January 2013, accessed at https://www.transmissionhub.com/articles/2013/01/ontario-east-west-tie-project-attracts-bids-from-altalink-transcanada-nextera-others.html.

3.27 To select a preferred bidder, OEB used a two-phase process:[114]

- Phase 1: in coordination with stakeholders, OEB established the evaluation criteria, the relative importance of each criteria, filing requirements and obligations and consequences arising on designation.
- Phase 2: OEB received six project applications, which were assessed against the criteria outlined in phase 1.[115]

3.28 The project was won by Upper Canada Transmission (note, this is the legal name of NextBridge Infrastructure).[116] **This entity was only assured of recovering budgeted cost, with material overages at their own risk until a prudence review.**[117]

3.29 The estimated project cost increased from CAD $419mn to CAD $777mn due to accommodating changes to the project's design (to accommodate stakeholder feedback, including from First Nations communities) and modifying project timings (target in-service date brought forward from 2020 to 2018).[118]

3.30 Following the announcement of the cost rise, the Minister for Energy requested that **Ontario IESO prepare an updated need assessment to confirm the rationale for the East-West Tie Line.** This review concluded that the East-West Tie Line was to remain the preferred option and that its target in-service date should be 2020. The project budget was also updated to CAD $777mn.[119]

3.31 The initial and revised cost estimate for East-West Tie Line was below the incumbent TO's estimate for a comparable line.[120]

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114 OEB, East-West Tie Line, accessed at https://www.oeb.ca/industry/policy-initiatives-and-consultations/east-west-tie-line.

115 Transmission Hub, Ontario East-West Tie project attracts bids from AltaLink, TransCanada, NextEra, others, 11 January 2013.

116 Ontario Energy Board, East-West Tie Line, accessed at https://www.oeb.ca/industry/policy-initiatives-and-consultations/east-west-tie-line

117 Ontario Energy Board, Board Policy: Framework for Transmission Project Development Plans (EB-2010-0059), 26 August 2010.

118 Financial Post, Rising cost estimates prompt Ontario to rethink private-sector power project, 16 August 2017, accessed at https://business.financialpost.com/commodities/energy/rising-cost-estimates-prompt-ontario-to-rethink-private-sector-power-project.

119 IESO, Updated Assessment of the Need for the East-West Tie Expansion, 1 December 2017.

120 Financial Post, Rising cost estimates prompt Ontario to rethink private-sector power project, 16 August 2017; Brattle Group, Cost Savings Offered by Competition in Electric Transmission, prepared for LSP Transmission Holdings LLC, April 2019.

3.32 Construction began in October 2019 and is expected to continue until late 2021. This delay was (at least partly) due to OEB's review of NextBridge's 'leave to construct' application taking longer than initially expected.[121]

AESO, Alberta

Background

3.33 AESO has responsibility for planning the Alberta transmission system.

Competitive process

3.34 Amendments to the Electric Utilities Act required (amongst other things) that AESO develop a *"fair and open competitive process to determine the person who is eligible to apply for the construction and operation of the project".*[122] This legislative change was part of a government policy goal to increase competition in the electricity sector and attract investment in critical transmission infrastructure.

3.35 AESO has so far competitively tendered one project, Fort McMurray West. Fort McMurray East will also be competitively tendered but has been delayed due to the *"current economic environment"*.[123]

3.36 It appears that it is **AESO's discretion to choose which Critical Transmission Infrastructure (CTI) projects to competitively tender**.[124]

3.37 Bidder pre-qualification is the first phase of the tender process.[125]

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121 NextBridge Infrastructure, Regulatory Approvals, accessed at http://www.nextbridge.ca/regulatory-approvals.

122 AESO, Fort McMurray West 500 kV Transmission Project, Project Information Brief, 9 May 2013.

123 AESO, Competitive process, accessed at https://www.aeso.ca/grid/competitive-process/.

124 AESO, Competitive Process for Critical Transmission Infrastructure, 1 June 2011.

125 AESO, Competitive Process for Critical Transmission Infrastructure, 1 June 2011.

3.38 Initial AESO discussion papers considered an alternative Design-Build-Transfer model where a successful bidder would design and build the facility before transferring it to the incumbent TO. This model did not proceed as AESO decided that it only allowed for new entry into specific components of the transmission project (engineering, procurement and construction management) and limited cost efficiencies would be realised over the lifecycle of the transmission asset as it would be transferred to the incumbent TO who would be responsible for operation and maintenance. AESO decided that the **DBO model fit best with its goals and objectives because it allowed for entry of new market participants who would have similar responsibilities to TOs and the successful bidder would have the ability to innovate across all aspects of the project.**[126]

Tender point

3.39 AESO determines needs through its long-term infrastructure plan, which is published every two years. AESO may elect to competitively tender projects in an Early model and is responsible for running this tender.[127]

3.40 No non-network solutions were assessed as part of the only competitive tender run to date. It is unclear how non-network solutions would be assessed.[128]

Scope of competition

3.41 AESO uses an early competition model where a single winner is selected from a shortlist of pre-qualified proponents.

3.42 Bidders are asked to submit a firm price bids, which AESO acknowledges is risky for bidders as bid submission is well in advance of final approval, creating risks with respect to project routing, timing and pricing. Therefore, risk allocation is outlined ex-ante in the competition rules. Incentive mechanisms are also outlined ex-ante.[129]

Tender design and evaluation

3.43 Proposals are assessed through three stages:[130]

- Stage 1: AESO invites expressions of interest by announcing its ITT through the media. This stage includes a public information session to explain the bidding process and ensure all participants have as much information as possible.

126 AESO, Competitive Process for Critical Transmission Infrastructure, 1 June 2011; Alberta Utilities Commission, Alberta Electric System Operator Competitive Process Pursuant to Section 24.2(2) of the Transmission Regulation Part A, 27 February 2012.

127 AESO, Competitive Process for Critical Transmission Infrastructure, 1 June 2011.

128 AESO, Fort McMurray West 500 kV Transmission Project, Project Information Brief, 9 May 2013.

129 AESO, Competitive Process for Critical Transmission Infrastructure, 1 June 2011.

130 AESO, Competitive Process for Critical Transmission Infrastructure, 1 June 2011.

- Stage 2: A Request for Qualifications (RFQ) is sent to those responding in Stage 1 and to reputable domestic and international transmission developers. It is also published in professional journals and on relevant websites. The RFQ is a scored test (not pass / fail) to ensure predictability in the number of respondents who advance to the next stage (up to five).
- Stage 3: Qualified participants from Stage 2 are asked to submit a project proposal for an identified solution, although they have discretion to select preferred routes (asked to submit two).

3.44 In Stage 3, bids progress through assessment rounds as follows:[131]

- Pass / fail on general proponent information
- Pass / fail based on proposed routes, technical submission and other detailed plans (assessed by two panels – 'technical' panel and 'other' panel)
- Pass / fail and feedback on financing plan by 'finance' panel, followed by option to amend
- Pass / fail on final financing plan
- Final selection based 90% on net present value of project costs and 10% on reasonableness of indicative financing costs

3.45 **Bidders are asked to pay a proposal deposit upon submission of their technical proposal of CAD $1mn.[132]**

3.46 **If a project is not won by the existing TO, the winning bidder will become a TO upon energisation of the asset.[133]**

Ex-post accountability

3.47 Incentives and penalties are outlined by AESO **ex-ante**. Change mechanisms are also outlined **ex-ante**.

Backstop solution

3.48 No backstop solution.

131 AESO, Fort McMurray West 500 kV Transmission Project, Request for Expressions of Interest Information Session, 11 June 2013.

132 AESO, Fort McMurray West 500 kV Transmission Project, Request for Expressions of Interest Information Session, 11 June 2013.

133 AESO, Fort McMurray West 500 kV Transmission Project, Request for Expressions of Interest Information Session, 11 June 2013.

Specific application – Fort McMurray West

3.49 This project was identified in AESO's long term plan and legislated as a CTI. It is the first, and only, time AESO has run its competitive process.[134]

3.50 Five shortlisted bidders who met AESO's qualifications (as per AESO's rules, bidder qualification is the first stage of the tender process), were invited to submit technical proposals and a firm price bid.[135]

3.51 The project information brief specified information on the proposed solution and what the shortlisted developers were bidding for, including:[136]

- start and end points of the proposed transmission line;
- successful bidder to own, operate and maintain the asset for a minimum 35-year term before handing over to AESO's selected delegate;
- capital cost estimated to be CAD $1.6bn;
- successful bidder to be responsible for obtaining all necessary approvals;
- two potential routes to be outlined in proposal, with Alberta Utilities Commission (AUC) to approve final route; and
- information on types of payments that the successful bidder will be eligible to receive (e.g. monthly payments for capital, operation and maintenance costs, subject to asset availability).

3.52 The objective of the competitive process was "*to put downward pressure on transmission costs*". The winning bidder was to be a company that satisfied the qualification criteria and "*who [could] undertake the project at the lowest life-cycle cost*".[137]

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134 AESO, Fort McMurray West 500 kV Transmission Project, Project Information Brief, 9 May 2013.

135 Yahoo Finance, AESO Awards Alberta PowerLine Limited Partnership with Fort McMurray West 500 kV Transmission Project, 18 December 2014, accessed at https://finance.yahoo.com/news/aeso-awards-alberta-powerline-limited-213000459.html?guccounter=1.

136 AESO, Fort McMurray West 500 kV Transmission Project, Project Information Brief, 9 May 2013.

137 Canadian Manufacturing, Five bidders shortlisted for Alberta electricity transmission project, 20 January 2014.

3.53 The winning bidder was Alberta PowerLine (incumbent TO), who's fixed price bid was CAD $1.43bn.[138] This was approximately 10% less than AESO's capital cost estimate and the **lowest price bid**.[139]

3.54 **Risk allocation and incentive mechanisms were outlined ex-ante** (as per the competitive rules).

3.55 It seems **that AESO was happy with the outcome of the competitive tender**. Following the award of the project, the Director of the competitive process reflected that "*AESO ran a fair and open competition that resulted in visible downward pressures on the costs of the project. We are very pleased with the outcome.*"[140]

3.56 Very few issues were encountered in delivering this project.

3.57 During the refinement and modification of the winning bidder's route concepts, environmental assessments were undertaken and 26 indigenous groups were consulted.[141] This helped select a route that was agreeable to stakeholders and is thought to be a reason why the project ran smoothly.

3.58 The project was completed on-budget on 28 March 2019 (three months ahead of schedule). It is celebrated for its use of innovative engineering designs that reduced construction time, reduced material and construction costs, and improved construction efficiencies.[142]

AEMO, Western Victoria

Background

3.59 AEMO is the independent energy markets and power systems operator in Australia. It is responsible for undertaking long term transmission planning across the National Electricity Market (NEM) as well as planning specific transmission investments in Victoria (a role it shares with SP AusNet).

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138 AESO, Fort McMurray West 500 kV Transmission Project, accessed at https://www.aeso.ca/grid/competitive-process/fort-mcmurray-west-500-kv-transmission-project/.

139 Yahoo Finance, AESO Awards Alberta PowerLine Limited Partnership with Fort McMurray West 500 kV Transmission Project, 18 December 2014.

140 Yahoo Finance, AESO Awards Alberta PowerLine Limited Partnership with Fort McMurray West 500 kV Transmission Project, 18 December 2014.

141 Alberta Powerline, The Project.

142 ATCO, Fort McMurray West 500-kV Transmission Project, accessed at https://www.atco.com/en-ca/projects/fort-mcmurray-west-500-kv-transmission-project.html.

3.60 AEMO is currently running a multi-stage, competitive tender process in order to find a preferred party or parties (if partial solutions are selected) to construct, own and operate proposed transmission investment in Western Victoria.

Competitive process

3.61 AEMO is introducing competition into its transmission planning process in Western Victoria. This is the first time competition has been run and AEMO plans to adapt its competitive process based on the outcomes from this initial run.

3.62 The winning bidder (or bidders if a combination of partial solutions are preferred) will be responsible for designing, consenting, constructing, owning and maintaining the asset for at least 30 years.[143]

3.63 Pre-qualification forms part of the tender process. Potential bidders are required to respond to a Call for Expressions of Interest (CEI) with high level information on how they plan to deliver the project, as well as demonstrate that they:[144]

- hold or will obtain a licence to transmit electricity under the Electricity Industry Act 2000;
- are registered or will register as a Transmission Network Service Provider (TNSP);
- are of sufficient financial substance to provide transmission for a minimum of 30 years; and
- have or will have necessary arrangements with suppliers to deliver augmentations.

Tender point

3.64 AEMO is responsible for identifying both short term (through annual planning reports) and long-term needs (through National Transmission Network Development Plan/ Integrated System Plan) in Victoria.

3.65 The competitive process is leveraging outputs from AEMO's Regulatory Investment Test for Transmission (RIT-T). The RIT-T selects the preferred solution and the tender selects a bidder to construct, own and operate it.

[143] AEMO, Call for Expressions of Interest – Western Victoria Transmission Network Project, 18 January 2019.

[144] AEMO, Call for Expressions of Interest – Western Victoria Transmission Network Project, 18 January 2019.

3.66 RIT-T stage 1: After the need is identified, AEMO outlines potential options (including partial solutions) to address the need in its Project Specification Consultation Report (PSCR). This report outlines credible options (technically feasible) that will undergo a net market benefit assessment.[145]

3.67 The PSCR also seeks input from stakeholders on non-network solutions and outlines specific criteria that potential non-network solutions must satisfy in order to be considered as an alternative to transmission investment.[146]

3.68 RIT-T stage 2: The Project Assessment Draft Report (PADR) outlines the results of the net market benefit assessment and selects a preferred solution (or combination of partial solutions). The preferred solution is the option that returns the highest market benefit under all scenarios, however it is subject to change until it is confirmed in stage 3. With respect to the preferred solution, AEMO outlines what parts are contestable and an estimate of project cost in the PADR.[147]

3.69 If credible non-network solutions are suggested following publication of the PSCR (stage 1), they will be assessed alongside credible network solutions in this stage.[148]

3.70 RIT-T stage 3: The Project Assessment Conclusions Report (PACR) confirms the preferred solution and is the final RIT-T report.[149]

3.71 The route outlined in the PACR is indicative only. The final transmission line route is determined during the detailed design and route assessment phase following stakeholder consultation. [150]

3.72 Between stages 2 and 3, AEMO publish a CEI. This is a bidder qualification stage that assesses the interest and capabilities of applicants.[151]

Scope of competition

3.73 AEMO uses an early, multi-phase tender process.

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145 AEMO, Western Victoria Renewable Integration, Project Specification Consultation Report, April 2017.

146 AEMO, Western Victoria Renewable Integration, Project Specification Consultation Report, April 2017.

147 AEMO, Western Victoria Renewable Integration, Project Assessment Draft Report, December 2018.

148 AEMO, Western Victoria Renewable Integration, Project Assessment Draft Report, December 2018.

149 AEMO, Western Victoria Renewable Integration, Project Assessment Conclusions Report, July 2019.

150 AEMO, Western Victoria Renewable Integration, Project Assessment Conclusions Report, July 2019.

151 AEMO, Call for Expressions of Interest – Western Victoria Transmission Network Project, 18 January 2019.

3.74 In the first stage bidders are shortlisted based on their ability to deliver the project and in the second phase a preferred bidder (or bidders in the case of partial solutions) is selected.

3.75 AEMO will not reimburse any costs incurred in submitting a response.

Tender design and evaluation

3.76 AEMO uses a two-phase process to select a preferred bidder(s):[152]

- Phase 1, Pre-qualification: AEMO determines whether the potential bidders have the capacity, capability and experience to build and operate the asset(s).
- Phase 2, ITT: Those passing Phase 1 are invited to submit a response to the ITT. Bidders can bid for all contestable elements or individual contestable elements. Phase 2 will last for three months and at the end of the phase a preferred bidder (or bidders) will be chosen.

3.77 Following the selection of a preferred bidder, contract negotiations will commence with AEMO.[153]

3.78 The first competition is currently being held and only shortlisted bidders are aware of the evaluation metrics.

Ex-post accountability

3.79 It is unclear how ex-post mechanisms are set.

Backstop solution

3.80 No backstop solution.

[152] AEMO, Procurement, accessed at https://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/Victorian-transmission-network-service-provider-role/RITT/Procurement.

[153] AEMO, Call for Expressions of Interest – Western Victoria Transmission Network Project, 18 January 2019.

4. Design Competitions

4.1 There are no examples of design competitions for transmission investment in any of the jurisdictions that we surveyed as part of our work. However, design competitions do exist in other industries, such as architecture. Hence, this memorandum draws on key learnings from the architecture industry to help inform the development of a Design Only model for transmission investment.

4.2 We have also considered the oil and gas industry to consider if there are any parallels from exploration that can be made to design only competition. Our conclusion is that this process is materially different to a potential Design Only competition for transmission investment because the output of exploration (i.e. the rights to extract resources from a specific geographical area) is:

- **Separable** because it is a standalone asset (e.g. there are no dependencies), whereas transmission investment will be added to a larger network;
- **Tangible** because there is a physical output and it is easy to assess the quality of the product, whereas the design of a transmission asset is an intangible concept in development;
- **A private good** because it is enjoyed solely by the owner,[154] whereas transmission assets are used by multiple parties and the needs of these parties must be considered in the design; and
- **An exclusive good** because once found no information can be usefully reused, whereas design ideas could be reused for future transmission investment designs.

4.3 These differences mean that the factors considered in selecting a winner, as well as the handover process, protection of IP and ex-post mechanisms, are materially different.

4.4 The remainder of this section sets out the competitive processes for:

- The Sydney Opera House; and
- The Royal Institute of British Architects (RIBA).

New South Wales Government, Sydney Opera House

Background

4.5 The New South Wales (NSW) State Government ran a competition in the 1950s to appoint an architect for the Sydney Opera House.

[154] In economics, a private good is a good for which there is competition to obtain and the consumption by one individual prevents another individual from consuming the same good.

4.6 The design was considered innovative for its time and the Sydney Opera House remains one of the world's most recognised buildings. However, the project cost more than 14 times the initial budget and was completed 10 years later than expected.[155]

Competitive process

4.7 The competition rules for this one-off competition were published by the NSW Government in its "Brown Book". This outlined that all architects "*who [were] members of their respective Architectural Institutes in any country*" were invited to submit designs. The rules stipulated that the winner would have to register in NSW as an architect before they could be appointed as the project's architect.[156]

4.8 There was also a pre-qualification process where potential designers had to register their name and address with the NSW Government.[157]

4.9 This competition design, where the winning bidder is appointed as project architect, is commonly used. We looked at similar design competitions for major construction projects (e.g. La Grande Arche and the new European Central Bank premises) but were not able to identify any material differences in competition design.[158]

Tender point

4.10 The tender asked bidders to design a *"proposed National Opera House, to be erected on Bennelong Point, Sydney, Australia"* and specified some specific requirements (e.g. relevant building regulations, consideration for acoustics) for the design and for what must be submitted as part of the tender (specific drawing sizes).[159]

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155 Sydney Opera House Construction Projects, accessed at https://www.lawteacher.net/free-law-essays/contract-law/sydney-opera-house-construction-project-contract-law-essay.php.

156 NSW Government, Brown Book for an International Competition for a National Opera House at Bennelong Point Sydney, New South Wales, Australia.

157 NSW Government, Brown Book for an International Competition for a National Opera House at Bennelong Point Sydney, New South Wales, Australia.

158 The competition for the Millennium Bridge design, discussed later in the memorandum, also follows the competitive model where the winning bidder is appointed as project architect and follows the project through to completion.

159 NSW Government, Brown Book for an International Competition for a National Opera House at Bennelong Point Sydney, New South Wales, Australia.

Scope of competition

4.11 This was a single-phase tender where bidders were asked to submit drawings of their design (inside and outside), including diagrams of the principles to be followed to obtain satisfactory acoustics in the auditorium.[160]

Tender design and evaluation

4.12 The judging panel, made up of four architects, assessed 223 entries from around the world. There is no precise record of how the winning design was selected, but it appears that the four judges did **not apply a set of objective criteria**. Reports from the time note that the winning design was selected due to its originality and potential to be one of the great buildings in the world.[161]

4.13 The project's **budget was based on incomplete design drawings and site surveys**.[162] The competition included limited requirements for cost containment. The competition rules specified that "*the assessors feel that the cost of the building cannot be limited to a specific amount*", although the rules also note that "*funds are obviously not unlimited*".[163]

Ex-post accountability

4.14 The winning bidder was **contracted as the architect for the project and remunerated as an employee**.[164]

4.15 The project was originally budgeted at AUD $7mn and scheduled to take four years to construct. However, it ended up costing AUD $102mn and taking 14 years to construct. There was no ex-post penalty placed upon the winner and the Government fully funded the construction (predominately through the lottery).[165]

4.16 The NSW Government was the main stakeholder. An executive committee was created by the Government to monitor the project, but committee members **did not have relevant technical skills and often inhibited progress**.[166]

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160 NSW Government, Brown Book for an International Competition for a National Opera House at Bennelong Point Sydney, New South Wales, Australia.

161 Sydney Opera House, The Competition, accessed at https://www.sydneyoperahouse.com/our-story/sydney-opera-house-history/the-competition.html.

162 Sydney Opera House Construction Projects.

163 NSW Government, Brown Book for an International Competition for a National Opera House at Bennelong Point Sydney, New South Wales, Australia.

164 NSW Government, Brown Book for an International Competition for a National Opera House at Bennelong Point Sydney, New South Wales, Australia.

165 Sydney Opera House Construction Projects.

166 Sydney Opera House Construction Projects.

4.17 Reports suggest that the winning architect was focused on the design aspect of the project, rather than the time and costs. Ove Arup was contracted to do the structural and engineering components (lighting, electrics, heating, ventilation), however there was **no appointed project manager.[167] The lack of an individual to coordinate the entire project appears to be a key reason why the project encountered issues**.

4.18 Delays were also the fault of the Government as after construction started the NSW government changed the requirement from two to four theatres.[168]

4.19 Half way through the project, the Government of the day began withholding payments as they felt no visible progress was being made. This led to the winning bidder (architect) resigning. **The winning bidder was not obliged to leave (and did not leave) any designs or sketches, meaning that new ones needed to be created based on the construction completed to that point in time.[169]**

Backstop solution

4.20 Not applicable.

The Royal Institute of British Architects

Background

4.21 RIBA is an architectural professional membership body that provides architectural competition services. It supports clients wishing to hold a design competition from the initial idea phase through to project commission.[170]

4.22 RIBA does not define design competition rules (discretion to set the rules lies with the competition organiser), but rather issues 'best practice' guidelines from which the rules should be based. These guidelines will be discussed in this case study.

Competitive process

4.23 RIBA defines a 'design competition' as "*a collective term for any process inviting architects and other related design professional to compete against each other for a commission or prize*".[171] A competition can be initiated at any point in the project lifecycle and can be for as many stages as the project organiser sees fit:

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167 Sydney Opera House, The Competition.

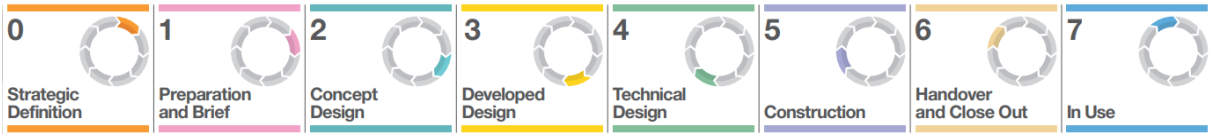
168 Sydney Opera House Construction Projects.

169 Sydney Opera House Construction Projects.

170 RIBA, Architectural Competitions, accessed at https://www.architecture.com/awards-and-competitions-landing-page/competitions-landing-page.

171 RIBA, RIBA Competitions Guidance for Competition Entrants.

RIBA project lifecycle



Source: RIBA, Plan of Work 2013, Overview.

4.24 Competition in construction is predominantly developer-led (i.e. the developer is the organiser for all competition models and selecting the winner). The winner will normally be hired (e.g. as the project architect), contracted (e.g. EPC) or provided with a prize for a standalone design (e.g. with a cash prize). The developer normally retains ownership of the overall project, including any resulting IP.[172]

4.25 In its guidance document, RIBA outlines that design competitions are beneficial for both the client, who is seeking to identify an innovative design, and entrants, who can increase their public profile, create new business opportunities and provide valuable experience to their team.[173]

4.26 RIBA outlines a series of competition formats that are tailored for use by clients:[174]

- Open Design: Entries are evaluated anonymously in phase-one and shortlisted bidders are invited to present their further developed designs in phase-two. Normally, the winner of this form of competition is contracted to deliver the project. **Further, it is common for all shortlisted bidders to receive 'honoraria payments' and for the winner to receive prize money.**
- Open Ideas: As above, but the client has no commitment to commission the winner to deliver the project.
- Invited Design Competitions (public): Entrants are invited to demonstrate a track record in delivering relevant or similar projects (public organisations normally need to open the competition to all suitably qualified entities). If shortlisted, bidders are asked to submit a design proposal and may be asked to attend an interview in phase-two. Each shortlisted bidder is paid an equal 'honoraria payment' and the winner is normally commissioned for the project.
- Invited Design Competitions (private): As above, but potential bidders are normally approached directly and asked to participate.

172 The specifics of the relationship between the developer and the competition winner are normally outlined in contracts. This includes liabilities falling on each party.

173 RIBA, RIBA Competitions Guidance for Competition Entrants.

174 RIBA, RIBA Competitions Guidance for Competition Entrants.

- Competitive interviews: These are normally used when a client wants to appoint a design team before they are ready to seek detailed design proposals. The client will shortlist entrants and invite them to share their initial thoughts and understanding of the project. The winner will be involved in the early stages of the project and may help design the project brief with the client.

Tender point

4.27 The **tender point is determined by the amount of information provided by the client** and differs on a case-by-case basis.

4.28 Competition can be run at multiple stages in the project lifecycle (see project lifecycle figure above). For example, a developer may decide to tender different stages of the project separately if they think that this will extract maximum value from competition. Construction developers are able to do this because each stage outputs reasonably independent solutions. For example, a concept design for a building is not inherently linked to the technical design (i.e. this can be tendered for after the concept design is developed, and multiple options considered). However, in the transmission context, an innovative design for a transmission solution would need to be linked to the delivery of the technology.

Scope of competition

4.29 **Most competitions held by RIBA involve two phases**, however the exact format is normally determined by clients' needs and attitude to risk. For example, a client may decide to shortlist participants based on track record (e.g. invite certain parties to submit bids) or might shortlist based on initial concept designs.[175]

Tender design and evaluation

4.30 It is **best practice to judge entries anonymously in phase-one.** This anonymity is normally lost in phase-two when shortlisted bidders are invited to present their detailed designs in person.[176]

4.31 The design of the competition and the selection criteria are set by the client, but RIBA recommends that:[177]

- the project objective and post-competition commitment should be clearly stated;
- the project brief should be comprehensive and clearly define the competition structure, rules and programme;

[175] RIBA, RIBA Competitions Guidance for Competition Entrants.

[176] RIBA, RIBA Competitions Guidance for Competition Entrants.

[177] RIBA, RIBA Competitions Guidance for Competition Entrants.

- the client should ensure bidder's IP is not used without their permission;
- an honoraria payment should be offered to shortlisted bidders and stated at the launch of the competition;
- prize money for the winner should be offered and stated at the launch of the competition;
- professionals with relevant industry or sector experience and key decision-makers from the client should be part of the panel that selects the winner;
- anonymity (in phase-one) reduces the chance of the selection panel being unfairly influenced;
- marks awarded to the fee part of the proposal should not exceed 30% of the total marks available; and
- there should be a mechanism for unsuccessful bidders to request feedback.

Ex-post accountability

4.32 RIBA does not provide specific guidance on this issue. The client has discretion to negotiate contract terms with the winner.

4.33 **The developer normally retains ownership for all IP (subject to contractual agreements) and reasonability for managing any handovers.** The client is however responsible for protecting bidder's IP and RIBA provides guidance for how this should be done.

4.34 When the concept designer and contractor (responsible for completing the design and construction) are different entities, it is common for members of the design team to be 'novated' to work with the constructor. A novation agreement transfers the designer's contractual relationship from being with the developer (i.e. competition organiser) to being with the contractor. The contractor essentially takes on responsibility for the design and it is as if the designer only worked with the contractor throughout the project.[178] **Novation is a way through which developers manage handover and ex-post accountability of the concept design.**

Backstop solution

4.35 No backstop solution.

[178] Designing Building Wiki, Novation, accessed at https://www.designingbuildings.co.uk/wiki/Novation#Consultant_switch.

Specific application – Millennium Bridge London (Design, Build & Transfer example)

4.36 In 1996, the London Borough of Southwark and Millennium Bridge Trust (the client) ran a two-stage design competition for a new footbridge across the Thames to link St Paul's Cathedral and the Tate Gallery of Modern Art. The competition was sponsored by the Financial Times.[179]

4.37 In the first stage, designers were asked to submit an expression of interest. The competition was advertised widely to attract as many local and international firms as possible.[180] In total, 220 expressions of interest (entries) were received, from which six parties were shortlisted.

4.38 In the second stage, the six shortlisted bidders participated in a design phase where they submitted detailed proposals for the footbridge. The six designs were assessed by a panel of 11 judges.[181] The criteria used to assess the shortlisted bidders is unclear.

4.39 The winning entry, referred to as a "blade of light", was submitted by a consortium of Arup Group, Foster + Partners and Sir Anthony Caro.[182] **This group was responsible for taking the project through to completion**.

4.40 The winning design uses a lateral, rather than vertical, suspension system and is based on innovative (and new for the time) design technology. The lack of vertical supports gives the footbridge its unique appearance and gives pedestrians an unencumbered view of the River Thames.[183]

4.41 The footbridge was completed in June 2000. During the first weekend it was open, over 160,000 people crossed the footbridge. Under this heavy traffic, the footbridge exhibited more lateral movement than expected and was temporarily closed three days after its official opening.[184]

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179 Colander, Millennium Bridge London, accessed at https://www.colander.co.uk/architectural-competitions/colander-competitions/millennium-bridge-london.

180 Colander, Millennium Bridge London.

181 Independent, Bridge 2000, 18 October 1996, accessed at https://www.independent.co.uk/arts-entertainment/art/news/bridge-2000-1358877.html.

182 E-architect, Wobbly Bridge London: Architecture, accessed at https://www.e-architect.co.uk/london/wobbly-bridge.

183 Foster + Partners, The Millennium Bridge Opens, accessed at https://www.fosterandpartners.com/news/archive/2000/06/the-millennium-bridge-opens/.

184 RIBA, Millennium Bridge, accessed at https://www.architecture.com/awards-and-competitions-landing-page/competitions-landing-page/millennium-bridge; Foster + Partners, Millennium Bridge Reopens, accessed at https://www.fosterandpartners.com/news/archive/2002/02/millennium-bridge-reopens/.

4.42 Extensive research and testing were undertaken to address the movement issue, which found that it was caused by synchronised pedestrian footfall. Engineers were previously not aware of this issue.[185] **It appears that it was the client's responsibility to investigate and remedy the issue, however it is unclear what contractual liability the winning consortium may have had with the client.** It is common in construction for liability clauses to be included in contracts.

4.43 To solve the movement issue, dampeners were fitted underneath the deck and the bridge was re-opened in February 2002. Furthermore, international bridge building codes were amended to incorporate the engineer's research and testing.[186]

4.44 Construction costs were £18.2mn (£2.2mn over budget), plus another £5mn for the modifications to address the lateral movement issue.[187]

Specific application – Network Rail Footbridge (Design Only example)

4.45 This was an open ideas competition to select a detailed design to add to Network Rail's catalogue of footbridges. Network Rail were looking for a design to "*raise expectations for the quality of future designs while also giving due consideration to practicality, construction and maintenance*."[188]

4.46 Network Rail (the Client) provided guidance on the technical parameters that the footbridge design needed to abide by as well as general design considerations. Entrants were asked to submit schematic proposals that followed this guidance.[189]

4.47 The competition attracted 121 entries from all over the world. In phase-one, these entries were judged anonymously by a panel of technical experts (from Network Rail, Railway Heritage Trust and RIBA). This group was responsible for identifying a "longlist" that was recommended to a second judging panel for further consideration.[190]

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185 RIBA, Millennium Bridge; Foster + Partners, Millennium Bridge Reopens.

186 RIBA, Millennium Bridge; Foster + Partners, Millennium Bridge Reopens.

187 RIBA, Millennium Bridge; Foster + Partners, Millennium Bridge Reopens; Londonist, 11 Interesting Facts About The Millennium Bridge, accessed at https://londonist.com/london/features/millennium-bridge-trivia.

188 RIBA, Network Rail Footbridge design brief, accessed at http://www.ribacompetitions.com/networkrailfootbridge/requirements.html.

189 Network Rail, Network Rail Footbridge design brief.

190 Network Rail, Footbridge competition accessed at http://www.ribacompetitions.com/networkrailfootbridge/.

4.48 In phase-two, a second judging panel selected a winning design and a highly commended design. The winning design, from Gottlieb Paludan Architects, was selected because it "*most convincingly addresses the wide range of practical challenges whilst proposing a bold, elegant and uncluttered response that would create an uplifting experience for the range of users and be readily adaptable to suit many different contexts*."[191]

4.49 The winning architect received prize money of £20,000 and its design was added to Network Rail's "*book of station footbridge designs*".[192]

[191] Network Rail, Winner & Highly Commended, accessed at http://www.ribacompetitions.com/networkrailfootbridge/winner.html.

[192] Architects Journal, Winner announced in Network Rail footbridge contest, 14 December 2018, accessed at https://www.architectsjournal.co.uk/news/-exclusive-winner-announced-in-network-rail-footbridge-contest/10038143.article.