

# Early Competition Models

Summary of stakeholder model development

# Model development was refined through a series of stakeholder workshops resulting in three models to progress

16 Sept      30 Sept      14 Oct      28 Oct      11 Nov      25 Nov      9 Dec      20 Dec

26 Sept  
Workshop #1

15 Oct  
Ofgem meeting

22 Oct  
Workshop #2

7 Nov  
ERSG &  
call with Ofgem

12 Nov  
Workshop #3

27 Nov  
Ofgem meeting

20 Dec  
Update to be  
submitted

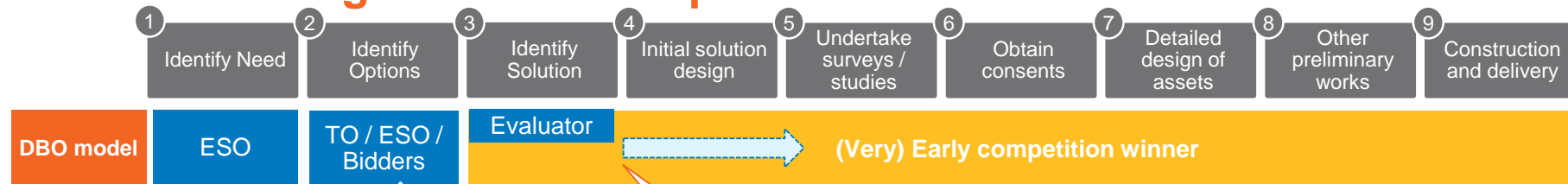
	Workshop 1	Workshop 2	Workshop 3
Developing and testing “Strawman Models”	<ul style="list-style-type: none"> <li>Set out key model dimensions (i.e. main issues that need to be decided)</li> <li>Considered a comprehensive range of potential model variants based on the model dimensions</li> </ul>	<ul style="list-style-type: none"> <li>Refined model dimensions</li> <li>Developed 4 Strawman Models to test against stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>Refined model dimensions reflecting stakeholder views and tested tentative conclusions</li> <li>Refined and validated Strawman Models</li> </ul>
Key lessons from case studies	<ul style="list-style-type: none"> <li>Considered existing case studies from past CATO work and support from FTI</li> </ul>	<ul style="list-style-type: none"> <li>High level learnings from desktop research and previous work</li> </ul>	<ul style="list-style-type: none"> <li>Support from FTI's international energy colleagues</li> <li>More detailed &amp; targeted desktop research</li> <li>Applied key learnings to models</li> </ul>
Criteria for evaluating models	<ul style="list-style-type: none"> <li>Shared initial thoughts on criteria with stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>Refined potential criteria and test them with stakeholders</li> <li>First view on evaluation of models</li> </ul>	<ul style="list-style-type: none"> <li>Revised evaluation of models</li> </ul>
Plan for 2020			<ul style="list-style-type: none"> <li>Sought stakeholder input on high level plan for 2020 and their desired level of involvement</li> </ul>

## December 2019 update

- Preferred Design-Build-Own “DBO” models** (with and without an enhanced competition feature)
- Non-CATO legislation alternatives (e.g. **Design-Build-Transfer “DBT”** model variant)
- A potential **Design Only “DO”** model

- Plan for the development and implementation** for each model in 2020

# The first model is a “standalone” design, build & own model (DBO-S), which is a straightforward competition model



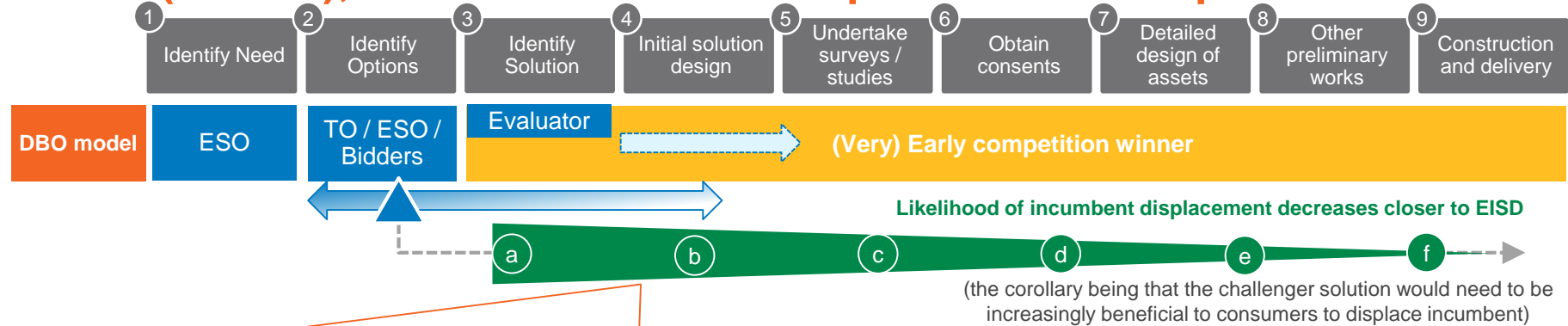
- 1 Tender point:**
  - V. Early model can work & may elicit broadest range of solutions
  - Starting tender point could differ on a case-by-case basis (depends on amount, timings and uncertainty of info provided)
- 2 Scope of competition:**
  - Decision to shortlist a small number of bidders could be made on a case-by-case basis (depends on time-criticality, uncertainty, duplicated cost etc)
  - Shortlisted bidders would operate on a no funding basis ahead of a final tender round
- 3 Tender design and evaluation:**
  - Quantitative and qualitative tender evaluation metrics will be adopted...
  - ...and incorporate some ex-post tender change mechanisms
  - Details to be developed in the next stage
- 4 Ex-post accountability:**
  - Designing post tender change mechanisms are key model challenges...
  - ...with potential reassessments possible through the NOA to ensure solution is in the interest of consumers (and if not, may trigger some ex-post changes)
- 5 Backstop solution:**
  - Refers to counterfactual default solution that would be built in the absence of competition
  - No need for backstop solution

## Sample of Key Questions for 2020

- What form and type of information should be provided to bidders?
- How will existing licence conditions (e.g. SQSS) be managed?
- How should the tender be integrated with the NOA?

- What quant. and qual. metrics should be used to evaluate the tender?
- What post-tender mechanisms should be used to keep bidders accountable?
- How will the enhanced competition feature work?
- These are a sample of the questions that are expected to be answered next year

# The second model is an enhanced competition design, build & own model (DBO-E), which introduces competitive tension post tender



## Ex-post accountability (with enhanced feature):

- To manage changes in the identified need, need some way of reviewing if an incumbent winning project should continue. The NOA could be a way of re-assessing the incumbent project (e.g. cost and technology) and considering if rival projects should take its place.
- An enhanced feature can be introduced to:
  - increase the competitive pressure throughout the project;
  - manage risk of project changes and/or changes in need; and
  - revalidate the selected solution with updated information, and based on the market as well.

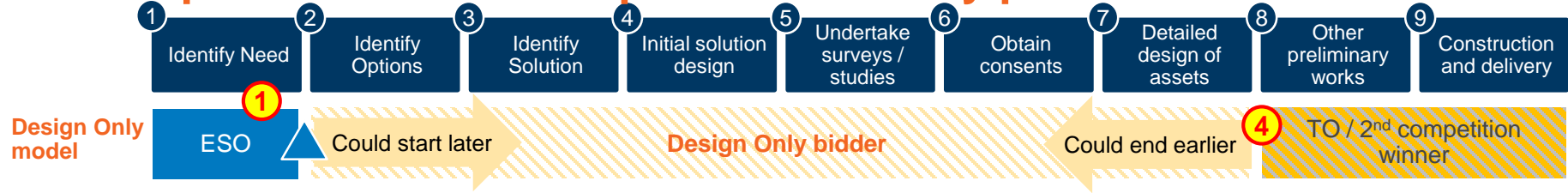
- This involves using a re-tendering process (which could be through the NOA if integrated).
- Any displaced incumbent winner will be compensated for their sunk costs.
- While this adds competitive pressure, this may also reduce the incentive for bidders to participate, and could also overcomplicate the tender process. There are two factors to consider for the enhanced feature:
  - A "displacement threshold" – how much cheaper should a challenger solution be to displace the incumbent
  - The frequency of "reassessment windows"

## Sample of Key Questions for 2020

- What is the likelihood and consequence of the need or project changing?
- What is the likelihood that there is new significant innovation or a change in technology or cost?

- What is an appropriate "displacement threshold"?
- What is the appropriate frequency for "reassessment windows"?
- Should all "reassessment windows" be set in advance and approached in the same manner, or are there circumstances when they are not needed (e.g. no material changes to the need or incumbent technology)?

# The third model is a competition for ideas in a design only model. This requires further development to identify problem it solves



## There are two critical DO model dimensions to consider

### 1 Tender point

- Where to introduce tender?
- What is the extent of the DO winning bidder's role?

### 4 Ex-post accountability (including additional handover & IP issues)

- Bidder accountability for solution workability and non-delivery?
- Handover to incumbent TO or CATO?
- To what extent should DO winner remain involved after handover?

As in DBO, V. Early can work. Critical issue is when role of DO winner should end.

Critical issue on how to ensure DO winner is held accountable (more so than DBOs).

## Key issues

- **DO winner should be involved through consenting but some stakeholders indicated that they may not be willing / have the capabilities to do so.**
  - Builders unlikely to take over a **non-consented solution**, and would not be willing to be exposed to the risk otherwise.
  - Difficult to keep DO winners **accountable for the workability of their solution** unless they are incentivised through the project.

## Potentially workable solutions

- **A DO model is only likely to be workable if there is a project-long relationship between Designer and Builder.** Two potential variants (both of which could potentially avoid CATO legislation):
  - A Design-Build consortium where the solution is handed over to the TO.
  - A competition which formalises existing third party design competition already facilitated by the TO.

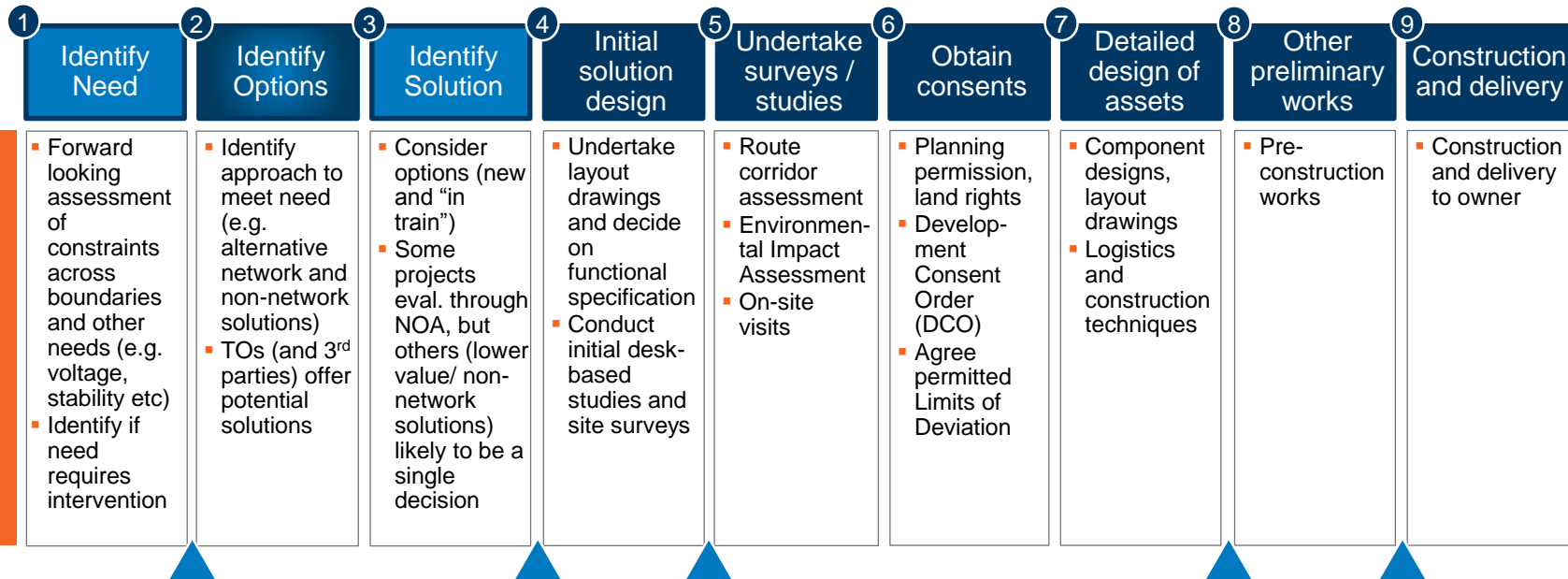
## Key questions going forward in 2020

- What is the problem that the DO model could solve?
- Can the DO model provide a viable solution (that is more effective than a DBO model)?
- Is the Early Competition Plan the best route to deliver DO competition?

# 1. Introduction to early competition models



# A typical investment lifecycle of a transmission project can be described in nine key steps...



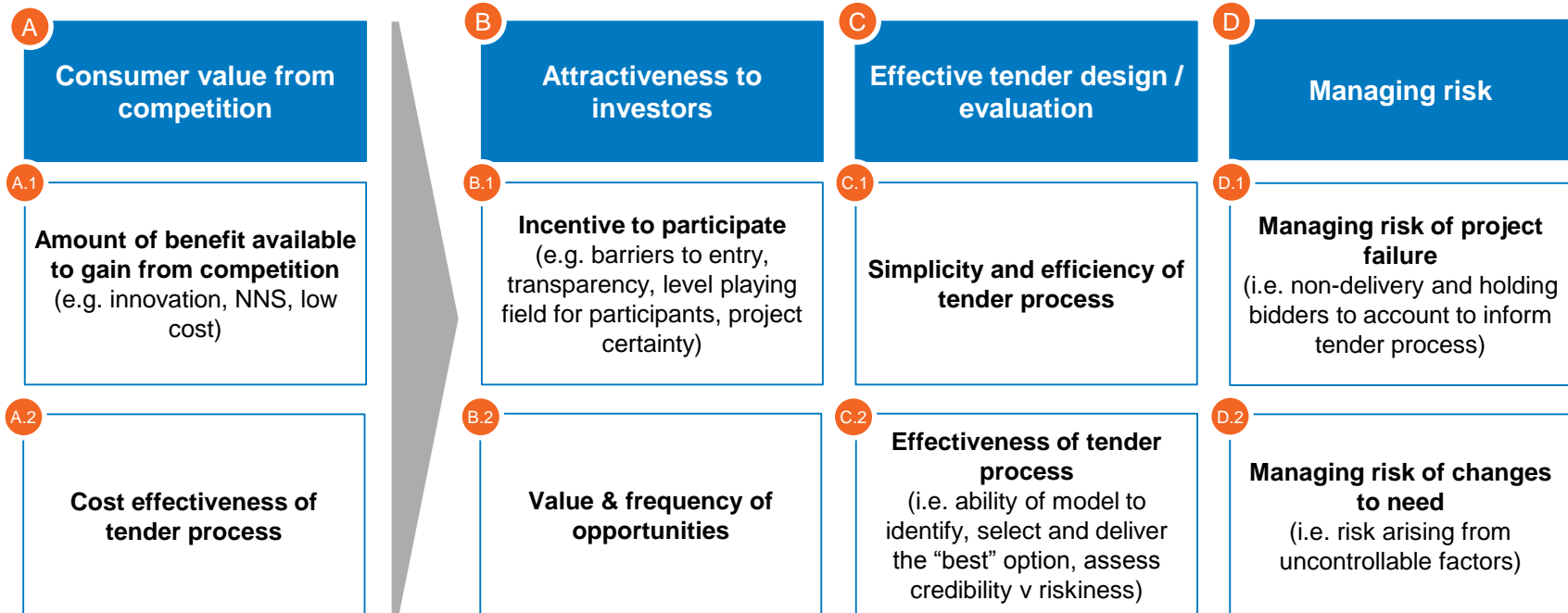
...and competition can be introduced at various points of the investment cycle

<sup>1</sup> Some of the processes may be different in England & Wales and in Scotland (e.g. consenting)

<sup>2</sup> Some lifecycle steps may not occur in the order described (e.g. some environmental impact assessment may occur at an earlier stage to help inform solution)

# Models are evaluated against a set of criteria that assesses benefit to consumers

We have identified four categories of evaluation criteria to assess the extent to which a model brings about the best outcome for consumers. Criteria B to D assess different avenues of how a model provides value to consumers, which indirectly informs Criteria A. We assess each model against this criteria in this report.

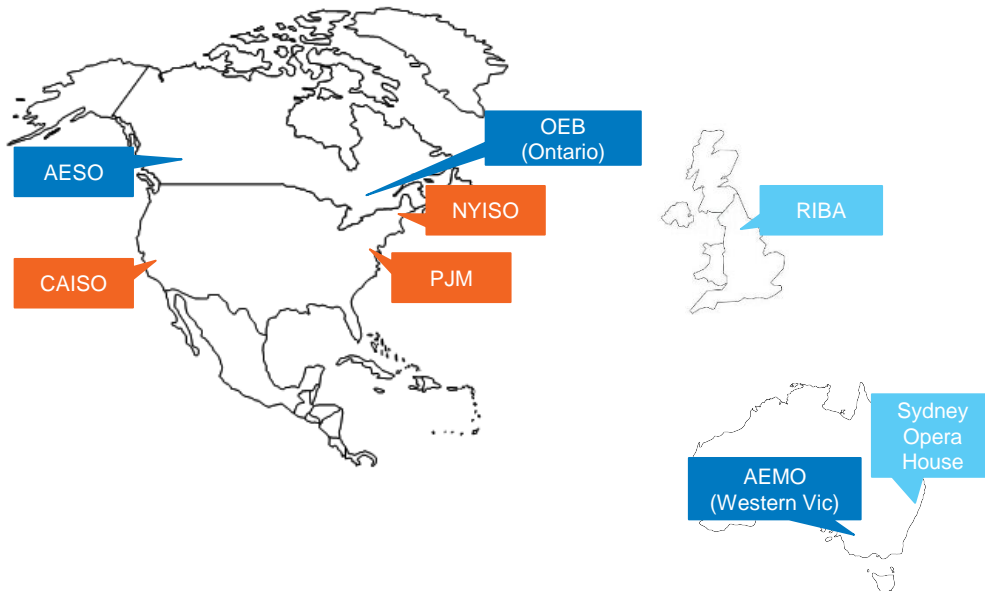




# To inform our strawman models, we have drawn on competitive processes from other jurisdictions

Other jurisdictions and industries currently use competition to procure large assets. We have looked at precedents from three categories of competition to help inform the development of our strawman models. Where relevant, we refer to case study experience throughout this report.

## Case studies included in this report



1

### Established onshore transmission competition

- The US has established onshore transmission competition mandated by FERC Order 1000.
- The practical implementation of FERC Order 1000 differs by ISO: both Early and Very Early models are used.
- Relatively few projects (approx. 25) have been competitively awarded as many fall under 'exceptions'...
- ...and we have not identified any operational projects
- Project value has ranged from \$14mn to \$750mn.

2

### New onshore transmission competition

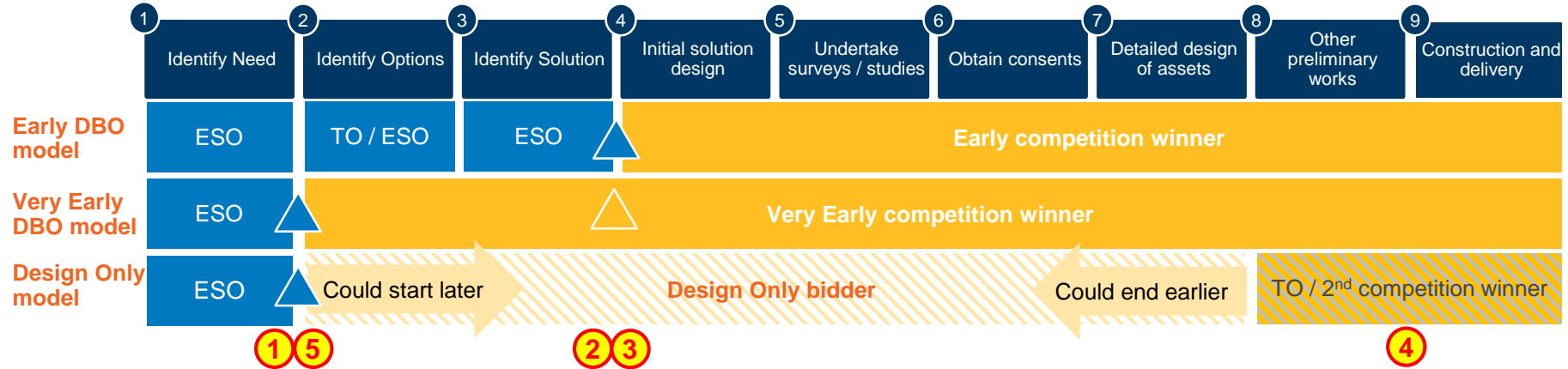
- First-of-a-kind tender run to date...
- ...but plans to run more tenders.
- Only one project has been tendered in each jurisdiction.
- High value projects have been tendered (\$0.8bn, \$1.6bn).

3

### Design competition

- No design-only tenders in transmission identified.
- In other industries, either the winner is involved during construction...
- ...or the project developer runs the competitive process for the components of the construction value chain (and owns the IP).

# Five key dimensions drive the identification of preferred models for early competition



## 1 Tender point

- Where to introduce tender? (Trade-off between innovation & uncertainty / difficulty in assessing bids)
- ITT and reference design (preliminary design given to bidders in ITT) developed by ESO (so TO can actively participate)
- For DO, what is the extent of the winning bidder's role?

## 2 Scope of competition

- Single tender point or shortlisting bidders ahead of final tender round – may be decided through NOA which already allows alternate opportunities to progress in parallel
- Recovery of sunk cost / devex?

## 3 Tender design and evaluation

- What evaluation criteria (cost, uncertainty, qualitative factors)?
- How to encourage credible bids?
- Extent to which NOA can be adapted to facilitate and evaluate bids?
- What "size of the prize" is sufficient to encourage participation?

## 4 Ex-post accountability (including additional handover & IP issues)

- Post-tender change mechanisms
- Bidder accountability for solution workability and non-delivery
- Trade-off between harsher penalties vs incentive to participate

## 5 Backstop solution

- Potentially developed in parallel and acts as default solution in absence of competition or if deliverability of solution uncertain
- Trade-off between extra cost and insurance policy



Tender / Design Only tender

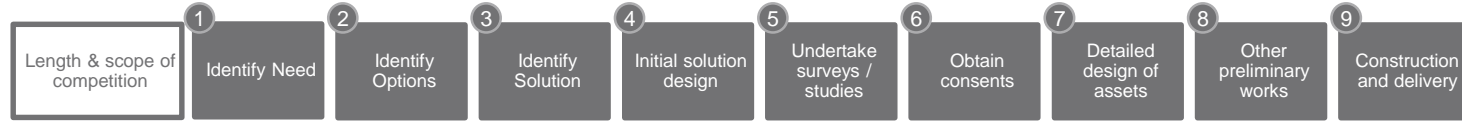


Subsequent tender decision

## 2a. Design, Build and Own (DBO) model



# Dimension 1: The starting tender point is determined by the degree of information provided to bidders...

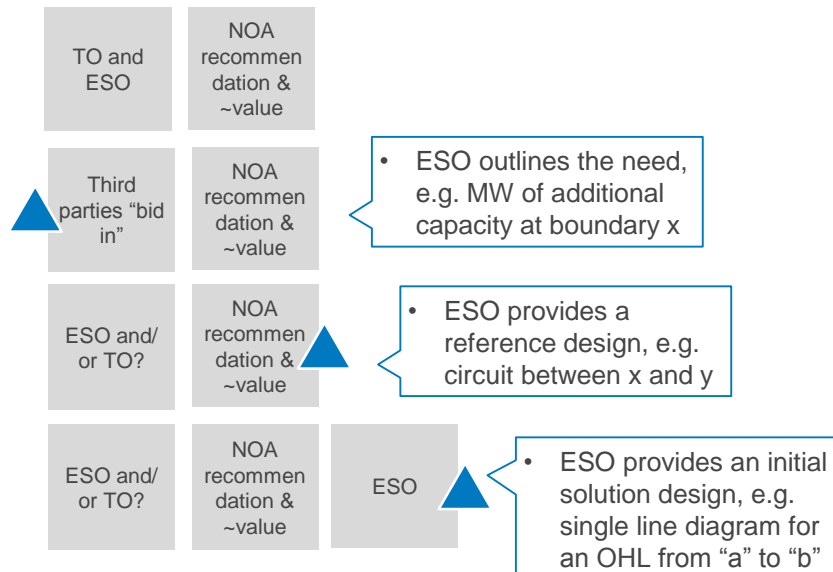


BAU

Very Early model

Early model

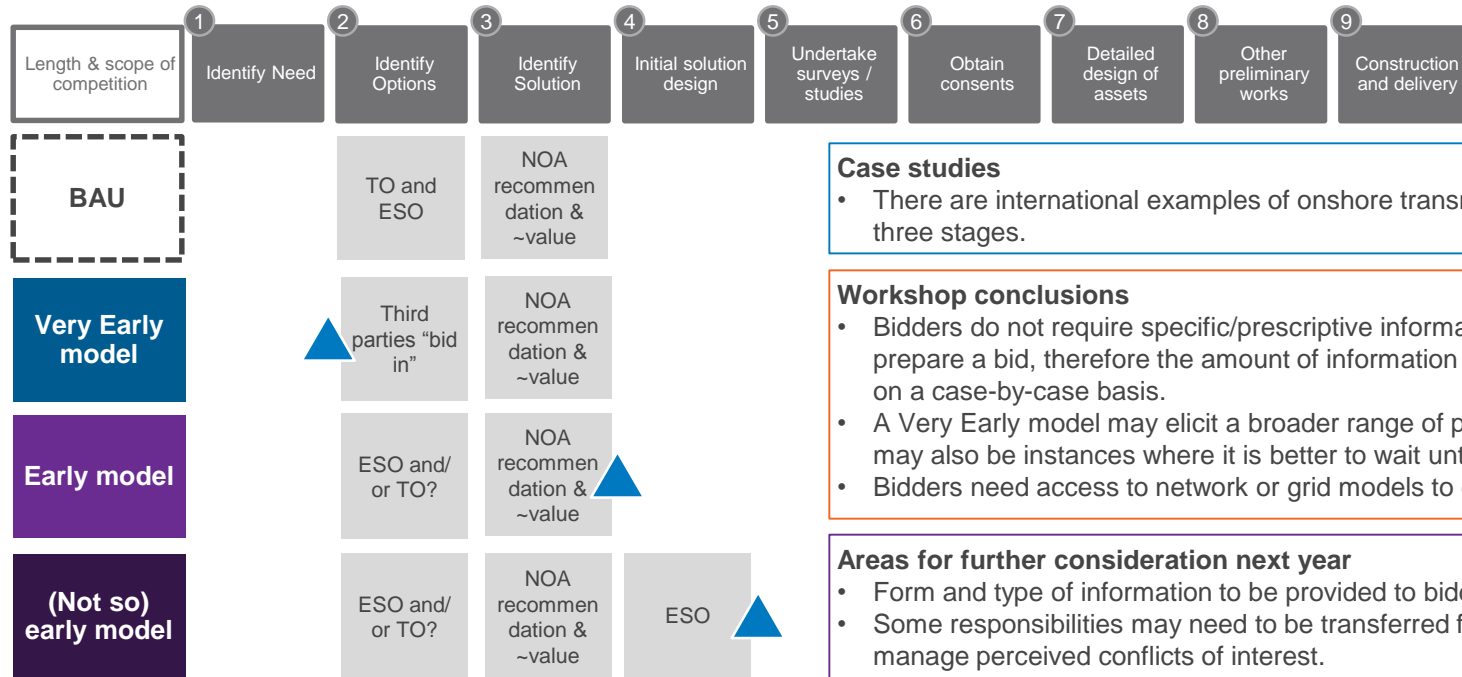
(Not so) Early model



## Description

- The key difference between the V. Early and Early models is the **amount of information** available to be provided to bidders (and in turn, the timings).
- Potentially creates a **trade-off between greater innovation** (due to less specific information in earlier models) and **less uncertainty** (due to more certainty on the need in later models).
- Non-network solutions would be able to participate** in all model variants, although later variants might bias slightly towards asset-heavy transmission solutions given a developed reference solution is provided.
- How the needs are communicated is key** to encourage bidder participation and different types of solutions. Different needs could also be **bundled and/or disaggregated for partial solutions**.
- The starting point could be **integrated into the NOA**.
- Our working assumption is that pre-qualification is a **separate, earlier process**.

# Dimension 1: ... but this could differ on a case-by-case basis



## Case studies

- There are international examples of onshore transmission competition at all three stages.

## Workshop conclusions

- Bidders do not require specific/prescriptive information on the need to prepare a bid, therefore the amount of information provided by ESO can differ on a case-by-case basis.
- A Very Early model may elicit a broader range of potential solutions, but there may also be instances where it is better to wait until the need is more certain.
- Bidders need access to network or grid models to develop their bids.

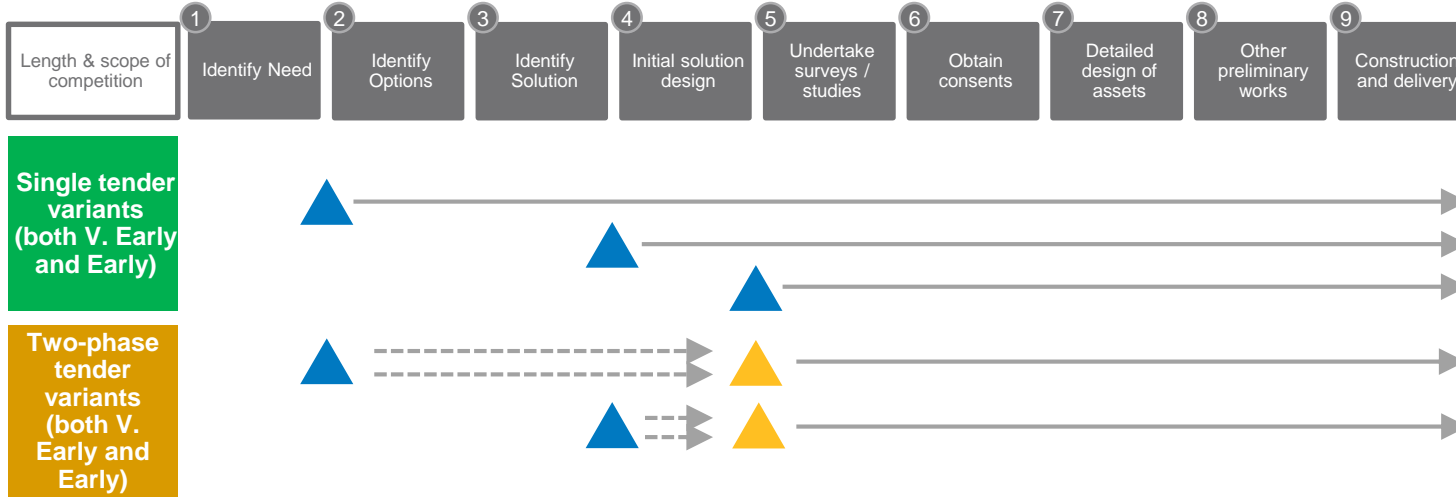
## Areas for further consideration next year

- Form and type of information to be provided to bidders (e.g. network models)
- Some responsibilities may need to be transferred from TO to ESO in order to manage perceived conflicts of interest.
- Whether or not the starting point should be integrated with the NOA.

## Tentative conclusion

Very Early model can work. Starting tender point could differ on a case-by-case basis (depends on amount, timings and uncertainty of information) to maximise benefits from competition.

## Dimension 2: Shortlisting multiple bidders could be used to mitigate uncertainty (at a higher effort by bidders)...



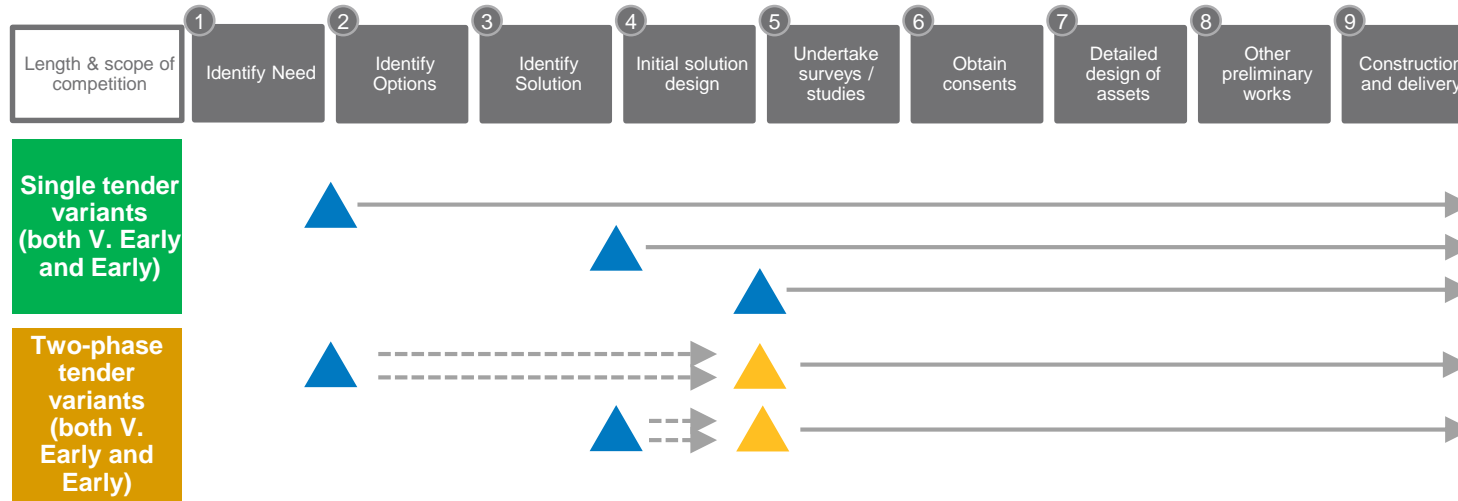
### Description

- **Shortlisting** is when a limited number of bids are selected from a broader pool of bids to proceed in parallel, before a single winner is selected at a later stage.
- Shortlisting could help **manage uncertainty** as the evaluator makes its final selection when there is less uncertainty – there could be more clarity on both the need and the shortlisted solutions as they progress to a later stage of development.
- There is a **trade-off between simplicity (and lower cost) and mitigating some uncertainty**.
- There is also a question on funding – whether shortlisted bidders receive funding (which could result in duplicated cost) or if they have to pay to participate.

More detail on cost trade-off (Appendix A.1)



## Dimension 2: ... but this could differ on a case-by-case basis



### Case studies

- Nearly all other early comp models have multi-phase tenders. Shortlisted bidders can modify bids in some models, cannot in others.
- Not the norm to provide funding to bidders (in fact, CAISO requires bidders pay for its evaluation costs).
- TO required to provide all necessary info to 3rd party bidders (e.g. NYISO).

### Workshop conclusions

- Shortlisting can be useful to manage project uncertainty and is commonly used already.
- A final decision should be made before consenting.
- It is common to not be paid for developing bid, but paying for evaluator's costs may be taking it too far.

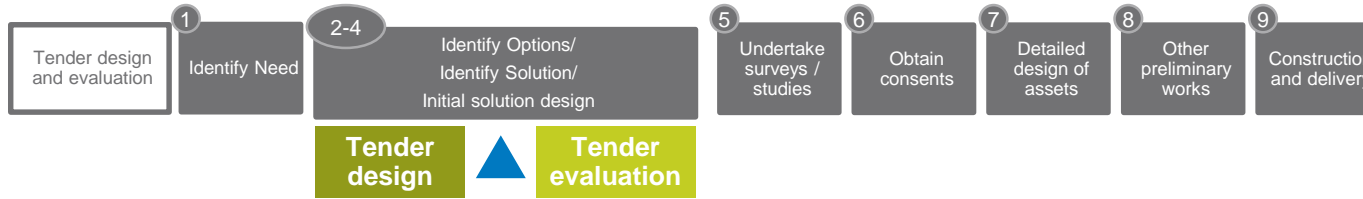
### Areas for further consideration next year

- Criteria for deciding whether to shortlist bidders or have a "one-off" final tender round.
- Rules for the shortlisting period, e.g. process for bidders' making amendments to bids.

### Tentative conclusion

- Decision to shortlist could be made on a case-by-case basis (depends on time-criticality, uncertainty, duplicated cost etc) , but in principle seems to be sensible.
- Shortlisted bidders should be prepared to operate on a no funding basis.

## Dimension 3: Cost is likely to be only one of multiple factors to consider when selecting the winning bid...



### Description

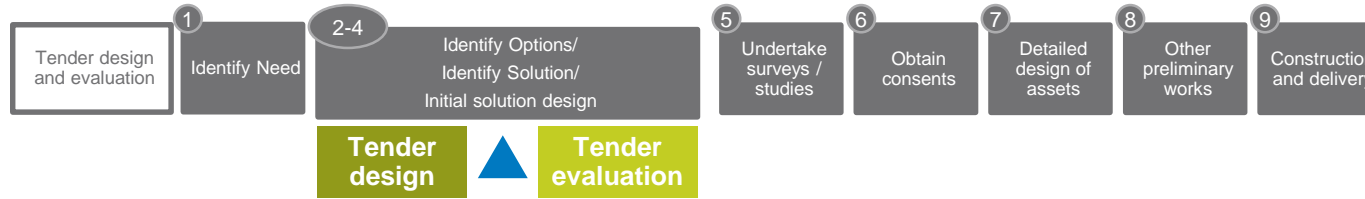
- **Tender design:** bids are likely to be assessed against a combination of quantitative and qualitative criteria.
- There is a trade-off between designing a simple evaluation mechanism and being able to differentiate between bidders in a way that results in the most beneficial solution being identified.
- The tender design for Early Competition will also enable two additional types of bids to be evaluated against standard transmission solutions:
  - Solutions that only **partially meet a need** (which would encourage more innovative solutions)
  - Very different and unusual **non-network solutions** which may or may not be complementary to a separate asset-heavy transmission solution

### Description

- **Tender evaluation:** early competition aims to solicit a wide range of potential solutions and will require an evaluation mechanism that will be able to assess fundamentally different types of solutions, while eliminating non-credible bids.
- The evaluation criteria should be as objective and transparent as possible – communicating this to bidders will direct them to **provide more credible bids**.
- Must have consideration for mitigating project risk and holding bidders accountable post-tender (discussed further in dimension 4).



# Dimension 3: ... but these complexities should be made as simple & transparent as possible to bidders



## Case studies

- IESO (Alberta) – Fixed price bid with change mechanisms set ex-ante.
- NYISO – all types of bids assessed at the same time (vs CAISO where NNS assessed outside tender).
- Ontario – TO required to submit a plan if no 3rd party participation (i.e. “developer of last resort”).
- PJM – cost cap included (offered by bidder).
- Transparency in evaluation criteria and the rationale for selecting a preferred bidder is important.

## Workshop conclusions

- Evaluation criteria should be outlined ex-ante (probably when ITT released) so bidders are aware of how they will be assessed.
- Questions should direct bidders to provide as simple and objective answers as possible (both quantitative and qualitative) to facilitate transparency in the selection process.
- Difficult to evaluate long-essay style questions as might be biased to larger firms, but also need a way of eliminating non-credible bids.

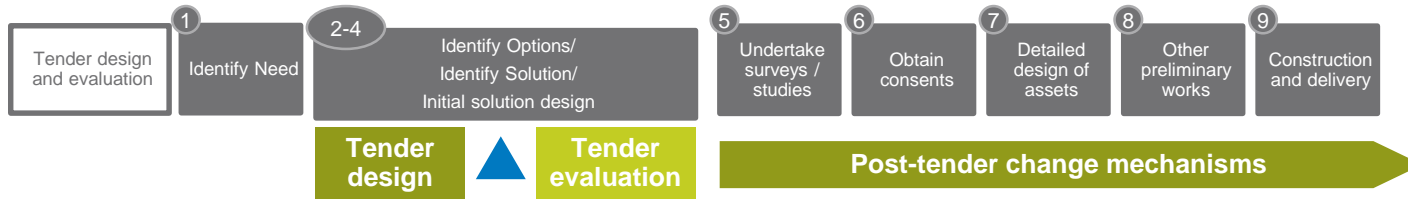
## Areas for further consideration next year

- Finding an appropriate balance between simple objective evaluation questions and questions that differentiate bidders.
- Details of tender evaluation mechanisms, including how to assess transmission solutions against different types of bids (partial, NNS, innovative options that cut across multiple needs).
- How can competition be integrated with the NOA (E.g. How often should need be re-tendered? What is “displacement threshold”?)

## Tentative conclusion

- Quantitative and qualitative tender evaluation metrics will be adopted, noting stakeholder comments above,...
- ...plus arrangements for “developer of last resort” in case no bidder participates or no bidder meets the criteria
- Details will be developed in the next stage

## Dimension 4: Post-tender change mechanisms are a necessary feature to manage risk...



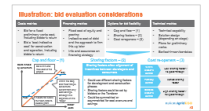
### Description

- **Post tender change mechanisms** are needed to mitigate against:
  - the risk of project changing (tech failure / delays / cost changes / liquidation / failure to achieve consents); and
  - the risk of system need disappearing or changing due to changes in forecast demand and generation.
- Post-tender mechanisms can be offered by bidders or outlined ex-ante. These mechanisms will need to be incorporated in the tender design and evaluation.

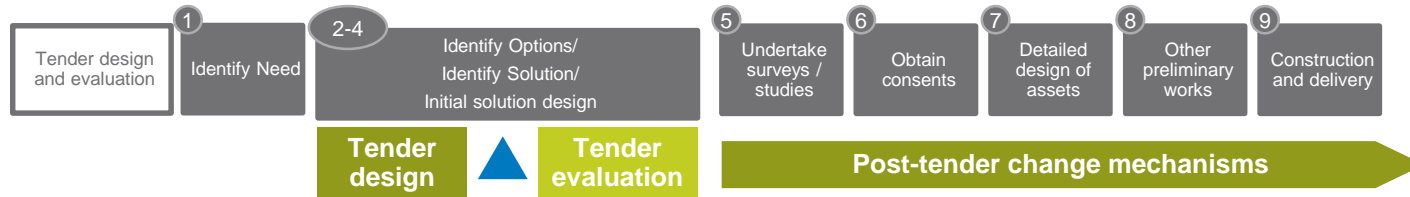
**Risk of project changing:** there is a trade-off between harsher penalties for non-delivery / cost overruns (to incentivise credible bids) vs incentive to participate. This trade-off needs to be considered in tender design.

**Risk of system need disappearing / changing:** Bidders could offer ways to “flex” solution up or down as part of the bid submission.

More detail on bid evaluation criteria (Appendix A.1)



# Dimension 4: ... these will be considered in full detail in the next phase of model development



## Case studies

- Unexpected events mostly dealt with through bilateral negotiations; re-evaluation of need / project on a case-by-case basis seen in practice (e.g. PJM / Ontario / CAISO) with varying degrees of success.
- From what we have observed, the US ISOs do not appear to have got cost containment mechanisms right yet.

## Workshop conclusions

- Post-tender issues are linked to tender design and evaluation.
- Some areas may need to be confirmed in contract negotiations as there is no one-size fits all.
- This is a complex area which has been dealt with in many different ways, there is no “best practice”
- It is likely that Early Competition in GB will need to develop an innovative approach to post-tender changes.

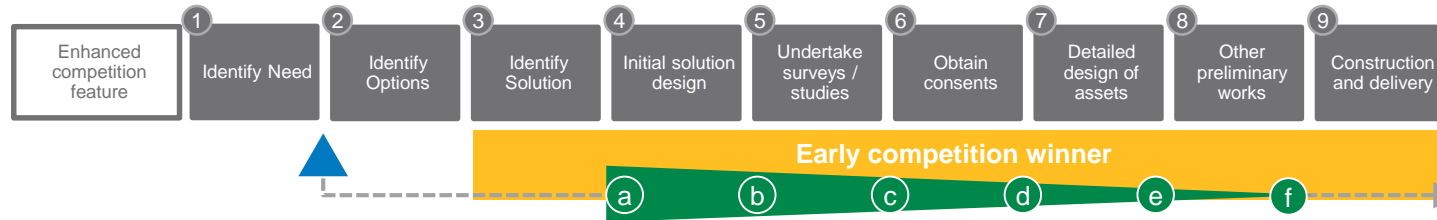
## Areas for further consideration next year

- Exploring the elements and size of each post-tender risk, and different mechanisms to address each risk.
- Identify approach to apply these mechanisms (i.e. embed in tender design, ex-post penalties or through ex-post negotiations)
- Incumbent TO interactions, including TO's role if works are needed to connect new solution and how TO is compensated if affected by failure or delay of solution.

## Tentative conclusion

Designing post tender change mechanisms are key model challenges but they are manageable and there is a full year to develop the details

# Optional Key Variant for Dimension 4: An enhanced competition feature to managing these risks effectively



**Likelihood of incumbent displacement decreases closer to EISD**

(the corollary being that the challenger solution would need to be increasingly beneficial to consumers to displace incumbent)

## Enhanced competition features to manage risk

In early competition models, mismanaging the inherent risk of project changes could increase the overall cost for either consumers or the competition winner, if not both. Allowing additional review points could manage this risk, and at the very least, validates the selected solution. Benefits include:

- ✓ **Competition is encouraged at all points** across the entire project lifecycle, not just at the beginning.
- ✓ **Innovation is encouraged throughout entire process**, not just at the beginning. **Credible bids** that are unable to participate in Very Early stages due to lack of information or technology still in nascent stages **can participate in the future**.
- ✓ **Annual NOA process has to be run anyway** – could be adapted to introduce competitive tenders frequently.
- ✓ **Continuous competitive “threat”** ensures incumbent solution is delivered optimally throughout project; and incumbent kept ‘honest’.
- ✓ **Uncertainty to consumers managed** in the best possible way – changes to project need or project delivery would be continuously assessed.

## Areas for further consideration next year

- Understand to what extent the Tenderer could consider new solutions to displace incumbent to manage post-tender risks.
- Understand the “displacement threshold” – how much cheaper should a challenger solution be to displace the incumbent, assuming a credible solution (with a reasonable Earliest-In-Service-Date “EISD”),
- Understand if and how should the Tenderer seek alternative solutions (e.g. “reassessment windows”)
- Who pays the cost of running the “reassessment window”?

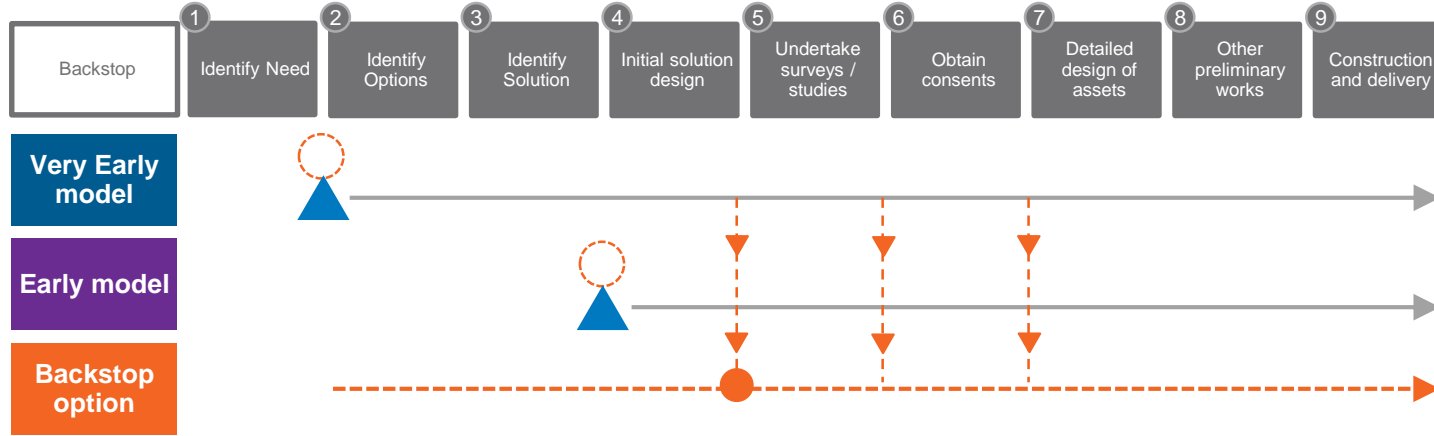
## Tentative conclusion

Continuing the competitive pressure on incumbent winners could be helpful to increase consumer benefits and manage uncertainties. A balance would need to be sought between increasing competitive pressure for consumers while maintaining bidder participation (and considering the cost of any re-tendering and/or disruptions)



Tender ● Iterative NOA process (temporal, instead of by stage as shown)

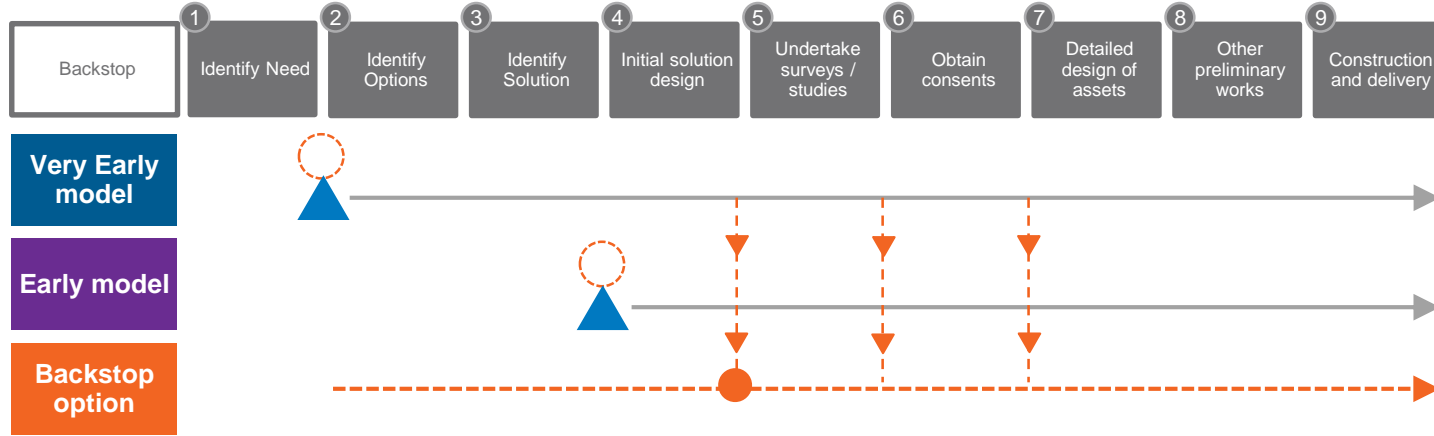
## Dimension 5: Running a backstop option could mitigate the deliverability risk of the winning solution...



### Description

- A **backstop option** refers to the counterfactual default solution that would be built in the absence of competition (TOs could offer an additional innovative solution). This is different to a reference design solution. The backstop option could be developed in parallel to the winning solution. To avoid duplication of cost, the backstop option could be held after Stage 4 (before consenting), and only progressing beyond should the winning solution fail.
- There is a **trade-off** between the additional cost of running a “backup” solution in parallel and the benefit of mitigating the risk that the preferred solution cannot be delivered in time to meet the need.
- This does not preclude the TO to submit multiple bids beyond a more traditional transmission solution used as the backstop (e.g. by bidding a more innovative design and/or at lower cost).

## Dimension 5: ... but the additional cost of a developer's backstop option appears to outweigh its potential benefits



### Case studies

- NYISO outlines use of a backstop for reliability / economic needs, but it has never been used in practice.

### Workshop conclusions

- Most stakeholders consider a backstop unnecessary as it duplicates cost, creates unnecessary complications for the TO and potentially signals distrust in the winning solution.
- A reserve bid however, is common practice and could be useful in case of failed negotiations.

### Areas for further consideration next year

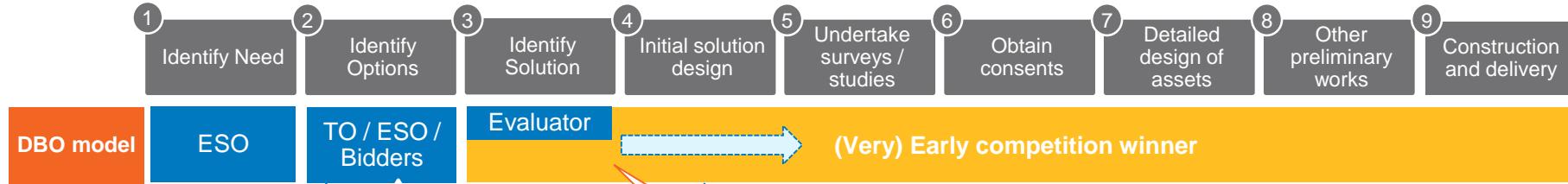
- Unlikely to consider the backstop further.
- Will consider other mechanisms for mitigating the risk of there being no bidders ("developer of last resort" discussed further in dimension 3).

### Tentative conclusion

- Backstop solution not to be implemented.

# Preferred DBO model (standalone model variant):

## Tentative conclusions



1

### Tender point:

- V. Early model can work & may elicit broadest range of solutions
- Starting tender point could differ on a case-by-case basis (depends on amount, timings and uncertainty of info provided)

2

### Scope of competition:

- Decision to shortlist could be made on a case-by-case basis (depends on time-criticality, uncertainty, duplicated cost etc)
- Bidders should be prepared to operate on a no funding basis

3

### Tender design and evaluation:

- Quantitative and qualitative tender evaluation metrics will be adopted...
- ...and incorporate some ex-post tender change mechanisms
- Details to be developed in the next stage

4

### Ex-post accountability:

- Designing post tender change mechanisms are key model challenges...
- ...with potential reassessments through the NOA to ensure solution is in the interest of consumers (and if not, may trigger some ex-post changes)

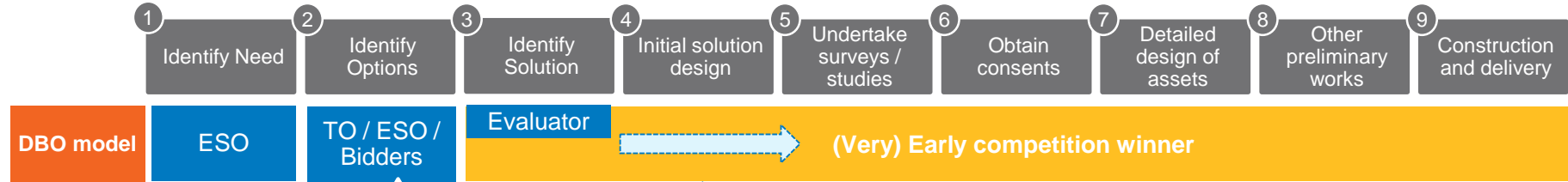
5

### Backstop solution:

- No need for backstop solution



# Preferred DBO model (standalone model variant): Example of process



- ESO identifies and classifies the need:
  - Identifies which competition model, if any, to apply.
  - Determines amount of bid information.
  - Considers if shortlisting needed (e.g. depending on size of need, uncertainty, time criticality etc).

- Decision on whether to issue a tender as part of the optioneering process or at other points (depending on information available).
- Evaluation criteria outlined ex-ante to provide sufficient transparency for bidders to form proposal.

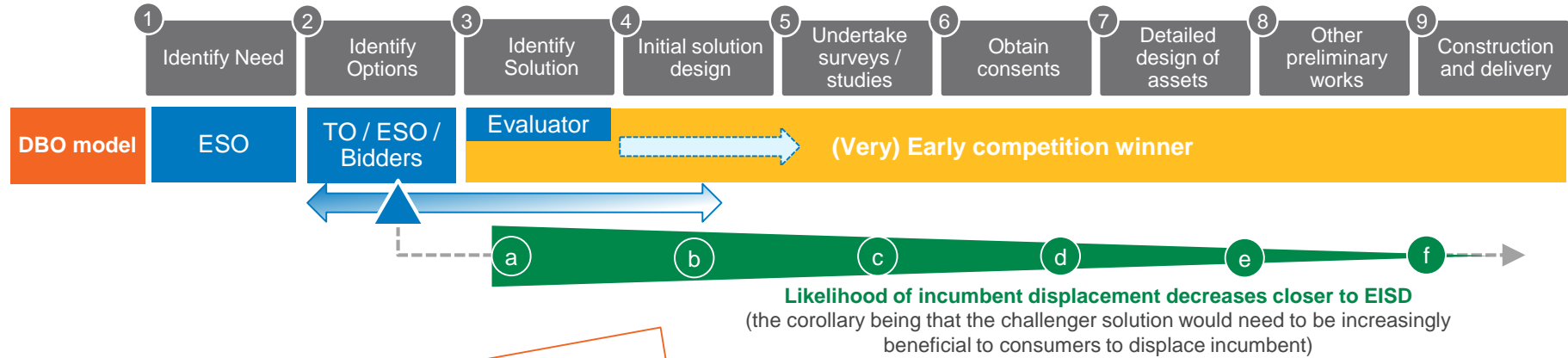
- If there is competition:
  - evaluate the tender; and
  - decide whether to select a winner or shortlist a few.

- If multiple projects shortlisted:
  - Shortlist bidders undertake FEED studies + initial solution design.
  - Select single winner at suitable time prior to consenting.

- Monitoring & accountability:
  - May need to oversee ongoing interface between winning bidder and TOs (to be considered further – TOs will be compensated).
  - Opportunities for post-tender changes, depending on:
    - amount of “flex” in bids;
    - changes to need;
    - uncertainty mechanisms; and
    - accountability agreements.
  - Provide a regulated reward (backed by Ofgem).



# Preferred DBO model (with enhanced competitive feature): Tentative conclusions



4

## Ex-post accountability (with enhanced feature):

- An enhanced feature can be introduced to:
  - Increase the competitive pressure throughout the project
  - Manage risk of project changes and/or changes in need
  - Revalidate the selected solution with updated information, and based on the market as well
- This involves using a re-tendering process (which could be through enhancements to the NOA if integrated)
- Any displaced incumbent winner will be compensated for their sunk costs
- While this adds competitive pressure, this may also reduce the incentive for bidders to participate, and could also overcomplicate the tender process. There are two “dials” to consider for the enhanced feature:
  - A “displacement threshold” – how much cheaper should a challenger solution be to displace the incumbent
  - The frequency of “reassessment windows”

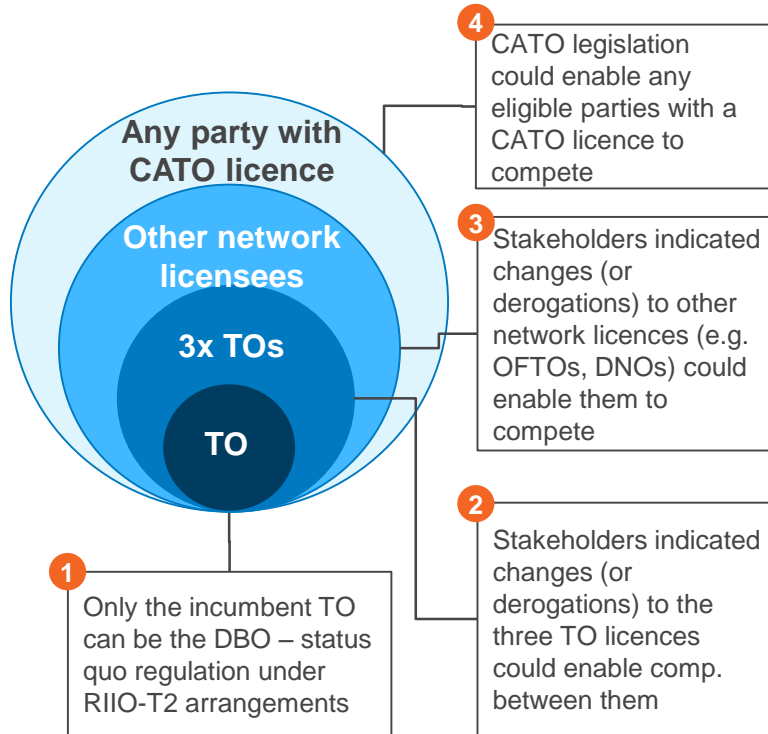


## 2b. Pre-CATO legislation options



# Pre-CATO legislation options

## 1. Under the DBO model



## 2. Design-build-transfer variant

### Design-build-transfer (DBT) models

- Discussed in next slide.
- Involves the initial tender to be issued for a design-build role (including consenting).
  - Tender processes (pre, during and post) would follow the same dimensions under a DBO model.
- After construction, there are two routes:
  - A second tender for an owner & operator (presumes CATO legislation or a pre-legislative option – see (2) and (3) on the left)
  - A direct handover to the incumbent TO. This could be a direct handover or packaged under an SPV model.

## 3. Alternative models

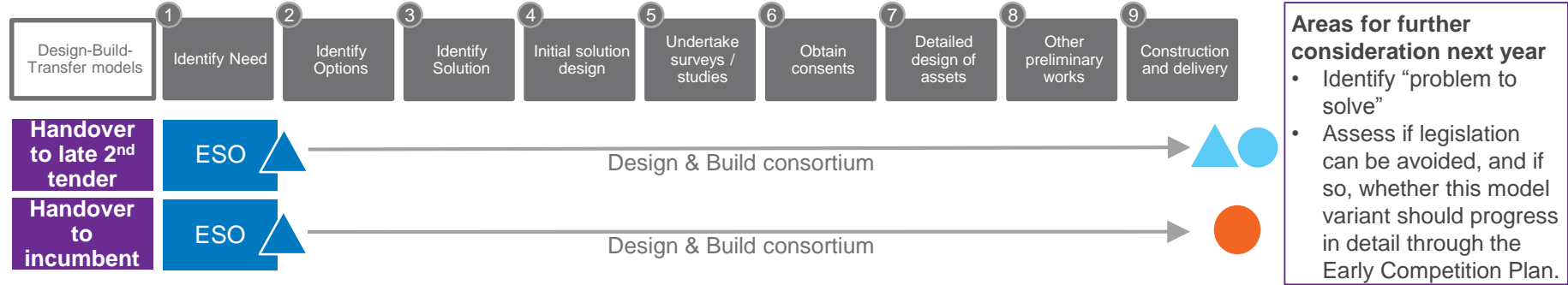
### Design Only models

- Discussed in next sub-section.
- Might be possible to introduce to a limited scope of tenders.
- Some alternatives available (including the DBT variant).

### Non-network solutions

- Discussed in Section [x] above.
- Build on learnings from existing Pathfinders project.
- To be determined if this approach is to be pursued, and if so, through the ECP or outside.
- Timelines, objectives and plan to be determined.

# A DBT model might be a viable alternative to DBO models



## Description

- The DBT model involves a single party or consortium undertaking the design, consent & build roles. This could then be transferred to an owner & operator which could be:
  - A 2<sup>nd</sup> competition winner:** second tender run to select party to own and operate asset → may be contingent on CATO legislation.
  - Incumbent TO:** TO owns and operates → this is not contingent on CATO legislation, but raises issues on the TO’s role.
- If the Design-Build consortium were to assume ownership & operations without a second tender, this would be identical to a DBO model.
- A DBT model might be a viable alternative to DBOs in that CATO legislation might not be required (under the TO-handover subvariant.
- A DBT model might also be a viable alternative to DO models in that this incentivises long-term solutions (and that DO parties with a consentable solution will be able to find their own builders).

## 2<sup>nd</sup> tender

- A second tender has the advantage in that a new competition may **attract a wider pool of investors** to compete on efficient financing. While investors can do this without a second tender, a tender would allow incremental consumer benefits to be extracted (instead of benefitting the Design-Build party).
- The downside is the additional cost of tender, and that this model may only be effective with CATO legislation (where handover to winner of subsequent tender).

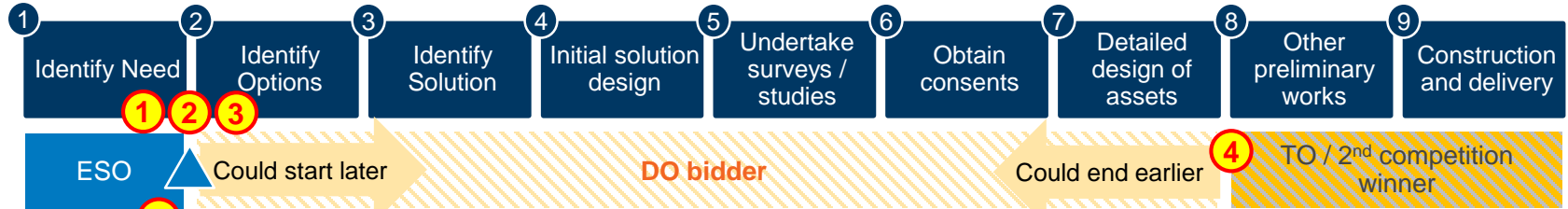
## TO handover

- Handing over to the TO could be advantageous in that **no CATO legislation is required**.
- However, due to the handover, TOs might want to **be involved in the tender process...**
- ... but in turn, may have to **give up their right to compete** to prevent undue conflicts. Hence TOs have a choice between participating and influencing.
- A TO that is heavily involved in the tender process could be packaged as an **SPV model**.

## 2c. Design Only (DO) model



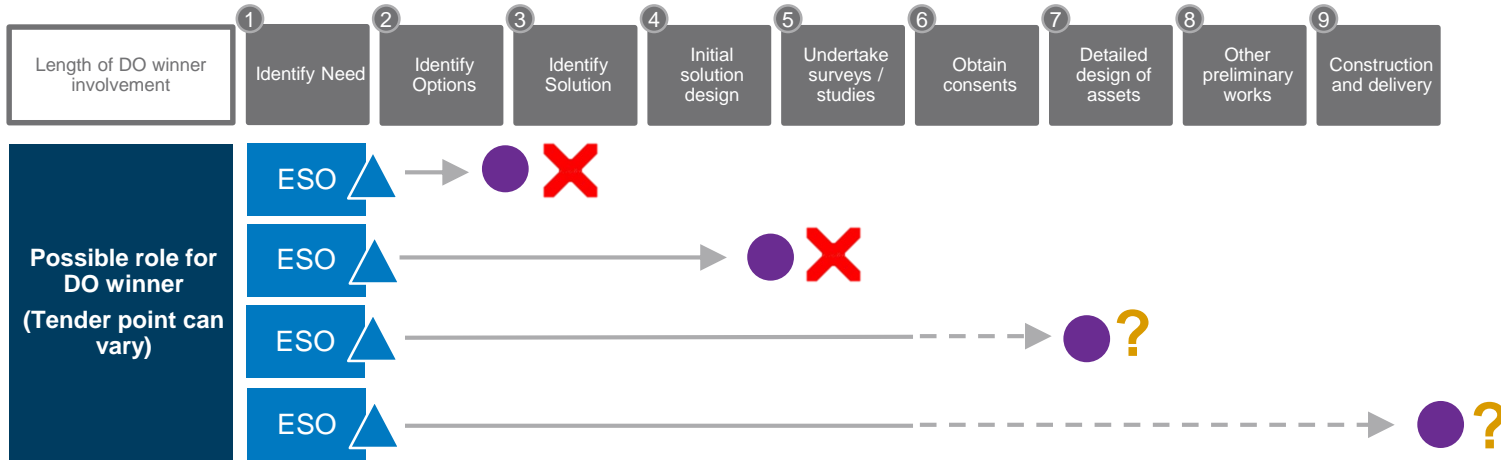
# Our discussion in Workshop #2 on the DO model reflected specific challenges on tender scope / ex-post accountability



<p><b>1 Tender point</b></p> <ul style="list-style-type: none"> <li>Where to introduce tender?</li> <li>What is the extent of the DO winning bidder's role?</li> </ul> <p>As in DBO, V. Early can work. Critical issue is when role of DO winner should end?</p>	<p><b>2 Scope of competition</b></p> <ul style="list-style-type: none"> <li>Single tender point or shortlisting bidders – may be decided through NOA which already allows alternate opportunities to progress in parallel</li> <li>Recovery of sunk cost / devex?</li> </ul> <p>As in DBO, shortlisting can be used on case-by-case basis. Not discussed further.</p>	<p><b>3 Tender design and evaluation</b></p> <ul style="list-style-type: none"> <li>What evaluation criteria? Particularly need to consider credibility</li> <li>What “size of the prize” is sufficient to encourage participation?</li> <li>Post-tender change mechanisms</li> </ul> <p>As in DBO, quant. &amp; qual. metrics to be developed in the next phase. Not discussed further.</p>	<p><b>4 Ex-post accountability (including additional handover &amp; IP issues)</b></p> <ul style="list-style-type: none"> <li>Bidder accountability for solution workability and non-delivery?</li> <li>Handover to incumbent TO or CATO?</li> <li>To what extent should DO winner remain involved after handover?</li> </ul> <p>Critical issue on how to ensure DO winner is held accountable (more so than DBOs)</p>	<p><b>5 Backstop solution</b></p> <ul style="list-style-type: none"> <li>Developed in parallel and acts as default solution in absence of competition or if deliverability of preferred solution uncertain</li> <li>Could this still be used in a DO model?</li> </ul> <p>As in DBO, no need for backstop solution. Not discussed further.</p>
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# Dimension 1 & 4: “What are bidders competing for” and “how will they be kept accountable” are critical issues...



## Rationale

- The rationale for the request to explore DO models was to assess if a “competition for ideas” could attract more innovation from a wider set of parties.

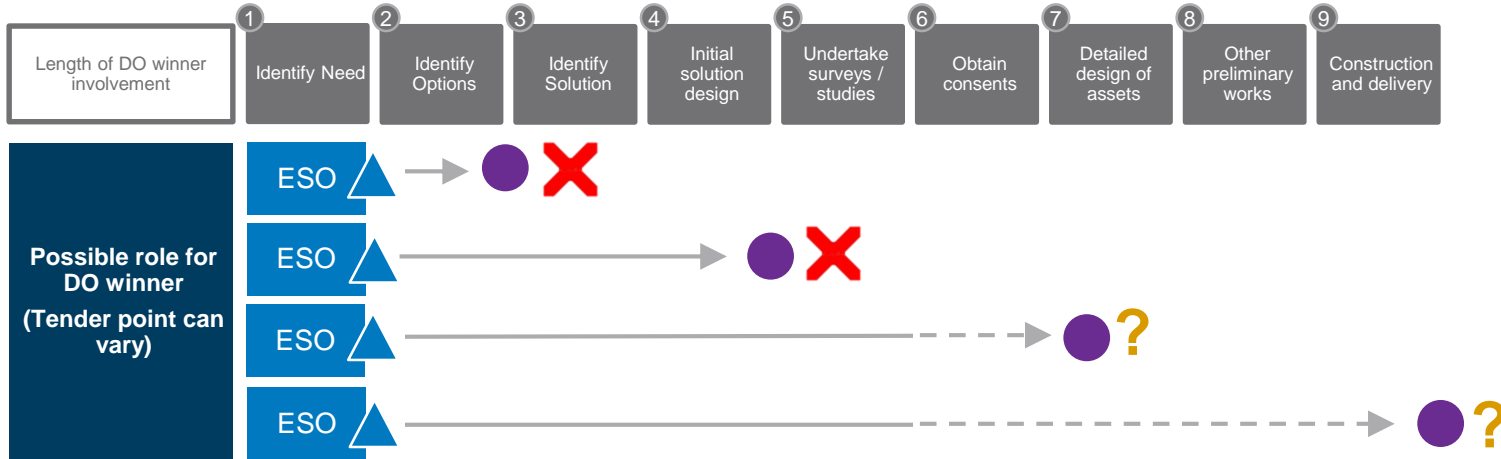
## Tender point

- For DO competition to attract the most innovation, the tender point most likely has to be before Stage 2 (i.e. at the Very Early stage), although this could vary.
- The key challenge is identifying **what they are competing for** in terms of:
  - What activities the DO winner is expected to undertake (amount of design and/or consenting); and
  - the size of the prize (reward will be for an intangible asset instead of a tangible asset solution).

## Ex-post accountability

- DO bidders need to be **kept accountable for the workability of their solutions**. This is expected to be even more challenging than DBO models as a second party would be responsible for the buildout of the solution.
- This presents a **trade-off between harsher accountability processes and the incentive to participate**. However, setting stringent accountability would be a challenge in itself given the relatively small size of the prize.

# Dimension 1 & 4: ... DO winner likely needs to be involved & incentivised post-design to develop a credible solution



## Workshop conclusions on the key questions

- DO winner should be involved in the longer-term (including consenting), but may not want to undertake the consenting role due to the relatively low reward of its intangible IP.
  - If DO winner had a consentable solution it might as well partner with a Builder directly → **hence DO winner should be involved through consenting but may not be willing / have the capabilities to do so.**
- Builders are likely to only want to take over a **consented solution**, and may not be willing to be exposed to the risk otherwise. A subsequent tender after this point would be akin to the Late Model.

## Workshop conclusions on taking the model forward

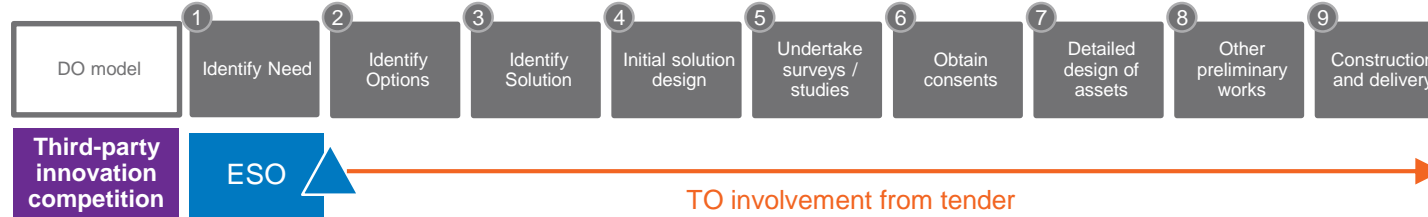
- **The majority of stakeholders commented that a DO model is only likely to be workable if there is a project-long relationship between Designer and Builder.** Two potential variants (both of which could potentially avoid CATO legislation):
  - A Design-Build consortium (discussed in the previous sub-section)
  - A competition which formalises existing third party design competition already facilitated by the TO (see slide below)

## Areas for further consideration next year

- Identify the problems where “competition for ideas” is not being encouraged (vs a full-DBO model).
- Consider the value of DO models and different variants.
- Assess if legislation can be avoided, and if so, whether this model variant should progress in detail through the Early Competition Plan.



# One variant of a DO model could be to formalise existing third-party innovation already facilitated by TOs...



## Description

- Under current arrangements, **third-party innovators already engage with TOs to propose innovative solutions**. However, we have heard from some stakeholders that this is currently a relatively opaque process.
- TOs are incentivised to adopt these innovations as part of the RIIO framework**. If these innovations improve its performance against RIIO output and incentive targets relative to the cost, the TOs would benefit financially to adopt these innovations.
- Two hypotheses would need to be tested:
  - First, that there is a problem that needs to be solved – that some third-parties are either excluded or disadvantaged in the TOs decision-making; and
  - Second, that a formalised, independent competitive process could resolve these issues.

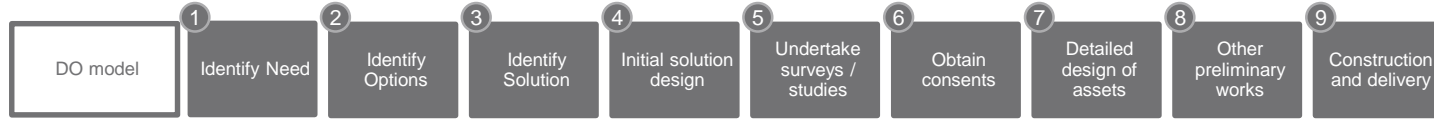
## Tender point

- For a “competition for ideas” the tender should most likely be run before Stage 2.
- There are several options on **what bidders are competing for** (which could be set on a case-by-case basis):
  - A one-off innovation prize.
  - A reward commensurate to the benefits awarded to the TO / consumers.
  - A reward based on TO discretion (remunerated through RIIO-2 incentives).
  - A long-term working relationship with the TO.
  - A fixed revenue stream to continue developing its solution until “go-live”.

## Ex-post accountability

- There are several approaches for the innovation winner to be held accountable:
  - IP completely transfers to TO** (innovator receives a fixed prize with no further involvement).
  - The **innovator continues its relationship with the TO** and is accountable towards the TO.
  - A combination of the above two points where the IP is transferred, but the **innovator “novates” a team to the TO** to continue working (a common feature of architecture models in construction).

# ... this process could be used to address other “needs” but has its own challenges



Third-party innovation competition

ESO

TO involvement from tender

## Identification of need

- The needs under this model may differ from the type of needs identified in the NOA – these do not necessarily need to be identified by the ESO. For example:
  - the need identified could be to enhance an existing TO asset which wouldn't be applicable in other early competition models
  - or through generic “competition for ideas” windows akin to innovation competition processes

## Tender design

- While TOs already invite 3<sup>rd</sup> party innovation, this process moves the decision-making process away from the TOs. **This is intended to encourage greater participation and transparency.** However, the TOs may still need some level of involvement especially if the impact is on its existing assets.
- The tender could take different forms. For example:
  - One variant would be for Ofgem to design the tender, but to mandate the TO to run the competition, disclosing the details to Ofgem to make a decision.
  - Another variant would be for an independent party (Ofgem / ESO) to run the end-to-end tender process, mandating or incentivising the TO to carry out the selected solution.

## Tender award

- Bidders innovate and submit solutions on how to meet the need. The award could vary in the:
  - the nature and size of the reward;
  - the treatment of its IP;
  - the form of its relationship with the TOs going forward; and/or
  - the right to other projects.

Taking this forward

- Are third parties currently excluded or disadvantaged from participating with the TOs?
- Would a formalised, independent competitive process resolve any identified issues?
- If yes to both questions, should developing this model be progressed through the Early Competition Plan or through a separate avenue (e.g. innovation competition or RIIO-2?)

## 2d. Evaluation of models



# Summary: Evaluation of models

Assessment criteria	A. Consumer benefit from competition		B. Attractiveness to investors		C. Effective tender design and evaluation		D. Managing risk	
	A.1 Amount of benefit available to gain from competition	A.2 Cost efficiency of tender process	B.1 Incentive to participate	B.2 Value & frequency of opportunities	C.1 Simplicity and efficiency of tender	C.2 Effectiveness of tender process	D.1 Managing risk of project failure	D.2 Managing risk of changes to need
DBO model								
DBO model (with enhanced feature)								
DBT model								
DO model								

Worst for  
consumersBest for  
consumers

# Preferred DBO model (standalone model variant): Summary evaluation

	A. Consumer benefit from competition		B. Attractiveness to investors		C. Effective tender design and evaluation		D. Managing risk	
Assessment criteria	A.1	A.2	B.1	B.2	C.1	C.2	D.1	D.2
	Amount of benefit available to gain from competition	Cost efficiency of tender process	Incentive to participate	Value & frequency of opportunities	Simplicity and efficiency of tender	Effectiveness of tender process	Managing risk of project failure	Managing risk of changes to need
DBO model								
	Flexibility to choose tender point depending on amount of information available – V. Early model possible to encourage innovative solutions.	Single tender point makes the process cost efficient for participants and evaluators. Potentially costly to evaluate V. Early tenders and shortlisting could also increase the overall cost.	Early comp invites greater innovation, however bidders require full-suite of capabilities.	Value likely to be large at an early competition stage but only one opportunity to participate as there is no formal mechanism for incumbent winners to be challenged.	Tender design is likely to be reasonably simple, although will likely differ on a case-by-case basis.	Well-designed early comp tender likely to extract greater benefits for consumers by incentivising competitive bids.	Early comp has greater risk of project failure – this depends on length of shortlisting process and tender design/evaluation to suss out non-credible bids. Also, inherent trade-off with B1.	Early comp has greater risk of changes to needs. Can be mitigated by longer shortlisting processes and innovative post-tender mechanisms

# Preferred DBO model (with enhanced competitive feature): Summary evaluation

	A. Consumer benefit from competition		B. Attractiveness to investors		C. Effective tender design and evaluation		D. Managing risk	
Assessment criteria	A.1	A.2	B.1	B.2	C.1	C.2	D.1	D.2
	Amount of benefit available to gain from competition	Cost efficiency of tender process	Incentive to participate	Value & frequency of opportunities	Simplicity and efficiency of tender	Effectiveness of tender process	Managing risk of project failure	Managing risk of changes to need
DBO model (with enhanced feature)								
	As with standalone variant, flexibility to choose tender point depending on amount of information available – V. Early model possible to encourage innovative solutions.	Potentially costly tenders due to intensity of Tenderer (+ post-tender involvement during “reassessment windows”).	Compared to standalone variant, additional tender points may deter some bidders due to threat of challenge.	Frequency of opportunities currently unclear (but there will likely be opportunities to challenge post-tender).	Tender design could be complex, especially is there are multiple tender points.	Likely to extract greater benefits for consumers by incentivising credible bids through ongoing competitive pressure.	Risk of project failure can be mitigated by length of shortlisting process and tender design/evaluation. Additional tender pts. mean incumbent can be displaced if project failure appears likely.	Risk of changing need can be mitigated by additional tender points, longer shortlisting processes as well as with flexible and innovative post-tender mechanisms.











# Potential DBT model variant: summary evaluation

	A. Consumer benefit from competition		B. Attractiveness to investors		C. Effective tender design and evaluation		D. Managing risk	
Assessment criteria	A.1	A.2	B.1	B.2	C.1	C.2	D.1	D.2
	Amount of benefit available to gain from competition	Cost efficiency of tender process	Incentive to participate	Value & frequency of opportunities	Simplicity and efficiency of tender	Effectiveness of tender process	Managing risk of project failure	Managing risk of changes to need
DBT model								
	<b>Similar to the DBO model:</b> would encourage innovation across the project lifecycle.	<b>Similar to the DBO model:</b> potentially costly tenders (but could be costlier depending on handover costs - unclear).	<b>Similar to the DBO model:</b> May invite non-owning participants, but likewise might deter those that want to own over long-term	<b>Similar to the DBO model:</b> Bidders that are only interested in owning / operating would be able to do so in DBO models anyway.	<b>Dissimilar to DBO model:</b> Potentially greater handover frictions (whether transferred to new CATO or TO), but doable as per OFTOs.	<b>Similar to the DBO model:</b> Benefits from early comp. can be realised. Additional tender points at handover may lead to more benefits (but amount unclear).	<b>Similar to the DBO model:</b> Inherent risk of project failure, but can be managed by shortlisting, tender design/evaluation and penalties.	<b>Similar to the DBO model:</b> Inherent risk of needs changing, but can be managed through longer shortlisting period and post-tender mechanisms.

We assume that that enhanced competition feature would continue in any DBT variants.

# A potential DO model: summary evaluation

It is challenging to assess the potential DO model at the current stage due to the key outstanding questions on (i) the size of the problem, (ii) the innovation competition model to address the problem, and (iii) the route to implement a model, if at all. Nonetheless, we have set out an indicative qualitative ranking below based on our conceptual understanding of a potential DO model.

	A. Consumer benefit from competition		B. Attractiveness to investors		C. Effective tender design and evaluation		D. Managing risk	
Assessment criteria	A.1	A.2	B.1	B.2	C.1	C.2	D.1	D.2
	Amount of benefit available to gain from competition	Cost efficiency of tender process	Incentive to participate	Value & frequency of opportunities	Simplicity and efficiency of tender	Effectiveness of tender process	Managing risk of project failure	Managing risk of changes to need
DO model								
	Comp. benefits likely to be a lot lower as comp. is just on ideas and not on delivery / financing. However, comp. may cover other types of needs	Tender process likely to be less costly given comp is just on ideas.	May attract wider types of parties – however not clear of the incremental effect of comp, and whether ideas are credible.	Value expected to be very low (just for ideas and not build out of solutions). Frequency unclear.	Tender design could be made simple, however likely to need complex post-tender change mechanisms and treatments of IP.	Effectiveness may depend on who runs and evaluates tender, and what the interaction / relationship with the TOs would be.	Moderate risk of project failure due to low long-term incentive. Could be mitigated by longer-term rewards and TO involvement.	Unclear, but potentially well managed – change to need will affect decision to build solution, not the design of the solution..



## A1. Appendix – Additional information on models



# Illustration: A two phase tender is valuable when new material information is expected to be uncovered

## Single tender

		Y0	Y1	Y2	Y3
		Tender: single winner	Bidder understands cost better	Bidder understands cost better	Bidder understands cost better
Cost of preparation	Bid 1	£0.5m			
	Bid 2	£1m	£0.6m	£0.9m	£0.5m
Expected cost of solution	Bid 1	£20m ± £5m			
	Bid 2	£15m ± £10m	£20m ± £5m	£18m ± £2m	£20m

Tender prep = £1.5m  
Devex = £2m  
Solution = £20m  
Total = £23.5

## Two-phase tender

		Tender: 2 bidders shortlisted	Bidders refine bids	Bidders refine bids and design initial solution	Bidders refine bids; Final tender decision
Cost of preparation	Bid 1	£0.5m	£0.5m (duplicated cost)	£1m (duplicated cost)	£0.5m (duplicated cost)
	Bid 2	£1m	£0.6m	£0.9m	£0.5m
Expected cost of solution	Bid 1	£20m ± £5m	£18m ± £3m	£16m ± £1m	£15m
	Bid 2	£15m ± £10m	£20m ± £5m	£18m ± £2m	£20m

Tender prep = £1.5m  
Devex = £2m + £2m  
Solution = £15m  
Total = £20.5

Bid 2 is the cheaper option on average in Y0

Each year new info is known

In this stylised example, the cost savings from waiting until there was more information on bid cost outweighs the additional cost of proceeding with two bids in parallel

Cheaper option at each year



Tender



Subsequent tender decision

# Illustration: bid evaluation considerations

## Costs metrics

- Bid for a fixed preliminary works cost, including bidder's return
- Bid a 'best indicative cost' for construction and operation, including bidder's return

## Financing metrics

- Fixed cost of equity and gearing
- Indicative cost of debt and the approach to firm this up later
- Info and assurance on financing strategy

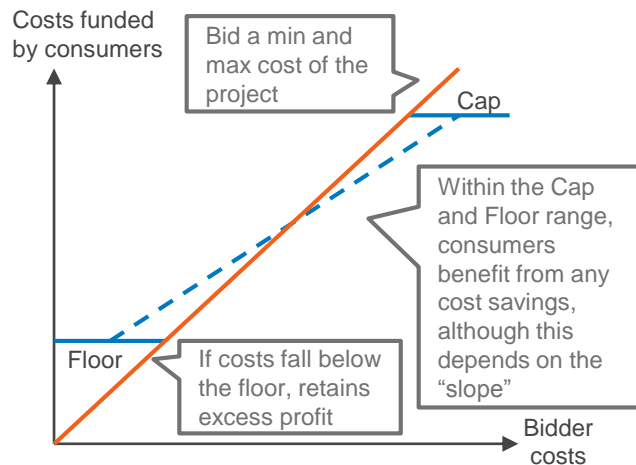
## Options for bid flexibility

- Cap and floor – (1)
- Sharing factors – (2)
- Cost re-openers – (3)

## Technical metrics

- Technical capability
- Solution design (depending on stage)
- Plans for preliminary works
- Earliest-in-service-dates

### Cap and floor – (1)

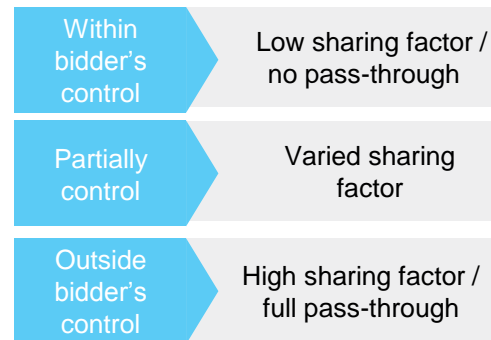


### Sharing factors – (2)

Sharing factors allow alignment of incentives between developers and consumers







- Could use different sharing factors for development and construction phases
- Sharing factors could be set by bidders or the Tenderer
- Could be symmetrical or asymmetrical for cost overruns and savings

### Cost re-openers – (3)



# International Case study Examples

# Summary of onshore transmission case studies

	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	<ul style="list-style-type: none"> <li>For all tender opportunities</li> <li>During annual qual. window</li> </ul>	<ul style="list-style-type: none"> <li>For all tender opportunities</li> <li>Submit at any time</li> </ul>	<ul style="list-style-type: none"> <li>Part of tender process</li> </ul>	<ul style="list-style-type: none"> <li>Must hold transmission licence to participate</li> <li>Can apply for licence at any time</li> </ul>	<ul style="list-style-type: none"> <li>Part of tender process – up to 5 bidders invited to participate in tender</li> </ul>	<ul style="list-style-type: none"> <li>Part of tender process – only shortlisted bidders invited to respond to ITT</li> </ul>
Scope of competition	<ul style="list-style-type: none"> <li>Multi-phase</li> <li>Multiple proposals from same bidder</li> <li>Short term needs excl. (&lt;3yrs)</li> <li>Had a trial run (Artificial Island)</li> </ul>	<ul style="list-style-type: none"> <li>Multi-phase</li> <li>Incumbent TO must participate</li> <li>NNS can be bid &amp; are compared against network solutions</li> </ul>	<ul style="list-style-type: none"> <li>Multi-phase</li> <li>Appears that only transmission solutions are tendered and NNS bypass comp. process</li> <li>CAISO discretion to adapt tender process</li> </ul>	<ul style="list-style-type: none"> <li>Single-phase (except in exceptional circumstances)</li> <li>TO bidder of last resort</li> <li>Relative importance of criteria determined on case-by-case basis</li> </ul>	<ul style="list-style-type: none"> <li>Multi-phase</li> <li>Ad hoc selection of projects for comp. tender</li> <li>Detailed reference design from SO (incl. cost estimate)</li> </ul>	<ul style="list-style-type: none"> <li>Multi-phase</li> <li>Ad hoc competition that is integrated with existing process (RIT-T)</li> <li>First comp. &amp; AEMO will adapt based on key learnings</li> </ul>
Competitive tension between participating parties	No formalised / planned point after tender awarded where incumbent is re-assessed and can be displaced					
	<ul style="list-style-type: none"> <li>Need &amp; solution can be re-assessed due to unexpected changes</li> <li>Ad hoc re-assessment can result in incumbent being replaced</li> </ul>	<ul style="list-style-type: none"> <li>Backstop can displace (winner non-compliance, NYISO revokes pref. selection)</li> <li>TO must provide info to 3<sup>rd</sup> parties</li> </ul>	<ul style="list-style-type: none"> <li>If winner later unable or unwilling to build, can direct TO to build or open new solicitation window</li> <li>Re-evaluation on case-by-case basis</li> </ul>	<ul style="list-style-type: none"> <li>Regulator runs tender</li> <li>Winning bidder can be displaced if project milestones not met</li> </ul>	<ul style="list-style-type: none"> <li>Significant stakeholder engagement before final route decided</li> </ul>	<ul style="list-style-type: none"> <li>Contract negotiations after tender awarded to set terms</li> </ul>
Changes to bid	<ul style="list-style-type: none"> <li>Cost containment incl. in bid</li> <li>Bid improvements allowed only when requested by PJM as part of review</li> </ul>	<ul style="list-style-type: none"> <li>Bid improvements to address deficiencies</li> </ul>	<ul style="list-style-type: none"> <li>Changes to bid or bidder qual. submission if do not meet min. standards</li> </ul>	<ul style="list-style-type: none"> <li>Cost containment not incl.</li> <li>Project need can be reviewed upon request, but no bid improvements</li> </ul>	<ul style="list-style-type: none"> <li>Fixed price bid</li> <li>Change and incentive mechanisms outlined ex-ante</li> <li>Bid changes in some cases</li> </ul>	<ul style="list-style-type: none"> <li>Unclear</li> </ul>
Tender cost	<ul style="list-style-type: none"> <li>Proposal fee (non-refundable)</li> </ul>	<ul style="list-style-type: none"> <li>Devex recoverable for:                             <ul style="list-style-type: none"> <li>Backstop if not triggered or halted</li> <li>Pref. solution if halted</li> </ul> </li> <li>\$100,000 deposit applied to study costs</li> </ul>	<ul style="list-style-type: none"> <li>CAISO assessment costs born by bidders (capped at \$150,000)</li> </ul>	<ul style="list-style-type: none"> <li>Eligible for wind-up costs if project stopped (not needed or no longer economically viable)</li> </ul>	<ul style="list-style-type: none"> <li>CAD \$1mn proposal deposit</li> </ul>	<ul style="list-style-type: none"> <li>Unclear</li> </ul>

# Key lessons learnt from case studies

## Established onshore transmission 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

## New onshore transmission competition

- 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)

## Design competition

- 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.