AEMC

REVIEW

Australian Energy Market Commission

DIRECTIONS PAPER

TRANSMISSION PLANNING AND INVESTMENT REVIEW - CONTESTABILITY

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INQUIRIES

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ABOUT THE AEMC

The AEMC reports to the Energy Ministers' Meeting (formerly the Council of Australian Governments Energy Council). We have two functions. We make and amend the national electricity, gas and energy retail rules and conduct independent reviews for the Energy Ministers' Meeting.

SUMMARY

1 Australia is undergoing a transformational shift to net zero. A key feature of this transformation is the replacement of centralised thermal generation with decentralised renewable generation.

2 There is broad consensus that transmission is a critical enabler for the transition to net zero, both in the national electricity market (NEM) and for the economy more broadly. This transition will require an unprecedented level of investment in, and build of, transmission infrastructure to deliver power from renewable generation and energy storage to consumers, and to deliver infrastructure quickly.

3 The scale of transmission investment required, coupled with the speed of the energy transition, presents unique opportunities and challenges for the existing regulatory framework. This framework was developed and has evolved over a period of incremental growth of the grid rather than the current required pace of step-change growth set out in the Australian Energy Market Operator's (AEMO) Integrated System Plan (ISP).

4 The Australian Energy Marker Commission's (AEMC or the Commission) Transmission planning and investment review (the Review) was established to consider how to ensure that the regulatory framework supports the timely and efficient delivery of major transmission projects, while ensuring investment in these projects are in the long-term interests of consumers.

5 This document is the next report for the contestability workstream of the Review.

The Commission will place the contestability workstream on hold while it progresses the Stage 2 and 3 reforms and closely monitors developments within the jurisdictions

6 The Commission would like to acknowledge and thank stakeholders for their input and feedback to the contestability workstream of the Review to date. For the reasons outlined in this report and summarised below, the Commission has decided to place the contestability workstream of the Review on hold.

7 The Commission recognises that it would be important that any contestability regime in the National Electricity Rules (NER) be implemented on a national basis to achieve material benefits for customers. The initiatives recently announced in some jurisdictions suggest that it is unlikely that it would be possible to implement an agreed consistent approach to contestability across the NEM in the near future. Given this, the Commission considers it is not prudent to commit the significant industry time and resources that would be necessary to develop an agreed national model of contestability at this point in time.

8 In the meantime the Commission considers that it is more appropriate to focus on completing Stage 3 of the Review, and progressing Stage 2 and 3 reforms via any rule changes received. These recommendations represent a proportionate response to many of the key issues identified by stakeholders in respect of the frameworks for planning, funding and delivery of

major transmission projects, including many of the same issues that contestability could address.

9 The Commission will continue to monitor developments in the implementation of jurisdictional contestability regimes in New South Wales and Victoria, and overseas regimes, to understand and capture useful insights and information. The Commission will also continue its close engagement with the jurisdictional governments to understand their appetite to adopt, or adapt to, a national transmission contestability model in the NER, should one be developed in the future.

10 To ensure the AEMC is in a strong position to recommence this work in the future if appropriate, the Commission has undertaken a high-level analysis of the four contestability strawperson models presented in the contestability options paper and has identified a candidate model. In the event this workstream recommences, this candidate model could form a starting point for more detailed work that would be necessary to agree a preferred model and determine its benefits, including carrying out a full cost-benefit assessment. The Commission would also incorporate insights and information from jurisdictional contestability regimes within Australia and overseas into this further and more detailed investigation.

The value of a national contestability framework is likely to be limited due to the various jurisdictional regimes in place or being developed

11 Several stakeholders noted the importance of any approach to contestability being implemented on a nationally consistent basis for it to provide benefits to consumers. However, some stakeholders questioned whether achieving national consistency was realistic and whether a new contestability model in the NER would apply to many, if any, major transmission projects in practice, given existing or recently proposed alternative jurisdictional arrangements.

12 The Commission notes that several states have recently implemented or announced jurisdictional mechanisms that will ultimately reduce the benefits of developing a new national contestability model. These jurisdictional arrangements include the Electricity Infrastructure Roadmap in New South Wales, the Victorian Transmission Investment Framework, the Queensland Energy and Jobs Plan and Queensland SuperGrid Infrastructure Blueprint, and recent government announcements regarding joint government ownership and funding for Marinus Link. The existence of these jurisdictional arrangements means that a transmission contestability regime contained in the NER may not apply to many major transmission projects in practice.

13 The benefits resulting from implementation of a national contestability regime are only likely to be realised where national consistency is largely achieved – that is, where multiple jurisdictions utilise the national regime as the primary mechanism to delivery major transmission projects in their jurisdictions, as an alternative to their current or proposed state-based models for planning and investment in Renewable Energy Zones (REZs) and other major transmission projects.

14 The Commission intends to monitor developments of the jurisdictional governments and their appetite for participation in a national transmission contestability regime contained in the

NER.

The Commission will focus on completing Stage 3 of the Review and progressing the Stage 2 and 3 reforms

15 The Commission intends to focus on completing Stage 3 of the Review and progressing the Stage 2 and 3 recommendations via rule changes (assuming rule change requests are received), as the priority for this Review. The Commission considers that the draft and final recommendations, collectively, present a proportionate response to many of the key issues identified by stakeholders in respect of the frameworks for planning, funding and delivery of major transmission projects.

16 The final recommendations for Stage 2 of the Review, published on 27 October 2022, are designed to help manage uncertainty in the near-term to support the timely and efficient delivery of major transmission projects. The Commission drew on stakeholder feedback to prioritise four key issues we considered could be addressed in the near-term:

- Introducing greater flexibility to mitigate the foreseeable risk that **financeability** concerns may arise for ISP projects
- Providing greater clarity around **social licence** outcomes in the national framework
- Improving certainty over the regulatory treatment of **early works**
- Improving workability of the **feedback loop** will enable it to work as a timely and effective consumer safeguard.

17 The Commission notes that the recommendations for financeability, social licence and the workability of the feedback loop are accompanied by proposed rules and could be progressed immediately if a rule change proponent submits a corresponding rule change request.

18 The Commission's Stage 3 work is exploring several further opportunities to simplify and clarify the arrangements for delivery of major transmission projects to further strengthen incentives for timely and efficient delivery. The Stage 3 draft report, published on 21 September 2022, considers:

- options for changes to the current **economic assessment process** to better support the timely delivery of strategically important projects
- the role of transmission in the transition to net zero, including how **emissions abatement** is currently factored into transmission planning
- the need for additional guidance is necessary to clarify how benefits from **concessional finance** are treated in the framework
- the suitability of a **new incentive mechanism** as a proportionate response to delivery risk associated with transmission network services providers' (TNSPs') exclusive right with no obligation to invest, and
- opportunities to build on existing processes to support TNSPs in managing increased **cost risk and/or uncertainty** associated with major projects.

19 Collectively, these reforms will go some way to addressing the perceived and actual risks associated with the timely delivery of major transmission projects in the NEM, and many of the same issues that contestability could address. The Stage 3 final report is due in April

2023.

More work is required to gather evidence to demonstrate that the benefits of a contestability framework would outweigh the costs

20 In submissions to the contestability options paper, most stakeholders expressed support for the Commission exploring whether increased contestability in the delivery of major transmission projects is likely to deliver benefits to consumers, compared to the provision by monopoly network service providers under the existing regulatory framework.

21 However, the Commission notes that undertaking a meaningful assessment of the costs and benefits of introducing transmission contestability for major transmission projects in the NEM is challenging given the significant work required to develop a detailed design for a contestability model. The ability to undertake such an assessment is also currently hindered by the limited information available on the costs and benefits of contestability regimes in other jurisdictions.

22 The Commission will continue to carefully monitor developments in the implementation of jurisdictional contestability regimes in New South Wales and Victoria, and overseas regimes, to understand and capture useful insights and information. This information will help to inform any future cost-benefit assessment of a national contestability model in the NER.

Stakeholders preferred a model of contestability based on option 2

23 The Commission has undertaken a high-level analysis of the four contestability strawperson models presented in the contestability options paper based on feedback from stakeholders to the options paper. This analysis identifies a variant of option 2 as the model of contestability that is most aligned with the feedback from stakeholders. This candidate model shares many of the features of the model of contestability that is currently being implemented in New South Wales, and some key elements of the proposed Victorian Transmission Investment Framework model and role of VicGrid in Victoria.

24 This analysis has been undertaken primarily for the purpose of summarising and providing feedback on stakeholder preferences and may represent a useful starting point for any subsequent more detailed work, but should not be taken as a preferred model at this stage.

25 The candidate model would involve:

- Competition for the delivery of a solution that is identified and selected through the current ISP and regulatory investment test processes
- Bidders would compete to construct, own, operate and maintain the project
- A jurisdictional body would have overall responsibility for planning, engagement and preparatory activities and undertaking the competitive tender process
- Bidders would respond to an indicative specification developed by the jurisdictional body. This indicative specification would be set at a higher level than the detailed technical specification proposed in option 2, with bidders able to propose alternative solutions. This change from the previous option 2 incorporates elements of options 3 and 4 in response

to feedback in some submissions that those options could better incentivise innovation in the design of the solution and the adoption of efficient non-network solutions

- The Australian Energy Regulator (AER) would regulate the successful tenderer's revenues, largely based on the tender outcomes.

26 In the event this workstream recommences, the preferred candidate model could form a starting point of the Commission's work which would need to include a full cost-benefit assessment and consider any insights from jurisdictional regimes within Australia or internationally in the meantime.

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APPENDICES

TABLES

1 INTRODUCTION

This chapter provides a brief overview of the Transmission planning and investment review (the Review). It describes the different stages and associated milestones and timeframes. It also briefly describes the purpose and structure of this report.

1.1 The Review's purpose is to explore options to support the timely and efficient delivery of major transmission projects

Australia is undergoing a transformation to net zero. A key feature of this transformation is the replacement of centralised thermal generation with decentralised renewable generation. There is broad consensus that transmission is a critical enabler of the transition of both the national electricity market (NEM) and the broader economy and that the speed and scale of decarbonisation of the NEM require substantial investment in and build of transmission infrastructure to bring power from renewable generation and storage to consumers.

The current framework was developed and has evolved over a period of incremental growth, not the current level of step-change growth set out in the Australian Energy Market Operator's (AEMO's) Integrated System Plan (ISP). The scale of this investment combined with the speed of the energy transition means that it is appropriate to consider whether the current regulatory framework is sufficiently flexible to support the timely and efficient delivery of major transmission projects, while ensuring the right investments are made and that these are in the long-term interests of consumers.

In this context, the Australian Energy Market Commission (AEMC or the Commission) commenced a review of the transmission planning and investment framework as it applies to major transmission projects in the NEM. The purpose of the Review is to ensure that the regulatory framework can effectively manage the increased uncertainty associated with these projects and so can continue to facilitate their timely and efficient delivery for the benefit of consumers.

1.2 The priority issues to be addressed via the Review have been separated into several areas given their range and complexity

As part of Stage 1 of the Review, the AEMC published a consultation paper seeking feedback from stakeholders on several issues associated with the frameworks for planning, funding and delivery of major transmission projects. It also sought feedback from stakeholders on the materiality of each issue to inform the AEMC in identifying the issues with the greatest potential to materially impact the timely and efficient delivery of major projects.

The AEMC subsequently separated the priority issues for the review into several workstreams:

- **Stage 2: Near-term reforms** - This stage focused on recommendations to help manage uncertainty in the near-term, with resolution of issues potentially being able to

be implemented sooner. A final report for stage 2 of the Review was published on 27 October 2022.[1]

- **Stage 3: Longer-term reforms** - This stage considers priority issues of considerable complexity which may take longer to implement. A draft report for Stage 3 of the Review was published on 21 September 2022.[2] We intend to publish a final report in March 2023.
- **Contestability workstream** - This workstream focuses on delivering a recommendation on whether contestability should be explored in more detail, and if so, in what form. An options paper was published on 7 July 2022. This workstream is the subject of this report.

The AEMC's consideration of contestability as a potential solution to the risk of non-delivery of major transmission projects was originally included within Stage 3 of the Review (longer-term reforms). However, a separate contestability workstream was established for the reasons set out in our contestability options paper.

1.3 Our options paper sought feedback on matters relevant to our early analysis

The options paper for the contestability workstream, published in July 2022, sought stakeholder feedback on several matters relevant to our analysis and subsequent decision on whether there is a benefit in exploring contestability in detail and, if so, in what form.[3]

Specifically, we sought feedback on:

- our spectrum of four contestability strawperson options
- our proposed assessment framework for this workstream, and
- some of the key considerations for identifying projects suitable to contestable delivery.

We received 16 submissions to this options paper.[4] The Consumer Reference Group (CRG) for the Review also met to discuss the options paper. The feedback from that meeting has been published as a joint submission from the CRG.

In tandem with the options paper, we also published a report titled *Contestability in transmission – International and domestic examples – Case studies* prepared by KPMG for the AEMC and Australian Energy Regulator (AER).[5] This report provides an overview of international and domestic experiences of transmission contestability and observations on key lessons for the NEM. We encouraged stakeholders to consider the content of this report when providing feedback on the matters outlined in the options paper.

1 AEMC, Transmission planning and investment - Stage 2, Final report, 27 October 2022, available here.
2 AEMC, Transmission planning and investment - Stage 3, Draft report, 21 September 2022, available here.
3 AEMC, Transmission planning and investment - Contestability, 07 July 2022, available here.
4 Submissions are available on the project page here.
5 KPMG, *Contestability in transmission – International and domestic examples – Case studies*, a Report prepared for the AEMC and AER, 7 July 2022 is available here.

1.4 The purpose of this report is to outline our proposed approach to further work on contestability

This report provides a summary of stakeholder submissions to our options paper, our responses to those submissions and our proposed approach to further work on contestability. It also provides a high-level analysis of the contestability strawperson models presented in the options paper and identifies a candidate model that seems most closely aligned with stakeholder preferences.

Many stakeholders noted that it would be important for any approach to contestability be implemented on a national basis to achieve material benefits for customers. They noted however that with the initiatives recently announced in some jurisdictions it is unlikely that it would be possible to implement an agreed consistent approach to contestability across the NEM in the near future. The Commission agrees with this perspective, and as a consequence does not think it is prudent to commit the significant industry time and resources that would be necessary to develop an agreed model for contestability at this time.

In the meantime the Commission considers that it is more appropriate to focus on completing Stage 3 of the Review, and progressing Stage 2 and 3 reforms via any rule changes received. These recommendations represent a proportionate response to many of the key issues identified by stakeholders in respect of the frameworks for planning, funding and delivery of major transmission projects, including many of the same issues that contestability could address.

We have also used stakeholder submissions to inform an initial high-level analysis of the four strawperson contestability models that we set out in the options paper. As a result of that analysis, we have identified and developed a proposed "candidate model" of transmission contestability. This is primarily to summarise the feedback from stakeholders, but could also be used as a starting point for potential further consideration if this workstream recommences in the future.

1.5 Our assessment framework for this workstream

This section sets out the Commission's assessment framework for this workstream which is consistent with assessment framework for the broader Review. It discusses the overarching National Electricity Objective (NEO) that guides all the Commission's work in relation to electricity. It then outlines the criteria that we will use in testing whether reforms to the regulatory framework promote the NEO. We also note the feedback received from stakeholders on the assessment framework in submissions to the options paper.

1.5.1 The National Electricity Objective guides the Commission's work

This Review is considering potential changes to the NER. As such, the national energy objective relevant to this Review is the National Electricity Objective (NEO):[6]

> "to promote efficient investment in, and efficient operation and use of, electricity

6 Section 7 of the NEL.

> services for the long term interests of consumers of electricity with respect to:
>
> (a) price, quality, safety, reliability and security of supply of electricity and
>
> (b) the reliability, safety and security of the national electricity system."

Consistent with the terms of reference for the Review, the Commission considers that the relevant aspects of the NEO are the promotion of efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to price, quality, safety, security and reliability.[7]

In considering the potential for changes to the regulatory framework currently supporting the planning and delivery of major transmission projects in the NEM, we will consider whether a particular change is likely to promote more efficient decisions across these activities. Ultimately, this would promote the long term interests of consumers.

1.5.2 Assessment criteria will inform the commission's decision-making

We will use the criteria set out in the table below to guide our assessment of whether potential changes to the regulatory framework supporting the planning and delivery of major transmission projects in the NEM are likely to promote the NEO.

Table 1.1: **Assessment criteria for the contestability workstream of the Review**

CRITERIA	EXPLANATION
Timeliness	Do the arrangements promote and appropriately balance **the timely and efficient delivery of major transmission projects** (eg delivery at the optimal time identified in the ISP and avoiding delays that are likely to reduce the net benefits of the project for consumers)? Do the arrangements risk creating additional **complexity and coordination challenges** and, if so, are there appropriate mechanisms in place to manage those risks and avoid inefficient delays?
Efficiency	Do the arrangements promote efficient investment in, and use of, electricity services in the long term interests of consumers with regard to: **Cost** – incentivising productive efficiency so that regulated revenues for transmission

7 Terms of reference are available on the project webpage here.

CRITERIA	EXPLANATION
	services reflect the efficient costs of providing the services **Innovation –** enabling and incentivising innovative solutions and delivery methods that can reduce costs and/or increase benefits, including non-network alternatives **Risk allocation –** allocating risks to the parties who are best placed to manage them and have the incentives to do so efficiently **Incentives –** providing effective incentives for all parties involved in the transmission planning and investment process to make efficient decisions **Materiality of benefits –** focusing on those functions and types of projects where the benefits of competition are likely to be the most material **Wholesale market outcomes –** facilitating efficient generation investment, connection process and wholesale market competition
Flexibility	Are the arrangements consistent with the **long term direction of energy market reform**? Are the arrangements flexible enough to **accommodate uncertainty** regarding future technological, policy and other changes? Do the arrangements **facilitate consistency between jurisdictions**, including accommodating existing jurisdictional differences where appropriate?
Accountability and transparency	Do the arrangements promote **clear accountability for security, reliability and safety** of the operation of the transmission system? Do the arrangements promote **clear allocation of responsibilities** for each

CRITERIA	EXPLANATION
	stage of the planning and investment process, with responsibility for each stage assigned to the entity who is best placed to perform it effectively? Is there clear **overall accountability for the transmission system** in each region, including clear responsibility and coordination on related matters such as pricing and connections? Do the arrangements facilitate effective **consumer and local community engagement and appropriate transparency** in the planning and investment processes?
Implementation	Are the arrangements **clear and predictable?** What are the expected **costs of implementing** the changes and compliance costs? How **complex** will the changes be to implement? Is implementation dependent on agreement to changes to legislation or jurisdictional instruments? How long will implementation take and what does that mean for the **timeframe to realise the benefits?**
Decarbonisation	Will the arrangements enable decarbonisation of the energy market? How will the arrangements impact the pace of decarbonisation of the energy market?

1.5.3 Stakeholder feedback on the assessment framework

In submissions to the options paper, most stakeholders supported the assessment framework proposed in that paper.[8] Some stakeholders proposed adding additional assessment criteria. For example:

8 Submissions to the options paper: PIAC, AGL, Iberdrola, Ausgrid, TasNetworks, AEMO, CEIG, AER.

- the AER recommended that the assessment framework include the need for a whole-of-system approach to transmission planning – that is, the outcomes of the ISP[9]
- Capella Capital suggested adding market and workforce development, social procurement and stakeholder management,[10] and
- the Australian Energy Counicl (AEC) proposed adding an assessment criterion that addresses monopoly power and a criterion related to how each option reveals the efficient price for investments and how this could assist the AER in its regulation of TNSPs.[11]

We have not amended our assessment framework criteria based on these submissions as we consider that the relevant aspects of these issues that are within scope of the NEO can be considered within the existing criteria.[12]

Stakeholders also had different views on how the six assessment criteria should be weighted or prioritised. We do not propose to expressly weight the criteria for our initial analysis in this report.

1.5.4 Structure of this report

The remainder of this paper is structured as follows:

- **Chapter 2:** sets out stakeholder feedback to the options paper, the implications for this workstream and the reasons for our revised approach to considering contestability
- **Chapter 3:** sets out our initial analysis of the strawperson models of contestability outlined in the options paper, having regard to the assessment framework and stakeholder feedback. It also identifies a candidate strawperson model of contestability and provides an initial analysis of this model against the assessment framework
- **Appendix A:** provides information on transmission projects under the British and United States contestable regimes
- **Appendix B:** provides a summary of the contestability strawperson options, the counterfactual and the candidate model.

9 AER submission to the options paper, p. 3.

10 Capella Capital submission to the options paper, p. 4.

11 AEC submission to the options paper, p. 3.

12 For example, the "accountability and transparency" criterion will consider whether the arrangements facilitate effective consumer and local community engagement and appropriate transparency in the planning and investment processes. We consider this criterion would largely capture the relevant issues raised by Capella Capital.

2 APPROACH TO CONSIDERATION OF TRANSMISSION CONTESTABILITY

The Commission would like to acknowledge and thank stakeholders for their input and feedback to the contestability workstream of the Review to date.

In submissions to the options paper, most stakeholders expressed support for our work exploring whether increased contestability in the delivery of major transmission projects is likely to deliver benefits to consumers, compared to the provision by monopoly network service providers under the existing regulatory framework. Several stakeholders noted the importance of any approach to contestability being implemented on a nationally consistent basis for it to provide benefits to consumers.

However, some stakeholders questioned whether such national consistency was realistic and whether a new contestability model in the NER would apply to many, if any, major transmission projects in practice, given existing or recently proposed alternative jurisdictional arrangements.

Before committing significant industry time and resources to developing a national transmission contestability model in the NER, the Commission wishes to focus on completing Stage 3 of the Review, and progressing the Stage 2 and 3 reforms via rule changes (if received). Collectively, these recommendations present a proportionate response to many of the key issues identified by stakeholders in respect of the frameworks for planning, funding and delivery of major transmission projects and many of the same issues that contestability could address.

In particular, the recommended Stage 2 and 3 reforms in relation to financeability, concessional finance, social licence, early works and the potential stage 3 reforms on a timely delivery inventive, concessional finance and reforms to the economic assessment framework, all address some of the key risks that have been identified around the timely delivery of major transmission projects in the NEM.

The Commission notes that the contestability workstream was initiated in response to a concern about potential delays arising from incumbent TNSPs having an exclusive right but no obligation to undertake major transmission projects. The implementation of the recommendations from Stage 2 and 3 via rule change requests, together with jurisdictional powers to direct TNSPs to undertake major projects in most jurisdictions and the Rewiring the Nation fund, mean that this concern is less likely to be a material issue in the future.

In the meantime, the Commission will continue to monitor developments in the implementation of jurisdictional contestability regimes in New South Wales and Victoria, and overseas regimes, to understand and capture useful insights and information. The Commission will also continue its close engagement with the jurisdictional governments to understand their appetite to participate in a national transmission contestability regime in the NER, should one be developed in the future.

To ensure we are in a strong position to recommence this work in the future if the Commission considers there is a case for and material benefits to be obtained from a national contestability framework, we have undertaken a high-level analysis of the four strawperson models and have identified a preferred candidate contestability model. Consistent with feedback from stakeholders on the four contestable strawperson models presented in the options paper, we have identified a variant of option 2 (incorporating elements of options 3 and 4) as the candidate model preferred by stakeholders. In the event this workstream recommences, the preferred candidate model will be the starting point for a full cost-benefit assessment.

The remainder of this chapter sets out:

- a summary of stakeholder views on key aspects of the contestability options paper
- implications on jurisdictional contestability regimes for the application of any national contestability regime, and
- the challenges in undertaking a meaningful cost-benefit assessment at this time.

2.1 Stakeholder feedback to the options paper

While many stakeholders supported the AEMC's consideration of a national contestability framework, several questioned whether a national contestability regime would, in practice, be implemented in sufficient time to apply to many major transmission projects in the NEM. In addition, several stakeholders emphasised the importance of clear and identifiable evidence of long-term benefits for customers being provided before any contestability model is pursued.

Of the four contestability strawperson models presented in the options paper, stakeholders expressed a clear preference for option 2 – that is, the model based on the contestability regime currently being implemented in New South Wales and shares many key features with proposed Victorian arrangements.

Stakeholder views are outlined below.

2.1.1 Many stakeholders supported consideration of a national contestability framework

In submissions to the options paper, most stakeholders expressed support for consideration of a national model of transmission contestability. For example:

- The AER considered that contestability can address or avoid many of the issues identified with the current regulatory framework, including potential issues with the financeability of major transmission projects. It also considered that contestability could, in principle, facilitate competitive provision of new infrastructure at efficient cost.[13]
- The Clean Energy Investor Group (CEIG) supported the introduction of a contestability framework on the basis that private investors have greater capacity and capability to

13 AER submission to the options paper, p. 1.

deliver the large scale of investment required in the NEM. The CEIG also considered that it is valuable to consider a long-term, national approach to contestability.[14]

- AGL supported increased contestability on the basis that it has the potential to enhance the efficiency of transmission investments by providing competitive pressure on TNSPs. Contestability may also mitigate the risk of a TNSP deciding not to invest, reduce the risk of delays in transmission build due to reliance on one provider and provide an alternative if legitimate financeability issues occur for TNSPs.[15]
- APA supported the adoption of contestability to help drive innovation, more timely service delivery, and better outcomes for customers.[16]

Several stakeholders also noted the importance of any approach to contestability being implemented on a nationally consistent basis. Stakeholders commented that:

- a national approach to contestability is important as it will draw private investment to transmission projects[17]
- it is important to promote national coordination in planning to identify least-cost development pathways to support the energy transition[18]
- future harmonisation is important, and any model should align with existing jurisdictional models in Victoria and New South Wales,[19] and
- the AEMC should focus on models that are likely to be accepted as a long-term nationally consistent model across all NEM jurisdictions.[20]

2.1.2 Some stakeholders questioned whether a national contestability framework would apply to many major transmission projects in practice

Some stakeholders questioned whether national harmonisation in transmission planning and investment arrangements was realistic. They cautioned that a national contestability framework would be unlikely to apply to most new major transmission projects identified as needed in the NEM, given current jurisdictional policies for the planning and delivery of REZs and other major transmission projects. In particular:

- A member of the CRG considered it unlikely that a national contestability framework would apply to many projects, noting that the arrangements would unlikely be in place in time to apply to the 2022 ISP projects, and that future projects in Victoria, NSW and Queensland would likely be captured under those states' jurisdictional planning and investment regimes. As such, depending on the definition and minimum value of a 'major transmission project', this member considered that a national framework may have little or no application to critical transmission projects over the next decade or more.[21]

14 CEIG submission to the options paper, pp. 2, 6.
15 AGL submission to the options paper, p. 2.
16 APA submission to the options paper, p. 2.
17 Iberdrola submission to the options paper, p. 3, CEIG submission to the options paper, pp. 2, 6.
18 AER submission to the options paper, p. 3.
19 Snowy Hydro submission to the options paper p. 2.
20 ENA submission to the options paper, p. 13.
21 Minutes of the CRG meeting on 29 August 2022 – available here.

- Energy Networks Australia (ENA) also acknowledged the alternative jurisdictional frameworks that have been adopted in New South Wales and Victoria, as well as the proposed reforms to the Victorian transmission planning and investment arrangements and the proposed new Queensland Renewable Energy Zone (QREZ) arrangements in Queensland. In this context, it considered that the benefits of a NER contestability model are likely to be smaller than anticipated if compared with the current NER arrangements as the counterfactual.[22]

Snowy Hydro supported consideration of contestability as a long-term reform but considered that investment decisions on critical transmission should not be delayed by the outcome of the Commission's decision on contestability.[23]

2.1.3 The importance of clear and identifiable evidence of long-term benefits for customers was highlighted by several stakeholders

Several stakeholders supported the AEMC undertaking a detailed assessment of the costs and benefits before making a decision whether to recommend contestability.[24] For example, Transgrid considered that a new framework for contestability should only be introduced if the Commission's cost-benefit analysis provides a high level of assurance that it will deliver a net benefit to consumers.[25]

However, submissions were all relatively high-level in terms of the costs and benefits of introducing increased contestability in the NEM. The assessment framework was not applied by stakeholders to provide more detailed views on the merits of the strawperson options against the counterfactual and stakeholders did not provide any new information on the costs and benefits of contestability as observed in other jurisdictions, to inform any cost-benefit assessment.

That said, members of the CRG shared the following views:[26]

- It will be difficult to quantify the potential cost impacts of contestability, noting there is no publicly available information on the outcomes of contestable tender processes and no quantification of benefits in material developed to date.
- Some of the models may add layers of costs and complexity to the system while only adding little-known and uncertain benefits for consumers. The assessment of models should include the costs and benefits to end consumers.
- Risk and cost should be separated, and consumers should only pay for investments if they prove prudent – that is, where there are other savings made as a result of incurring these costs.
- Contestability may not deliver benefits in practice in Australia, particularly in the next decade, given the large number of electricity network projects planned and the small number of suitable engineering, procurement and construction contractors in Australia.

22 ENA submission to the options paper, p. 10.
23 Snowy Hydro submission to the options paper, p. 1.
24 Submissions to the options paper: Transgrid, Ausgrid, TasNetworks, ENA.
25 Transgrid, submission to the options paper, p. 2.
26 Minutes of the CRG meeting on 29 August 2022.

The Commission agrees that will be very important to clearly demonstrate the benefits of contestability through a rigorous cost-benefit analysis prior to any decision to implement such a regime. However, we acknowledge the considerable difficulty in being able to achieve this given the lack of publicly available information on the costs and benefits of schemes introduced in other jurisdictions, and the relative scarcity of similar examples.

2.1.4 Most stakeholders preferred strawperson 2

Stakeholders held a variety of views on the four strawperson models set out in the options paper. However, most stakeholders considered that option 2 was their preferred strawperson option. Option 2 is contestability for delivery solutions identified through the ISP or regulatory investment test for transmission (RIT-T) process plus a jurisdictional body having increased responsibility for planning and engagement,

Stakeholders generally considered that the four strawperson models adequately covered the spectrum of potential contestability options and did not propose any alternative models. The exception was the Public Interest Advocacy Centre (PIAC), who proposed a modified version of option 1 (noted below).

Option 1 (contestability for construction and ownership) in the form proposed in the options paper was not supported as the preferred model in any submissions. PIAC supported a modified version of option 1 which would involve contestable financing and construction but where ownership remained with the Primary TNSP. Most stakeholders considered that option 1 would offer limited potential benefits and should not be progressed further.[27]

Option 2 (contestability for delivery of solutions identified through the ISP or RIT-T process plus a jurisdictional body having increased responsibility for planning and engagement, based on key features of the NSW model) was supported as the preferred model, or one of the preferred models, by numerous stakeholders including AGL, Capella Capital, Iberdrola, Ausgrid, TasNetworks, ENA, CEIG and the AEC. No stakeholders expressly opposed further consideration of option 2.

Option 3 (contestability for the delivery of solutions identified through the ISP or RIT-T plus AEMO's current Victorian declared network functions) had limited support. The CEIG, Capella Capital and the AEC supported either option 2 or option 3. APA supported either option 3 or option 4.[28] AGL supported further assessment of option 3 on the basis that it should not be difficult to implement as other states could opt into the existing framework in the National Electricity Law (NEL) and NER.[29] In contrast, several stakeholders considered that option 3 should not be pursued further on the basis that no other jurisdiction has adopted this existing framework, this model is currently undergoing significant change in Victoria that implies it is not fit-for-purpose, and AEMO's expanded planning role under this model would be a significant change with implications beyond contestability.[30]

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27 Submissions to the options paper: AGL, Iberdrola, Capella Capital, ENA, AEC, AusNet Services, Ausgrid.

28 APA submission to the options paper, p. 8.

29 AGL submission to the options paper, p. 2.

30 Submissions to the options paper: TasNetworks, Iberdrola, Transgrid, Ausgrid.

Option 4 (early competition for the development and delivery of solutions to meet a need identified in the ISP process) was only supported by a small number of stakeholders. The AEC considered that option 4 should be explored as some derivative of it may be appropriate for a limited number of system needs where it may draw out more innovative and cheaper solutions than would normally be considered by AEMO.[31] Engie and the AER supported this option on the basis that it could maximise the potential for innovation, efficiency and long run benefits for consumers, although noting it would be more complex to implement.[32]

However, most other stakeholders opposed option 4.[33] These stakeholders considered that while option 4 may provide opportunities for innovation in theory, it would be highly complex to deliver and implement in practice. It would also require significant changes to the ISP, would only be effective if adopted in every jurisdiction, may slow investment, and would not assist with delivery of the current ISP projects.[34]

The CRG commented that options 3 and 4 have too much risk being borne by consumers and may also create social licence issues due to multiple prospective proponents undertaking their own community engagement processes.[35]

Stakeholder views on the strawperson models are discussed in more detail in chapter 3.

2.2 Jurisdictional regimes have implications for the application of any national contestability regime

The comments made by the CRG and ENA regarding the implications of jurisdictional-specific transmission arrangements on the likelihood and practical application of any NER-based national transmission contestability regime highlight an important issue that has helped inform our approach to this workstream.

Several jurisdictions have recently announced or implemented their own state-based approaches to planning and investment for REZs and other major transmission projects. This includes the Electricity Infrastructure Roadmap in New South Wales, the Victorian Transmission Investment Framework, and the Queensland Energy and Jobs Plan and Queensland SuperGrid Infrastructure Blueprint, as discussed in Box 1 below.

BOX 1: JURISDICTIONAL APPROACHES TO TRANSMISSION INVESTMENT AND THE IMPLICATIONS FOR THE POTENTIAL APPLICATION OF ANY NER-BASED NATIONAL CONTESTABILITY REGIME

New South Wales

31 AEC submission to the options paper, p. 3.

32 AER submission to the options paper, p. 3, Engie submission to the options paper, p. 4.

33 Submissions to the options paper: CEIG, Iberdrola, TasNetworks, Capella Capital, AusNet Services, Ausgrid, AGL, Engie, ENA and AEMO.

34 Submissions to the options paper: CEIG, Iberdrola, TasNetworks, Capella Capital, AusNet Services, Ausgrid, AGL, Engie, ENA, AEMO.

35 Minutes of the CRG meeting on 29 August 2022.

New South Wales (NSW) has implemented a state-based regime for the planning and delivery of major transmission projects through the *Electricity Infrastructure Roadmap and the Electricity Infrastructure Investment Act 2020* (NSW) (EII Act).[1]This regime applies to REZ network infrastructure projects and priority transmission infrastructure projects that are authorised or directed by the Consumer Trustee or Minister. These projects are regulated under the EII Act rather than the NER planning and economic regulation provisions. This framework includes an approach to contestability that is similar to the model in option 2 of the options paper.

Actionable and future ISP projects in NSW identified in the 2022 ISP, other than Humelink, will be delivered under this EII Act framework rather than the NER (HumeLink, is being developed by Transgrid under the NER). A national contestability framework for major transmission projects under the NER is therefore unlikely to have any application in NSW unless NSW departs from its current approach under the Roadmap and EII Act.

Victoria

Major transmission projects in Victoria are currently governed by the contestability framework for adoptive jurisdictions in the NEL and NER. This framework currently only applies in Victoria and is similar to the model in option 3 of the options paper. It applies to most new separable transmission projects valued at over $10 million.

The Victorian government recently announced major changes to the framework for transmission planning and investment in Victoria through the proposed Victorian Transmission Investment Framework (VTIF).[2] The VTIF would apply to the whole of Victoria's transmission network. It would implement new planning, access, engagement and economic assessment arrangements that would apply instead of the relevant NER arrangements. VicGrid would have significant new roles and functions in administering this regime. Contestability would continue to apply, but with potential changes to the current Victorian contestability arrangements. Any national contestability framework is therefore unlikely to apply in Victoria unless Victoria departs from the proposed approach under the VTIF.

Queensland

Queensland recently published the Queensland Energy and Jobs Plan and Queensland SuperGrid Infrastructure Blueprint.[3] These papers follow previous consultation on the development of aspects of the 'QREZ' regulatory framework for REZs in Queensland.[4]The incumbent TNSP in Queensland, Powerlink, is wholly owned by the Queensland government.

The Queensland Energy and Jobs Plan and SuperGrid Infrastructure Blueprint propose significant investment in new generation, storage and transmission, including 1,500 km of new backbone transmission. These documents provide for Powerlink to have a key role in delivering this plan, including design, planning, early works and initial investments for REZs and backbone transmission.

Powerlink will lead early design and planning for the SuperGrid backbone transmission, with the Queensland government to investigate appropriate legislative models to support backbone

transmission in 2023.

Powerlink will also be established as the 'Designed Planning Body' for transmission in QREZ regions, will work with government to develop a longer-term QREZ Roadmap and will develop detailed REZ Management Plans for each declared REZ outlining the specific infrastructure investment, location and capacity.

These extensive roles for Powerlink do not align with any of the strawperson contestability models in the options paper.

Tasmania

The incumbent TNSP in Tasmania, TasNetworks, is wholly owned by the Tasmanian government. Marinus Link Pty Ltd has been established to develop Marius Link, which is the only actionable or future ISP project in Tasmania in the 2022 ISP. In October 2022, the Australian, Tasmanian and Victorian governments announced an agreement for joint government ownership and funding arrangements to progress Marinus Link.[5] Any NER contestability model would not apply to Marinus Link, so it is unclear whether it would apply to any projects in Tasmania in the next 10-15+ years.

South Australia

South Australia has not established a state-based regime for major transmission developments and its incumbent TNSP, ElectraNet, is privately owned. Several major projects from the 2020 and 2022 ISPs are currently being implemented by ElectraNet, including the SA Energy Transformation Project (Project Energy Connect). Once these projects are completed, there are no other actionable ISP projects in South Australia in the 2022 ISP and the only future ISP projects are two REZ expansions. It is unclear whether these REZ expansion projects would be sufficiently 'separable' or 'high-value' to meet the likely criteria for contestability under any national contestability framework.

It is therefore unclear whether any contestability framework would apply to any projects in South Australia in the next 10-15+ years.

Australian Capital Territory

There is only a small amount of transmission network in the Australian Capital Territory (ACT) and there are no actionable or future ISP projects in the ACT in the 2022 ISP.

Source: [1]More information on the NSW Roadmap is available here. [2]Department of Environment, Land, Water and Planning, *Victorian Transmission Investment Framework Preliminary Design Consultation Paper*, July 2022, available here. [3]Queensland government, *Queensland Energy and Jobs Plan*, September 2022. Queensland government, *Queensland SuperGrid Infrastructure Blueprint*, September 2022. Available here.[4]More information on the QREZ regulatory framework is available here. [5]See here.

The existence of these jurisdictional regimes means that any contestability model developed by the Commission for inclusion in the NER will not apply to all (and indeed most) major transmission projects in most NEM jurisdictions, unless the relevant governments modify their current or proposed jurisdictional approaches to require the delivery of REZ and other state based priority projects under the national regime (or at least consistent with the national regime).

Several submissions expressed support for the AEMC developing a national framework that would align with key features of the New South Wales and Victorian contestability regimes, to promote national harmonisation.

However, a national framework would not have any application in Victoria unless that jurisdiction amended existing jurisdictional legislation to adopt the national regime in place of current arrangements. A national framework would also only have NEM-wide effect if it was adopted for major transmission projects by other jurisdictions, including New South Wales where all currently forecast major transmission projects will be delivered under the EII Act (see Box 1 above), and Queensland and Tasmania where the current incumbent TNSPs are government-owned. In Queensland, that would require changes to the recently announced Queensland Energy and Jobs Plan.

Although several of the strawperson models proposed in the options paper were designed so that they could be adopted by jurisdictions on an opt-in basis,[36] we do not consider that they would deliver material benefits to consumers unless adopted by multiple jurisdictions. We also note that strawperson 4 would need to apply in every NEM jurisdiction to retain integrated planning across the NEM and a version of the ISP process. National application would also be necessary to ensure the assessment of the relative benefits of solutions located in different regions or that cross regional boundaries, and the assessment of interactions and sequencing between solutions located in different regions, was effective.

The Commission recognises that introducing contestability for major transmission projects would be a major industry reform. Undertaking a detailed review and/or rule change process to develop and assess the necessary national law and rules changes, and jurisdictional reforms, to implement the national framework would require a significant commitment from industry and the market bodies in terms of time and resources. Importantly, this would impact on our ability to progress other AEMC and Energy Security Board (ESB) priority projects.

The Commission's is therefore focusing efforts on progressing the Stage 2 and 3 recommendations where rule change requests are received, as a proportionate and timely means of addressing stakeholder concerns regarding efficient and timely delivery of major transmission projects. Once implemented, the Commission will be in a stronger position to form a view on the counterfactual arrangements, and whether there are any remaining gaps in the regulatory framework that could be addressed by implementation of a national contestability regime, for the benefit of consumers.

36 In the options paper, we indicated that several of the strawperson models could be applied by jurisdictions on an opt-in basis, rather than automatically applying in every NEM jurisdiction. Providing jurisdictions with control over whether to apply a national contestability regime in the NER is appropriate given the commitments made by some jurisdictions to implement jurisdictional approaches to transmission planning and delivery. Further, several of the strawperson models would require changes to be made to jurisdictional laws and regulations, in addition to national laws and rules. It would be extremely challenging (if not impossible) to participate in a national contestability regime without jurisdictions making the necessary changes to their relevant jurisdictional legislation. As such, arrangements which enable jurisdictions to explicitly "opt-in" to the national regime is likely to be appropriate where the model allows (note - this is unlikely to be appropriate for strawperson 4, as explained in chapter 3).

2.3 The challenges in undertaking a detailed cost-benefit assessment at this time

In submissions to the options paper, several stakeholders supportive of our investigation of contestability recommended that we accelerate the review by moving directly to a rule change process or detailed cost-benefit assessment.[37] In contrast, several other stakeholders who considered that the benefits of a national contestability model were unclear, considered a detailed cost-benefit assessment was required before recommending such a fundamental change.[38]

Other than in very limited circumstances,[39] the AEMC cannot move directly to a rule change process without a person submitting a rule change request. Any such request must provide reasons why the proposed change is likely to promote the NEO.[40] In addition, as noted in our options paper, all the strawperson contestability models would likely require changes to the NEL, jurisdictional licensing regimes and other jurisdictions instruments. The establishment of new jurisdictional bodies, or the conferral of new functions on existing bodies, will also be required. This means that the required changes could not be implemented solely through an AEMC rule change process. Any NER-based contestability regime we develop may also have very limited application unless jurisdictions amend their state-based transmission planning and investment regimes, as discussed above.

The Commission also recognises the challenges of undertaking a cost-benefit assessment when there is very limited publicly available information on the costs and benefits of contestability in other jurisdictions. In submissions to the options paper, stakeholders did not provide information on the likely costs and benefits of contestability based on experiences in and observations from other jurisdictions in Australia or overseas. The exception to this was the submission from the AER which referred to the potential cost savings identified in the KPMG report for the Hartburg-Sabine and Western New York projects.[41] These examples are explored further in Appendix A.

As noted by KPMG in its report, several jurisdictions in Australia and overseas have implemented contestability regimes or are in the process of doing so.[42] However, it is important to note that few projects have been delivered under these regimes to date. In addition, of the projects that have been delivered, none are comparable in size or complexity to the major transmission projects contemplated by this review. There is also very limited publicly available information on the costs and benefits of delivering those projects through a contestable process, compared to a regulated non-contestable solution. Box 2 below discusses these issues in the context of the New South Wales and Victorian contestability regimes.

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37 Submissions to the options paper: AGL, p. 1, CEIG, p. 1, AER, p. 2.

38 Submissions to the options paper: Transgrid, Ausgrid, TasNetworks, ENA.

39 That is, where a change is minor or non-material in nature. See section 91(2) of the NEL

40 See section 8 of the National Electricity (South Australia) Regulations.

41 KPMG, *Contestability in transmission – International and domestic examples – Case studies*, a Report prepared for the AEMC and AER, 7 July 2022, available here.

42 See KPMG's report for an overview of the various contestability regimes in place in other jurisdictions.

BOX 2: EXISTING CONTESTABILITY MODELS IN AUSTRALIA

New South Wales

New South Wales enacted the EII Act in late 2020 and is currently making regulations, declarations, guidelines and other instruments to support the regulatory framework for the Electricity Infrastructure Roadmap. A draft Network Infrastructure Strategy was published in September 2022, which provides guidance on options for upcoming network infrastructure projects.[1]

No projects have yet been delivered under this regime. The first contestable project under the Roadmap is expected to be the Central-West Orana REZ. This REZ was declared by the Minister in November 2021. The preliminary stages of the tender process for the network infrastructure have commenced, with three potential tenderers short-listed by EnergyCo in May 2022. The tender process is expected to be completed in 2023. Construction is expected to commence in 2024 with the initial stage expected to be completed in 2027.[2]

Other proposed major transmission projects under the Roadmap include the New England REZ, South West REZ, Hunter Central Coast REZ, Illawarra REZ, Waratah Super Battery, Hunter Transmission Project, Southern Sydney Ring and a range of future potential REZ augmentations. Decisions have not yet been made on which of these projects will be delivered on a contestable basis and which will be non-contestable.

Victoria

Contestability currently applies in Victoria under the contestability framework for adoptive jurisdictions in the NEL and NER. Under this regime, contestability applies to most new separable transmission projects valued at over $10 million.

Since it commenced in 1994,[3] around 15-20 contestable transmission augmentations have been delivered under this framework. However, most of these projects are relatively small augmentations to enable the connection of individual generators or other smaller augmentations – for example, the construction and operation of a single new terminal station. These projects are not of the size that would constitute a 'major transmission project' under this review and may have limited application in informing the costs and benefits of contestability for much larger projects.

Most of these competitive tender processes have been won by the incumbent TNSP, AusNet Services or its related commercial business, Mondo. The exceptions are the Deer Park terminal station[4] and the Elaine and Ararat terminal stations.[5]

As the contracts for these projects are confidential between parties there is no publicly available information about the costs or other conditions of the successful tenderers' bids or how those costs and other conditions compare to a regulated non-contestable solution under the NER.

The only example where this contestable process has been used for a project that would be a 'major transmission project' under this review is the Western Renewables Link (previously

called the Western Victorian Transmission Network Project). AEMO completed the RIT-T for this project in July 2019. AEMO conducted a contestable tender process and announced in December 2019 that Mondo was appointed to plan, design, construct, own and operate the project.[6] AEMO and AusNet/Mondo are still undertaking stakeholder engagement and approvals process for this project. AusNet currently expects construction to commence in 2024 and be completed by 2026.

The Victorian government is proposing to make significant changes to framework for transmission planning and investment in Victoria, through the proposed VTIF, as discussed in Box 1. Legislative changes will be required to implement the VTIF and it is currently not clear when the first projects would be delivered under this proposed new framework.

Source: [1]EnergyCo, *Draft Network Infrastructure Strategy*, September 2022. [2]EnergyCo, *Central-West Orana Renewable Energy Zone Transmission Project, Scoping Report*, September 2022. [3]A similar process to the current process was followed by AEMO's predecessor, VENCorp, between 1994 and 2009. [4]This tender was won by Lumea, a subsidiary of Transgrid. [5]These two tenders were won by Australian Energy Operations, a related company of the Victorian distributors CitiPower, Powercor and Untied Energy. [6]More information on the Western Renewables Link is available here and here.

The KPMG report provides a summary of several case studies exploring the contestability regimes in place in international jurisdictions. The most relevant examples for this review are:[43]

- Ofgem's proposed early competition model for onshore transmission projects in Great Britain, and
- contestable projects that have been delivered in various regions in the United States(US).

These overseas case studies informed our options paper, with strawperson model 4 based on key features of the British and United States models. While they have also informed the Commission's high-level analysis of the strawperson models in this report, they provide limited information to inform a detailed cost-benefit assessment of contestability in the NEM. This is because:

- the British model has not yet been implemented,
- there are only a very small number of examples of contestable US projects and
- it is unclear whether the benefits of contestability in the US examples would translate to Australia given the differences in the nature of the projects and the counterfactual.

The relevant British and United States regimes and these challenges are discussed in Appendix A.

43 These examples are summarised in the case studies appendix to the KPMG report. See: KPMG, *Contestability in transmission – International and domestic examples – case studies*, July 2022, available here.

3 ANALYSIS OF STRAWPERSON MODELS OF CONTESTABILITY

This chapter sets out our analysis of the four strawperson contestability models contained in the options paper, informed by feedback to the options paper and the assessment framework set out in chapter 1 of this report. Based on this analysis, it also sets out a candidate model which is most closely aligned with stakeholder feedback. It has been developed to summarise stakeholder feedback on a suitable model of contestability. Further detailed analysis is required to assess the benefits of any model of contestability. It may provide a suitable starting point for this detailed analysis if this work recommences.

This proposed candidate model is a modified version of strawperson model 2 that incorporates some features of strawperson models 3 and 4 to improve the potential scope for innovation and efficiency gains and various other changes.

An overview of the counterfactual, four strawperson models and candidate model are summarised in Box 3 below. A more detailed comparison is provided in Appendix B.

For each strawperson model, we provide:

- an overview of the strawperson model
- a summary of options paper submissions on the strawperson model, and
- our initial assessment of the model based on submissions and the assessment framework.

Our assessment of options 2 and 4 are more comprehensive, largely in response to stakeholder sentiment regarding the limited benefits associated with options 1 and 3.

The colours in the summary diagrams for each strawperson model below indicate which key stages of the transmission planning and investment lifecycle would be subject to competition provision under each model:

- Blue indicates competitive provision of the related functions/activities.
- Orange indicates some degree of competitive provision.
- Purple indicates no competition.
- The circle indicates the tender point.

The final stage has been renamed as 'regulate and price' instead of just 'price' as in the options paper. The detailed description of this function is unchanged, but this name better summarises the relevant activities, which include setting the overall revenue cap, setting connection prices and setting use of system prices.

These key stages of the transmission lifecycle and the responsibilities for each stage are explained in more detail in the options paper, where the eight key stages summarised below are broken down into 29 specific activities.

BOX 3: COMPARISON OF LEVEL OF CONTESTABILITY FOR MAJOR TRANSMISSION PROJECTS

Counterfactual | Current arrangements under NEL and NER (excluding VIC)

Strawperson 1 | Contestability for construction and ownership

Based on various precedents including key features of the NER arrangements for Designated Network Assets and Identified User Shared Assets, but with a jurisdictional body and the PTNSP having shared responsibility for planning, engagement and preparatory activities

Strawperson 2 | Contestability for the delivery of solutions identified through the ISP or RIT-T process plus a jurisdictional body having increased responsibility for planning, engagement and preparatory activities

Based on key features of the current NSW Electricity Infrastructure Act (EII Act) model for REZs and elements of the proposed role of VicGrid in Victoria

Strawperson 3 | Contestability for the delivery of solutions identified through the ISP or RIT-T process plus AEMO declared network functions

Based on key features of current Victorian transmission contestability arrangements under the NEL and the NER

Strawperson 4 | Competition for the development and delivery of solutions to meet a need identified in the ISP process

Based on early competition model proposed by Ofgem for onshore electricity transmission networks, the sponsor-based model in the HoustonKemp report for the Australian Energy Regulator (AER) and several current US electricity transmission contestability models.

Candidate model | Contestability for the delivery of solutions identified through the ISP or RIT-T process plus a jurisdictional body having increased responsibility for planning and engagement

Based on a modified version of strawperson model 2 that incorporates some features of models 3 and 4 to improve the potential scope for innovation and efficiency gains

3.1 Strawperson model 1- contestability for construction and ownership

3.1.1 Overview of the option

Strawperson model 1 involves contestability for construction and ownership of major transmission projects. It is a model of late competition where bidders compete for the right to construct and own the assets required to deliver a solution that is identified and selected through the current planning process. It does not involve contestability for operation, maintenance or control of the assets once they are constructed, with those functions performed by the Primary TNSP on a regulated basis.

It is based on key features of the NER arrangements for Designated Network Assets (DNAs) and Identified User Shared Assets (IUSAs).

The current ISP and RIT-T arrangements would continue to apply. However, a key difference from the counterfactual and DNA/IUSA arrangements is that an independent jurisdictional body (eg like EnergyCo in NSW or VicGrid in Victoria) and the Primary TNSP would share responsibility for planning, engagement and preparatory activities. The jurisdictional body would have the discretion, based on relevant considerations, to adopt a competitive procurement process or have the project delivered by the Primary TNSP under the current non-contestable arrangements.

This option could apply in every NEM jurisdiction, or it could apply on an opt-in basis.

A high-level description of this model was provided in section 3.3 of the options paper, with more detail provided in Appendix B of the options paper.[44]

3.1.2 Submissions

Option 1 in the form proposed in the options paper was not supported as the preferred model in any submissions.

While the CEIG supported further consideration of several models, it proposed that option 1 be introduced as a minimum (noting its preference was for options 2 or 3).[45]

PIAC supported a modified version of option 1, noting that:[46]

> "PIAC considers a variation on Strawperson Model 1 (SM1) most likely to deliver net benefits to consumers. We depart from SM1 in separating the 'finance and own' component into its constituent parts. We propose that SM1 consider contestability for either 'financing and construction' or 'financing' only and that in most cases ownership remain with the Primary Transmission Network Service Provider (PTNSP)."

In contrast, several stakeholders considered that option 1 offers limited benefits and should not be considered further. For example:

- Capella Capital submitted that option 1 reduces the scope for innovation and whole of life opportunities and limits the selected tender's ability to support long term asset performance and resilience due to the limited role for the selected tenderer to perform operation and maintenance activities following construction of assets. It considered this incentivises short term behaviour and potential misalignment of objectives. Capella Capital also submitted that this option creates coordination complexity between the jurisdictional body, selected tenderer and the Primary TNSP as operation and maintenance would be the responsibility of the Primary TNSP.[47]
- ENA considered that option 1 is unlikely to generate material net benefits for consumers and would introduce adverse incentives and risks around the ongoing operation and maintenance of assets by the Primary TNSP.[48]
- Iberdrola considered that option 1 offers little increase in contestability over that already offered by TNSPs, who typically tender for design and construction, but increases the complexity of building new transmission.[49]
- The AEC considered that option 1 provides for little change, meaning any benefits are likely to be extremely limited and would not justify expending further resources progressing this option.[50]

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44 AEMC, Transmission planning and investment - Contestability, 07 July 2022, pp. 15-16 and 44-50.
45 CEIG submission to the options paper, p 2.
46 PIAC submission to the options paper, p. 5.
47 Capella Capital submission to the options paper, p. 4.
48 ENA submission to the options paper, p. 3.
49 Iberdrola submission to the options paper, p. 3.
50 AEC submission to the options paper, p. 3.

- AusNet Services submitted that this option does not competitively procure the full range of enabling activities (maintenance, operations and system strength) to maximise the opportunity for non-incumbent tenderers to out-compete the Primary TNSP. It is also too similar to the current regulatory framework in its scope of contestable activities and so fails to capture the full scope of benefits from contestability and should not be considered further.[51]
- Ausgrid noted that Primary TNSPs already incorporate contestability in the selection of parties to deliver design and construction, and possible additional benefits under this option need to be carefully balanced against economies of scope achieved via a single party undertaking these functions.[52]
- AGL considered that this option offers limited potential benefit and should not be further considered by the AEMC.[53]

3.1.3 Initial assessment based on submissions and the assessment criteria

We agree with the view of most stakeholders that this option is unlikely to deliver material benefits to consumers compared with the counterfactual. This is particularly so once the recommended reforms in Stage 2 and 3 of this review are included in the counterfactual.

This option would only allow competition for detailed design, construction and ownership. Given that Primary TNSPs currently contestably procure detailed design, construction and debt financing for major transmission projects in practice, this option would only add contestability for equity financing and greater independent oversight of the tender process. We consider the benefits from such changes may be limited. For example, the AER already reviews the Primary TNSP's contestable tender process as part of assessing whether the Primary TNSP's proposed expenditure is prudent and efficient.

As a result, this option is unlikely to result in material improvements in efficiency. It is also unlikely to materially improve timeliness, noting that the new contestable tender process could potentially lead to delays relative to the counterfactual.

This option would result in increased complexity compared with the counterfactual. Accountability would be split with one party responsible for design, construction and ownership and another party responsible for operation, maintenance and control. Such a split is likely to create greater accountability and transparency risks and implementation costs for major transmission projects compared with much smaller and simpler projects like DNAs or IUSAs.

As a result, the Commission does not consider that there is value in taking this model forward for further development and a more detailed cost-benefit assessment.

51 AusNet Services submission to the options paper, p. 9.
52 Ausgrid submission to the options paper, p.1.
53 AGL submission to the options paper, p. 2.

PIAC model - variation on strawperson model 1

The Commission has considered PIAC's proposed variation on this option where there would be contestability for financing, but where ownership remains with the Primary TNSP. This approach would reduce some of the risks arising from split accountability but could create its own challenges.

The Commission understands that PIAC considers that this approach could have material benefits for customers if it was combined with broader cost recovery reforms that change which parties are responsible for funding major transmission projects – for example, requiring connecting generators to finance major transmission projects and bear some or all of the costs of doing so rather than the transmission business recovering those costs from consumers. Such broader cost recovery reforms are outside of the scope of this review and without those changes this modified version of option 1 is unlikely to deliver benefits that are material enough to justify the implementation costs and complexity.

3.2 Strawperson model 2- contestability for the delivery of identified solutions plus a jurisdictional body having increased responsibilities for planning and engagement

Contestability for the delivery of solutions identified through the ISP or RIT-T process plus a jurisdictional body having increased responsibility for planning and engagement, based on key features of the NSW model

3.2.1 Overview of the option

Strawperson model 2 involves competition for the delivery of a solution that is identified and selected through the ISP and RIT-T. It is a model of late competition where bidders would compete to construct, own, operate and maintain the project. Bidders would respond to a reasonably detailed specification of the solution — which could include network assets and/or non-network solutions — developed through the current ISP and RIT-T process.

This option is based on key features of the NSW EII Act model for REZ network infrastructure projects and priority transmission infrastructure projects. It also shares some features with the proposed VTIF model and proposed role of VicGrid in Victoria. However, key differences from those models include that the current ISP and RIT-T processes and transmission pricing arrangements under the NER would apply rather than alternative jurisdictional arrangements. Some aspects of the NSW model are still being developed, so we have developed our own proposed arrangements for the allocation of some roles and responsibilities, eg aspects of operation, control and connections.

A jurisdictional body would have overall responsibility for planning, engagement and preparatory activities. The jurisdictional body would have discretion to adopt a competitive procurement process or have the project delivered by the Primary TNSP.

The successful tenderer would be responsible for the detailed design, construction, ownership, operation and maintenance of the project, including connections to its network assets. The AER would regulate the successful tenderer's revenues, largely based on the tender outcomes.

Overall control of the transmission system would remain the responsibility of AEMO and the Primary TNSP. The Primary TNSP would also be responsible for providing interface works to enable the connection of the new assets to its existing network. This separation of responsibility for operation of different parts of the network, and the separation between operation and control, would require the NER to establish a clear distinction between the respective roles of the successful tenderer, the Primary TNSP and AEMO.

This option could apply in every NEM jurisdiction, or it could apply on a jurisdictional opt-in basis.

A high-level description of this model was provided in section 3.4 of the options paper, with more detail provided in Appendix C of the options paper.[54]

3.2.2 Submissions

This option was supported as the preferred model, or one of the preferred models, by numerous stakeholders including AGL, Capella Capital, Iberdrola, Ausgrid, TasNetworks, ENA, CEIG and the AEC.[55]

Views on the benefits of option 2 included:

- AGL considered that option 2 warrants high-level assessment and should be progressed to a formal rule change immediately. This is especially the case since this option shares many elements with the NSW and Victorian REZ models.[56]
- TasNetworks submitted that option 2 is most likely to deliver net benefits to consumers and should proceed through to the AEMC's high level assessment. However, it considered that the merits of establishing a separate jurisdictional body to undertake planning and engagement activities is unclear, particularly in jurisdictions with state-owned jurisdictional planners such as Tasmania. It noted the importance of jurisdictional opt-in arrangements.[57]
- Capella Capital supported a contestability model similar to the NSW REZ model with contestability for design and construction, financing and ownership, and operations and maintenance. Capella Capital believes this model delivers whole-of-life benefits, provides certainty and maximises competition. It also considered the key advantages of options 2 and 3 include delivering increases in competition, increased opportunities to access

54 AEMC, Transmission planning and investment - Contestability, 07 July 2022, pp. 16-17 and 54-61.
55 The CEIG, Capella Capital and the AEC supported either option 2 or option 3.
56 AGL submission to the options paper, p. 2.
57 TasNetworks submission to the options paper, p. 4.

efficient capital markets, improved whole of life outcomes, procurement efficiencies and timeliness.[58]

- ENA suggested model 2 be taken forward to the next stage of the AEMC's assessment. Overall, ENA considered that the potential benefits of having an independent jurisdictional body and its ability to address social licence issues and facilitate environmental and planning approvals in a manner suitable for that jurisdiction makes model 2 superior to model 3.[59]
- Iberdrola supported strawperson 2 with a clear focus on contestability around construction, finance, operation and maintenance, with clear ownership of the infrastructure. This model is also likely to incentivise innovative approaches and optimisation across the full value chain of transmission projects.[60]
- Ausgrid broadly supported the AEMC considering option 2 further. It considered that a jurisdictional body may have greater scope to address – with the tenderer – local impediments that may arise in each jurisdiction, such as planning issues or community opposition. It submitted that option 2 has the potential to appropriately balance the benefits of increased competition and costs of reform. It recommended that option 2 be flexible to specific jurisdictional circumstances.[61]
- The CEIG's preference was for options 2 or 3 to be introduced. It considered these options would expand the scope of contestability and provide opportunities for a more centrally planned approach to de-risk social licence.[62]
- The AEC considered that options 2 and 3 are likely to offer the best balance in delivering expanded contestability.[63]

No stakeholders expressly opposed further consideration of option 2.

3.2.3 Initial assessment based on submissions and the assessment criteria

The Commission has undertaken a high-level assessment of this option against our assessment framework, informed by submissions. As noted above, our assessment of options 1 and 3 is less comprehensive than options 2 and 4, largely in response to stakeholder sentiment regarding the limited benefits associated with options 1 and 3.

We have set out our initial views against each criterion below.

Timeliness

Each of options 1 to 4 could in theory improve timeliness of delivery of major transmission projects compared with the current regulatory arrangements by addressing the risk of delays that could result from the Primary TNSP's 'exclusive right but no obligation' to deliver major transmission projects. However, a focus of our Stage 2 and 3 reforms has been on exploring

58 Capella Capital submission to the options paper, pp. 1, 3-4.
59 ENA submission to the options paper, p. 3.
60 Iberdrola submission to the options paper, p. 4.
61 Ausgrid submission to the options paper, p. 2.
62 CEIG submission to the options paper, p. 2.
63 AEC submission to the options paper, p. 3.

options to manage or mitigate this risk. In addition, we note that there are existing jurisdictional powers in most states to direct the delivery of major transmission projects. Compared with the counterfactual that includes our Stage 2 and 3 reforms, we therefore do not consider there is evidence that any of the contestability options are likely to materially improve the timeliness of major transmission projects.

Experience from the application of contestability models to major transmission projects in Victoria and overseas does not show any clear evidence that they have improved timeliness. For example, the Western Renewables Link completed its RIT-T and contestable tender processes in 2019 but has not yet completed the environmental approval process and is not expected to commence construction until mid-2024. We note that the upcoming contestable projects under the NSW Roadmap should provide more information on the impact of contestability on delivery timeframes.

The Commission agrees with the view expressed in several submissions that having an independent jurisdictional body with overall responsibility for the initial stages of planning, community engagement, preparatory activities and other initial activities is likely to have benefits for the timely delivery of major transmission projects. This is a key feature of this model, with examples of such bodies being the Consumer Trustee and EnergyCo in NSW and VicGrid in Victoria. However, we also agree with TasNetworks' comment that the benefits of such a body may vary between jurisdictions and be more limited in jurisdictions with state-owned jurisdictional planners. For example, the Queensland Energy and Jobs Plan proposes to allocate several of these functions to Powerlink.

There is a risk that adding a new contestable procurement process could lead to delays, however, we agree with the comments in the AER's submission that the additional time created by this procurement process will be offset by avoiding the RIT-T and contingent project application process so that there may be no overall impact on timeliness.[64] The impact on overall timelines is likely to depend on how the tender process is run in practice. We note that the tender process in option 2 is likely to be simpler and shorter than the tender process under option 4, so option 2 may deliver more timely investment than option 4.

There is also a risk under each of options 2 to 4 that the more complex connections process created by splitting accountability for different parts of the network and different functions between different parties could lead to delays for connecting generators.

Efficiency

Exposing the design, construction, financing, operation and maintenance stages of major transmission projects to competition through an independent competitive procurement process has the potential to improve efficiency and reduce costs. It could also lead to increased innovation in solution delivery. Competition could also improve risk allocation and incentives as competing tenderers can propose different risk sharing models, for example with reduced scope to pass through increases in costs.

64 AER submission to the options paper, p. 3.

There is some evidence from the United States examples of contestability discussed in chapter 2, that competitive providers offered lower cost solutions than the incumbents, used more innovative designs and offered different risk allocation models. However, there is currently limited information from which to assess the potential size of any efficiency gains as there are only a very small number of these projects.

The scope of potential efficiency benefits in Australia is also unclear given detailed design, construction and financing are already contestably procured by Primary TNSPs in practice and make up the majority of the costs of major projects. Submissions estimated that these costs that are already contestably procured make up 70-80% or more of the costs of major transmission projects.[65] A significant part of the remaining costs that are not currently contestable procured relate to costs that would need to continue to be non-contestable and performed by either the Primary TNSP or the jurisdictional body.

Bidders would be responding to a relatively detailed technical specification that was developed by the jurisdictional planning body. The jurisdictional body would also be responsible for preparatory activities, route selection and other initial stages of the project. This scope for innovation and efficiency under this option is therefore limited to efficiency in the delivery of the solution developed by the jurisdictional body, rather than efficiency in the identification of the appropriate solution. The scope for improvements in innovation and use of non-network solutions is therefore materially less than in option 4.

Service performance incentive arrangements could be more complex under this option (or options 3 or 4) as there is not a single party responsible for reliability so it may be more difficult to apply incentive schemes such as the AER's service target performance incentive scheme (STPIS).

Flexibility

The Commission does not consider there would be material differences between the counterfactual and any of the options in relation to flexibility. Options 2, 3 and 4 all contain flexibility to determine which projects are suitable for competitive delivery, and the flexibility to make this decision at different stages in a project's planning process and adjust the approach over time. However, this option is arguably more flexible than option 4 on the basis that it could apply on an opt-in basis by jurisdiction to accommodate jurisdictional differences (whereas option would need to be applied across all jurisdictions to remain effective).

Accountability and transparency

The largest potential downside of each of options 2, 3 and 4 is the resulting split in accountability for different functions and different parts of the transmission network.

Under this option, there would be:

- different parties responsible for design, construction, operation and maintenance of different parts of the transmission network

65 Submissions to the options paper: Iberdrola, pp. 3-4; Transgrid, pp. 2-3.

- a separation between operation of individual parts of the network and control of the overall system in the jurisdiction, and
- multiple parties responsible for connections in different parts of the transmission network, and a split in responsibilities between contestable providers and the Primary TNSP for connections to contestable parts of the network.
- Managing this separation would require the NER and the relevant contractual arrangements to establish a clear distinction between the respective roles of:
- the successful tenderer in relation to operation and maintenance of its network assets, including its responsibilities as a TNSP under Chapters 4 and 5 of the NER
- the Primary TNSP in relation to operation and maintenance of its network assets, and control of the overall transmission system, including its responsibilities as a TNSP, its functions as a delegated System Operator and its responsibilities as System Strength Service Provider under Chapters 4 and 5, and
- AEMO in relation to its power system operations and wholesale market dispatch functions under Chapter 3 and its power system security functions under Chapter 4.

If not carefully managed, this split accountability could create significant risks for system security and reliability.

This split in responsibilities will a make the connections process much more complex. It will also mean that there is not a single party that can contract with connecting generators and loads to provide them with a use of system service for the entire transmission network. This issue is addressed in option 3 by connecting parties entering into a connection agreement with the contestable TNSP and a use of system agreement with AEMO, and AEMO entering into network agreements with every contestable TNSP to enable it to provide this end-to-end use of system service. That approach would not be possible here unless the Primary TNSP was required to take on a similar role to AEMO in Victoria. There would also be complex questions to resolve about the respective roles of the contestable TNSP and the Primary TNSP in approving generator performance standards and other aspects of connections, which AEMO is responsible for in Victoria under option 3.

The arrangements would also need to provide clarity on the extent of the contestable provider's responsibilities for augmentations and replacement, which is likely to be complex and challenging. For example, how would augmentations to a contestable project be procured in future, what responsibilities would the contestable provider have for maintenance and replacements, and what happens at the end of the term if the contestable provider is only granted a right to own and operate the assets for a specified period?

In relation to transparency, the contestable tender process will be relied on to test the efficiency of bidders' costs but there will much less information publicly available to stakeholders on how that cost was calculated (for example there is not expected to be any publication of inputs such as the rate of return). Consumer representatives and other stakeholders are not likely to have any role in engaging on the revenue determination process, as revenues would be solely determined by the confidential tender process. Careful consideration would need to be given to mechanisms to provide appropriate oversight of the

contestable tender process and ensure that the outcomes strike an appropriate risk-reward balance from a consumer perspective.

These transparency and accountability risks would therefore need to be carefully assessed against the potential efficiency gains discussed above as part of any future detailed cost benefit assessment.

This option would not have option 4's additional transparency and accountability challenges related to preparatory activities, engagement with local communities and maintaining social licence as those activities would primarily be undertaken by the relevant jurisdictional body.

Implementation

Implementation of this option would be complex and time-consuming. It is likely to be more challenging and take longer than options 1 or 3, but significantly less challenging and time-consuming than option 4.

It would require a lengthy consultation, design and implementation process, including changes to the NEL and extensive changes to the NER. It would also require the establishment of new jurisdictional bodies or conferring new functions on existing bodies, and increased funding for those bodies. It is likely to require changes to jurisdictional licensing arrangements and other jurisdictional instruments in some jurisdictions. It would involve increased ongoing costs for new functions and increased coordination between parties.

Based on other major reforms in the NEM and the development of the arrangements for contestable projects under the NSW Roadmap, it is expected to be several years before the changes could commence.

Decarbonisation

We do not consider there would be material differences between the counterfactual or options 2, 3 or 4 in relation to decarbonisation.

Conclusion

Option 2 had the strongest level of stakeholder support in submissions. The Commissions initial assessment also indicates that it is likely to better balance the costs and benefits of contestability than other options. Accordingly, the proposed candidate model in section 3.5 below is largely based on option 2, with some features from options 3 and 4 and other minor changes and clarifications.

A detailed cost-benefit assessment would be required before concluding that this option or any other option is likely to have net benefits for consumers compared with the counterfactual. In particular, the potential efficiency benefits would need to be assessed against the risks related to accountability and transparency, and the implementation costs.

3.3 Strawperson model 3- contestability for identified solutions with AEMO's current Victorian declared network functions

Contestability for the delivery of solutions identified through the ISP or RIT-T process plus AEMO current Victorian declared network functions

3.3.1 Overview of the option

Strawperson model 3 involves competition for the delivery of the solution that is identified and selected by AEMO through the ISP and RIT-T. Like option 2, it is a model of late competition where the bidders compete for the right to construct, own, operate and maintain a major transmission project that is identified through the current planning process. While similar to option 2, this option is based on AEMO's current declared network functions in an adoptive jurisdiction under the NEL and NER – that is, the current arrangements in Victoria.

Bidders would respond to a reasonably detailed 'output' or 'functional' specification of the solution that is developed by AEMO through the planning process including the current ISP and RIT-T processes. However, bidders would have more flexibility than under option 2 and could propose alternative solutions that meet or exceed the requirements of AEMO's specification, including non-network solutions. The tender would occur earlier in the planning process than under option 2, but later than in option 4.

AEMO would have a significant role in the planning process as both the jurisdictional planning body and a TNSP. AEMO would be responsible for planning and engagement activities prior to the appointment of the successful tenderer. AEMO would undertake the contestable procurement process and contract with successful tenders, rather than a separate jurisdictional body performing those functions as in option 2. Compared with the counterfactual and options 1 and 2, AEMO would also have a much greater role in operation, control, connection services, regulation and pricing. Operation and maintenance responsibilities would be split between AEMO, the successful tenderer (for the new assets) and an incumbent TNSP (for its existing network). The extent of each party's responsibilities would be set out in contracts with AEMO.

The AER would not have any role in regulating the contestable provider's or AEMO's revenues. The successful bidder would recover its costs under its agreement with AEMO. AEMO's revenues for its declared network functions would be determined in accordance with the NER and a revenue methodology developed by AEMO.

This option would apply on an opt-in basis by jurisdiction.

A high-level description of this model was provided in section 3.5 of the options paper, with more detail provided in Appendix D of the options paper.[66]

66 AEMC, Transmission planning and investment - Contestability , 07 July 2022, pp. 17-18 and 65-71.

3.3.2 Submissions

This option had limited support in submissions.

While no stakeholder expressed a strong preference for the adoption of option 3, several stakeholders supported the AEMC giving further consideration to this option as one of their potential preferred options:

- The CEIG, Capella Capital and the AEC supported either option 2 or option 3, as noted above.
- APA supported competition in all aspects of transmission provision from early in the planning stage through to operation and pricing, which APA noted broadly aligns with options 3 and 4.[67]
- AGL supported further assessment of option 3 on the basis that it should not be difficult to implement as other states could opt into the existing framework in the NEL and NER.[68]

In contrast, several stakeholders considered that option 3 should not be pursued further for a range of reasons:

- Iberdrola noted that this option has yet to deliver genuine competition in Victoria, and Victoria has developed an entirely new approach to support transmission investment under the VTIF, which necessarily implies that the current model is not fully fit-for-purpose.[69]
- TasNetworks noted that all jurisdictions currently have the opportunity to opt into this framework under the NER, but given that no other jurisdiction has chosen to do so, this model does not warrant further investigation.[70]
- Transgrid considered option 3 should not be pursued further. It submitted that this model would involve significant changes to the existing planning and investment framework that extend well beyond contestability, as AEMO would become the jurisdictional planner in each NEM region. These changes would be costly and disruptive to introduce and there is no reason to suppose that transferring existing roles and responsibilities to AEMO will provide any benefits for consumers.[71]
- Ausgrid considered that it was not clear how AEMO's expanded role under this option could deliver lower cost outcomes relative to an independent jurisdictional body performing these functions. It also noted that this option would likely necessitate agreements with Energy Ministers, which may create challenges from an implementation perspective.[72]

67 APA submission to the options paper, p. 8
68 AGL submission to the options paper, p. 2.
69 Iberdrola submission to the options paper, p. 4.
70 TasNetworks submission to the options paper, p. 4.
71 Transgrid submission to the options paper, p. 1.
72 Ausgrid submission to the options paper, p. 2.

3.3.3 Initial assessment based on submissions and the assessment criteria

Option 3 could currently be implemented by any jurisdiction becoming an adoptive jurisdiction for AEMO's declared network functions under the current arrangements in the NEL. However, to date no jurisdiction has done so other than Victoria and we understand that no jurisdiction is considering doing so. Victoria is also currently consulting on major reforms to its transmission planning and investment framework as part of the VTIF, which is likely to see Victoria modify key aspects of how this option applies in Victoria.

This option would require significant changes to the broader transmission planning arrangements in any jurisdiction that adopted it. AEMO would take on responsibility for many parts of transmission planning, pricing and connections in the jurisdiction instead of the Primary TNSP. Those changes in roles and responsibilities would not be limited to major transmission projects and would apply to all transmission projects in the jurisdiction.

The key potential benefits of this option are:

- it would not require any changes to the NEL or NER to implement, but as noted above, other significant changes would still be required as part of implementation
- it could potentially deliver material efficiency improvements, but there is currently very limited publicly available evidence to assess how material any such improvements are likely to be in practice as discussed in chapter 3, and
- AEMO's increased role would address several of the accountability and transparency risks arising under options 2 or 4.

Given the very limited support for this option in submissions, its lack of adoption by other jurisdictions and Victoria's current consideration of major changes through the VTIF, the Commission considers that these potential benefits are unlikely to outweigh the drawbacks of this option and make it preferable to option 2 which had much greater stakeholder support.

The Commission therefore does not consider that there is value in taking this model forward for further development and a more detailed cost-benefit assessment.

3.4 Strawperson model 4 - early competition for the development and delivery of solutions

Early competition for the development and delivery of solutions to meet a need identified in the ISP process

Plan	Preparatory activities	Engage	Construct	Finance and own	Operate and maintain	Control	Regulate and price

3.4.1 Overview of the option

Strawperson model 4 involves competition for the development and delivery of solutions to meet a need that is identified though the ISP process. It is a model of early competition

where the bidders compete for the right to develop, design, construct, own, operate and maintain a solution that meets a need that is identified through the planning process.

This model is based on key features of the early competition model being developed by Ofgem for onshore networks in Great Britain, competition models used in several United States regions and the 'sponsor-based' model of competition set out in the HoustonKemp report for the AER.[73]

The main difference between this model and all other options and the counterfactual is that bidders would be responding to an identified need that is described at a high level, rather than a specification of a selected solution to that identified need. Bidders could propose markedly different solutions to meet that identified need. Significant changes would be required to the current planning process, including the ISP and RIT-T, to accommodate this approach. It would also require a much more complex multi-stage tendering process compared to the other options.

Responsibility for operation, maintenance, connections and control would be split between the successful tenderer, Primary TNSP and AEMO as under option 2. Revenue regulation would be as in option 3.

Responsibility for planning, engagement and preparatory activities would be more complex in this option. The successful bidder would be responsible for all engagement activities once it has been appointed. However, opportunities for engagement and preparatory activities prior to its appointment would be limited because only a high-level 'identified need' will have been specified and different tenderers may propose options located in different areas and involving very different impacts on local communities.

This option would need to apply in every NEM jurisdiction. This would allow AEMO to run contestable procurement processes across the NEM and assess tender responses that propose a range of different solutions available to meet the identified needs of the integrated system, including solutions in different regions or interconnectors that cross regional boundaries.

A high-level description of this model was provided in section 3.6 of the options paper, with more detail provided in Appendix E of the options paper.[74]

3.4.2 Submissions

A small number of stakeholders considered that the AEMC should give further consideration to this option or a modified version of it. For example:

- APA supported either option 3 or 4 as noted above.
- The AEC considered that option 4 should be explored as some derivative of it may be appropriate for projects designed to address a limited number of system needs on the

73 HoustonKemp, *Regulatory treatment of large, discrete electricity transmission investments, A report for the Australian Energy Regulator*, August 2020.

74 AEMC, Transmission planning and investment - Contestability , 07 July 2022, pp. 19-20 and 74-86.

basis that it may draw out more innovative and cheaper solutions than would normally be considered by AEMO.[75]

- Engie considered that option 4 could deliver significant long run benefits to consumers and should be developed further. While it may incur some complexity and additional implementation cost, and the accountabilities and efficient timeframes will need to be worked through, Engie considered that the expected benefits should also be more material. Engie's view was that concerns that some jurisdictions are working on their own models of contestability should not inhibit development of a NEM-wide approach.[76]

The AER supported this option, commenting:[77]

> The AER strongly urges the fourth strawperson model be one of the options progressed to the AEMC's initial high-level assessment under Part 1 of this workstream. As this model allows for the market to bid solutions to network needs identified in the ISP, we consider this option maximises the potential for innovation and, in turn, efficiencies for consumers. We also consider this model has the potential to promote the intent of the recently implemented actionable ISP framework7 if it can be demonstrated to improve AEMO's identification and assessment of efficient solutions to network needs. We therefore consider this model warrants at least initial assessment, alongside any other shortlisted model, to understand the potential for these benefits to be realized in practice in the NEM.

The AER acknowledged that time would be required to undertake the new contestable procurement process at the planning stage, but considered that this would be offset by the removal of existing regulatory assessments such as the RIT-T and contingent project assessment, meaning that contestability may shorten the overall regulatory process.[78]

The AER also noted:[79]

> There have been challenges identified with the fourth strawperson model (i.e. the "sponsor-based" model) in PJM's experience – the key one being difficulty in directly comparing bids that contain widely varying solutions to a transmission need. The AER considers there is merit in progressing this model to the next stage of the AEMC's assessment to allow us to better understand the nature of such practical challenges and how they might be resolved.
>
> …
>
> The AER further considers that the strawperson models in the options paper are not necessarily mutually exclusive. It may be possible to design the framework for major transmission projects to allow project-specific circumstances to dictate which process (contestable or regulated) is best applied. For example, the nature of certain identified

75 AEC submission to the options paper, p. 3.
76 Engie submission to the options paper, p. 4.
77 AER submission to the options paper, p. 3.
78 AER submission to the options paper, p. 3.
79 AER submission to the options paper, p. 4.

> network needs may warrant an early competition process to identify different solutions from the market, while under the same framework another project is identified by the planner and a late competition model adopted instead. Threshold criteria can prescribe the best process to be adopted in different circumstances.

Most other stakeholders opposed option 4, or considered that it was not suitable at the current time due to the complexity of its implementation and the uncertainty of whether it would deliver benefits in practice.

AEMO considered that option 4 would represent a material shift compared to the counterfactual, and so would carry a high degree of risk. In addition, the time and effort required to undertake a detailed design would be far greater than for the other options. It also noted the significant changes to the regulatory framework being considered as part of stage 3 of the review which are likely to deliver some of the same benefits in a much shorter timeframe and for less cost.[80] As a result, AEMO did not consider it appropriate to consider option 4 in more detail at this time. AEMO also stated:[81]

> We are of the view that Option 4 carries significant risks relative to Options 1, 2 & 3 for consumers. For example, by simply articulating a high level identified need that would be used to guide bidders to propose solutions provides a significant risk that bidders would lack the necessary clarity to design and offer a solution, in contrast to the relatively detailed specification that currently exists. The assumption in this option is that there would be a material benefit in giving bidders more flexibility for them to propose more wide-ranging solutions which have the potential to deliver greater efficiencies, but we are not aware of any clear examples in other jurisdictions where a markedly different solution has been suggested which has led to significant efficiencies. There would also be time taken in confirming whether the markedly different solution would in fact meet the identified need, and additional time would need to be factored into the procurement process to allow for this.

The CRG members did not support this option. A member of the CRG commented that:[82]

> Consumer impact is determined by risk allocation and that strawperson models 3 and 4 will lead to too much risk being borne by consumers. These models may also have potential social licence issues arising if multiple prospective proponents undertake their own community engagement processes in parallel, which could lead to inconsistent messaging for community members.

Views on option 4 from other stakeholders who did not support option 4 included:

- Capella Capital considered that, while early competition may provide additional opportunities for innovation, it could:

80 AEMO submission to the options paper, p. 1.
81 AEMO submission to the options paper, p. 4.
82 Minutes of the CRG meeting on 29 August 2022

  - result in a poor competitive process due to the very limited number of likely participants that have the appetite, resources and expertise to tender under this model
  - increase complexity, bid costs and uncertainty for bidders in comparison to other options, reducing market appetite, and
  - increase the risk of re-work or changes following tender submission given likely longer procurement timeframes, resulting in delays and potential increased costs for consumers.[83]
- Iberdrola submitted that option 4 is based on the untried UK model for onshore projects, which has taken several years to develop. This model should not be pursued further as an option by the AEMC since it will be highly complex to deliver and implement. Further, Iberdrola considered that given the model's complexity and novelty in Australia and the UK, implementation would be lengthy and would be unlikely to materially impact on current ISP project delivery.[84]
- AusNet Services considered that, in theory, option 4 is the model most able to leverage the benefits of contestability due to the greatest potential for innovation. However, it considered that, in practice, this model not suitable for future consideration due to:
  - the cost and complexity of implementing the reform, which is dependent on significant changes to the current transmission planning processes (eg the ISP and RIT-T) and adoption by every NEM jurisdiction which is unlikely
  - the additional delivery risks in a framework where the planner-procurer tenders for an identified need. Multiple parties conducting preliminary works and engagement activities with respect to their preferred major transmission project design would add to a project's delivery risk, particularly if multiple parties are engaging with local community members and landholders.[85]
- The CEIG stated that this option is not preferred at this stage considering the urgency of the energy transition and that time is likely to be lost if stepping away from a centrally planned ISP at this stage, and the greater difficulty from needing to obtain agreement across all jurisdictions.[86]
- TasNetworks considered that this model would require significant changes to the current regulatory framework and adoption by all NEM regions. The time taken to design, consult on and implement these changes significantly reduces the merits of this option. It also considered that, given the current use of jurisdictional models outside the NER to progress major project development, this option does not seem feasible at least in the short-term.[87]

83 Capella Capital submission to the options paper, p. 4.
84 Iberdrola submission to the options paper, p. 4.
85 AusNet Services submission to the options paper, p. 9.
86 CEIG submission to the options paper, p. 2.
87 TasNetworks submission to the options paper, p. 4.

- Ausgrid submitted that, while option 4 has the potential to facilitate innovative solutions earlier in the process, the extent of these benefits and whether they would outweigh the high complexity of implementation and potential delays are unclear.[88]
- AGL considered that option 4 has the potential to enhance transmission planning in the NEM and could be particularly advantageous in the current period of rapid technological change. However, it requires significant changes to the current ISP and RIT-T arrangements so would need to be considered over a longer timeframe for future ISP investment proposals.[89]

3.4.3 Initial assessment based on submissions and the assessment criteria

This option divided stakeholders more than any other option, with some stakeholders strongly supporting it and others strongly opposing it.

The Commission has undertaken a high-level assessment of this option against the assessment framework, with initial views set out against each criterion below.

Timeliness

As discussed above in relation to option 2, we do not consider there is evidence that any of the contestability options are likely to materially improve the timeliness of major transmission projects compared to the counterfactual with our stage 2 and 3 recommendations.

No stakeholders argued that this option would improve timeliness, and there were different views on whether it would slow down delivery of major projects.

The Commission agrees with the AER's comment in its submission that time required for the new tender process would be offset by not requiring a RIT-T and contingent project application. However, the Commission also agree with comments by other stakeholders that the engagement, planning and tender processes under this option would be more complex compared with the counterfactual and other options and this could create a risk of delays. Early engagement with local communities would also be difficult and that could make it harder to manage social licence risks, which have been a key cause of delays in some recent major projects. Preparatory activities and early works would also be challenging, which could lead to delays.

The Commission also considers that the ISP process plays an important role in driving timely integrated planning and investment in major transmission projects. The need to make major changes to the ISP under this option could make timely delivery of integrated network and generation solutions across the NEM more challenging, particularly in the initial years until this new process is bedded down.

As with options 2 and 3, there is also a risk that the more complex connections process created by splitting accountability for different parts of the network and different functions could lead to delays for connecting generators.

88 Ausgrid submission to the options paper, p. 2.
89 AGL submission to the options paper, p. 2.

We note AEMO's view that:[90]

> *it is not appropriate to consider in more detail at this time, partly given the significant changes to the regulatory framework being considered as part of stage 3 of the review which are likely to deliver some of the same benefits in a much shorter timeframe and for less cost.*

Efficiency

This option is likely to have the greatest potential to improve efficiency.

This option is likely to have similar benefits to options 2 and 3 in relation to potential efficiency gains in the delivery of the project. However, as discussed in relation to option 2, the likely materiality of those benefits in practice is unclear, particularly given that Primary TNSPs already contestably procure the activities that account for most of the costs of major transmission projects.

The main benefit of option 4 over the other options is its scope for improving innovation in the *identification* of solutions, not just the *delivery* of solutions. Bidders would be able to propose their own solutions to an identified need rather than the Primary TNSP, AEMO or a jurisdictional body developing a relatively detailed specification of the required solutions as in all other options.

This could lead to significant benefits if contestable bidders are more innovative the Primary TNSP, AEMO or a jurisdictional body and can develop lower cost solutions. For example, in other consultation processes some stakeholders have argued that TNSPs favour network solutions and are less likely to adopt non-network solutions that may be more innovative and lower cost.

It is unclear how material these innovation-related gains are likely to be in practice compared with the counterfactual and other options. For example, we note that:

- Several of the United States examples discussed in Appendix A involved tender processes where bidders proposed a wide range of technical solutions and markedly different cost proposals. The bodies undertaking the tenders identified examples of innovation in solution design and delivery. However, the contestable elements of the United States projects that ultimately proceeded appear to be relatively small and simple projects compared with major transmission projects the NEM, with the most complex elements still delivered by the incumbent TNSP in several examples.[91] AEMO's submission commented that the 'assumption in this option is that there would be a material benefit in giving bidders more flexibility for them to propose more wide-ranging solutions which have the potential to deliver greater efficiencies, but we are not aware of any clear examples in other jurisdictions where a markedly different solution has been suggested which has led to significant efficiencies.'[92]

90 AEMO submission to the options paper, p. 1.

91 The Artificial Island and Oakland Clean Energy Initiative projects involved very complex and innovative elements, but the Oakland project was delivered by the incumbent as were all but the new transmission line and substation parts of the Artificial Island project.

- The current NEM arrangements require Primary TNSPs to consult on alternative options, including non-network solutions, as part of the RIT-T process. The adoption of innovative non-network solutions appears to be starting to be more common under these arrangements. For example, in June 2022, Transgrid completed three RIT-Ts and all three adopted a non-network solution that involved a battery provided by a third party as a result of expressions of interest submitted by third-party proponents of batteries and other non-network technologies during the RIT-T process.[93]
- Innovative non-network solutions are also being implemented as part of the NSW Roadmap on which option 2 is based. For example, the NSW Minister recently appointed Transgrid as the network operator for the Waratah Super Battery project. This project includes what is claimed to be the world's most powerful battery (850MW/1.7GWh), a novel system integrity protection scheme utilising the battery and paired generation to maintain reliability during network outages and a series of transmission network upgrades.[94]

Flexibility

As noted in the context of option 2, options 2, 3 and 4 all contain flexibility to determine which projects are suitable for competitive delivery, and flexibility to make this decision at different stages in a project's planning process and adjust the approach over time. However, this option would need to apply in all NEM jurisdictions to maintain an integrated approach to planning, arguably making it less flexible than the other options.

Accountability and transparency

This option would share the disadvantages and risks in relation to accountability and transparency discussed above in relation to option 2, including having:

- different parties responsible for design, construction, operation and maintenance of different parts of the transmission network in each jurisdiction
- a separation between operation of individual parts of the network and control of the overall system in the jurisdiction
- multiple parties responsible for connections in different parts of the transmission network, and a split in responsibilities between contestable providers and the Primary TNSP for connections to contestable parts of the network, and
- little public transparency and engagement with stakeholders in relation to the contestable provider's costs and proposed revenues.

As with option 2, these issues could create reliability and system security risks and a more complex and slower connections process if not carefully managed. The NER would need much more clarity regarding the boundaries of relevant functions and the allocation of those

92 AEMO submission to the options paper, p. 4.

93 See the RIT-T documents for the North West Slopes Area Supply, Bathurst, Orange and Parkes Supply, and Improving Stability in south-west NSW projects, available at https://www.transgrid.com.au/projects-innovation/north-west-slopes-area-supply, https://www.transgrid.com.au/projects-innovation/bathurst-orange-and-parkes-supply and https://www.transgrid.com.au/projects-innovation/improving-stability-in-south-west-nsw

94 See https://www.energyco.nsw.gov.au/projects/waratah-super-battery

functions to the relevant parties, which would make implementation complex and time-consuming.

In addition to the accountability and transparency challenges that are shared with option 2, this option would have additional challenges and risks related to:

- **Accountability for community engagement and managing social licence.** It is unclear whether effective early engagement with local communities, councils and other affected local stakeholders would be possible under this option as tenderers can provide markedly different solutions with different routes and local impacts. As the CRG noted, this approach 'may also have potential social licence issues arising if multiple prospective proponents undertake their own community engagement processes in parallel, which could lead to inconsistent messaging for community members.'[95]
- **Responsibility for preparatory activities and early works.** Preparatory activities and early works as currently occur under the ISP would not be possible under this option.
- **Responsibility for various stages of the planning process, including the need for major changes to the ISP and removal of the RIT-T**. As discussed in relation to implementation below, this option would require major changes to the ISP and removal of the RIT-T. This is likely to result in more complex accountabilities and reduce engagement opportunities for consumer groups, local communities and other stakeholders.
- The flexibility for bidders to propose their own solutions that respond to only a high-level identified need. As noted above, AEMO comments that it is 'of the view that Option 4 carries significant risks relative to Options 1, 2 & 3 for consumers. For example, by simply articulating a high-level identified need that would be used to guide bidders to propose solutions provides a significant risk that bidders would lack the necessary clarity to design and offer a solution, in contrast to the relatively detailed specification that currently exists.'[96]

Implementation

This option would be the most complex and time-consuming to implement out of the options, which was raised as a concern by several stakeholders.

It would require changes to the NEL, extensive changes to the NER, significant changes to the process for making the ISP, and changes to jurisdictional licensing arrangements and other jurisdictional instruments in some jurisdictions. It would also involve increased ongoing costs for new functions, including increased funding for AEMO.

Based on experience from other major reforms in the NEM, the process being undertaken by Ofgem to develop its early competition model and the process to implement the NSW Roadmap, we expect that it would take at least five years to develop, consult on and implement the required regulatory changes.

95 Minutes of the CRG meeting on 29 August 2022

96 AEMO submission to the options paper, p. 4.

This option would only be effective if it was adopted in every NEM jurisdiction so that AEMO could continue to undertake integrated planning through an amended ISP process and contestable tenders. This requirement for NEM-wide adoption will make implementation much more challenging.

Several stakeholders considered that these implementation challenges and long implementation lead-times significantly reduced the value of this option given the need to focus on more immediate solutions to the transition to net zero and delivery of current ISP projects. Stakeholders also expressed concerns that the tender process would be much more complex and costly under this option compared with the other options.

We agree with stakeholders that the need for major changes to the ISP is a key drawback of this option. The ISP is still relatively new and it plays an important role in guiding the transition to net zero. We note that we will soon commence a statutory review of the existing ISP Rules with a view to delivering any needed improvements by 2025. We do not consider that now is the right time to be developing what would effectively be a replacement for the ISP.

We note the view expressed in the AER and AEC submissions that the four options are not mutually exclusive and option 4 could be applied to some projects. We do not consider that such an approach would be practical due to the need for major reforms to the ISP and allocation of responsibilities under option 4. However, there may be scope to adopt a phased approach where a simpler model of late competition is adopted initially (eg a model similar to option 2) and if that model is successful further reforms could be considered to move to a more complex model of early competition like option 4 at a later date.

Decarbonisation

We do not consider there would be material differences between the counterfactual or options 2, 3 or 4 in relation to decarbonisation.

Conclusion

The Commission considers that the issues discussed above in relation to accountability, transparency and implementation are likely to outweigh the potential efficiency benefits of this option and mean that it is not preferred at this stage compared to either the counterfactual or option 2, which had much greater stakeholder support. We do not propose to assess it further as part of any future stages of work.

However, this option does have some significant potential benefits in relation to efficiency and innovation, so we have considered aspects of this model in developing the candidate model below.

We also agree with comments by some stakeholders that there could be scope to adopt more elements of this model for certain projects in the longer term, but we do not consider that jumping straight to this very complex form of contestability is warranted at this stage

3.5 Proposed candidate model based on stakeholder feedback

3.5.1 Overview of the option

Contestability for the delivery of solutions identified through the ISP or RIT-T process plus a jurisdictional body having increased responsibility for planning and engagement: based on a modified version of strawperson model 2 that incorporates some features of models 3 and 4 to improve the potential scope for innovation and efficiency gains

Based on stakeholder feedback and our analysis of the key features of the four strawperson models against the assessment framework, the Commission has identified a modified version of strawperson 2 as the proposed candidate model that could be the starting point for a full cost-benefit assessment if this work recommences in future.

This candidate model is based on strawperson model 2. It therefore shares many of the key features of the model of contestability that is currently being implemented in NSW, and some elements of the proposed VTIF model and role of VicGrid in Victoria. This should help promote a degree of jurisdictional consistency, but its adoption and ultimate success would still depend on whether multiple states opt in to applying it instead of their current jurisdictional regimes and the current NER arrangements.

The Commission recognises that this model has only been developed at a relatively high-level in this paper and the options paper. A lot more detail would need to be developed and consulted on before the costs and benefits of this model could be assessed. In particular, more work is required on the allocation of responsibilities related to some functions between the constable provider, Primary TNSP, jurisdictional body and AEMO, including for activities connections, operation, control and pricing. We understand that in NSW, the approach to some of these issues is still being developed and no materials have yet been published on how these functions will be allocated at a detailed level.

As noted previously, the Commission intends to monitor developments in NSW and other jurisdictions contestability regimes within Australia and overseas so that it can incorporate insights and information into this work, as needed.

As with option 2, this model would involve:

- Competition for the delivery of a solution that is identified and selected through the ISP and RIT-T
- Bidders competing construct, own, operate and maintain the project
- A jurisdictional body having overall responsibility for planning, engagement and preparatory activities and undertaking the competitive tender process
- The AER regulating the successful tenderer's revenues, largely based on the tender outcomes

- Application on a jurisdictional opt-in basis.

To improve the scope for innovation in the design of the solution and the adoption of non-network solutions, an important difference from option 2 is that the tender process would be based on an 'indicative specification' as in option 3 and as proposed by Ofgem in its early competition model. This contrasts to the approach for option 2 described in the options paper where the jurisdictional body would develop a detailed specification that tenderers' bids must comply with.

For example, under the current Victorian arrangements (option 3), tenderers respond to an 'output' or 'functional' specification developed by AEMO but tenderers can propose alternative solutions that meet or exceed the requirements of this specification, including non-network solutions. Ofgem proposes that the Electricity System Operator would develop an 'indicative solution' that will 'set high-level technical and locational limits within the tender that bids would need to adhere to'.[97] This specification would be more detailed than the 'identified need' from the ISP and RIT-T process that was proposed to be used to inform the tender process under option 4, but less detailed than the specification proposed in option 2.

Our description of this option is also less firm on how several aspects of operations, maintenance, control, connections and pricing are allocated between the contestable provider, Primary TNSP, jurisdictional body and AEMO. The Commission recognises that these issues are very challenging, with details on how they are proposed to be addressed under the NSW Roadmap and VTIF yet to be finalised and published. There would be value in refining this option to achieve as much consistency as is possible with the final approach in NSW and (where possible given AEMO's different role) Victoria.

The colour of the 'control' function has been changed to orange in the diagram above to reflect this uncertainty (as opposed to purple – non-contestable – in option 2). The colour of the 'engage' function has also been changed to orange (instead of purple in option 2) to better reflect that primary responsibility for engagement switches from the jurisdictional body to the successful tenderer after the tender is awarded. More details on responsibility for these functions and the 'operation and maintenance' function are provided in Appendix B.

Another difference with option 2 is that the candidate model also recognises that there may be benefit in the scope and form of contestability evolving over time. This could occur by:

- a model of contestability as described above initially applying to a small number of very large but clearly 'separable' major transmission projects where the benefits of competition are likely to be the greatest
- the costs and benefits of the application of that initial model being assessed over time to determine if there is value in retaining it, expanding it to additional projects and/or adopting an 'earlier' form of competition for some projects
- if there is evidence of net benefits for consumers, this model of competition could be applied to a wider range of projects over time, and

97 Ofgem, *Consultation on our views on Early Competition in onshore electricity transmission networks*, August 2021, p. 28.

- if there is evidence of net benefits, a willingness amongst all jurisdictions to adopt a NEM-wide contestability model and stakeholder support for major reforms to the ISP, and 'early' form of competition like option 4 could be considered for major transmission projects at a later date.

3.5.2 Initial assessment based on submissions and the assessment criteria

The Commission's initial assessment of this option is very similar to the assessment of option 2 set out in section 3.2 above. This option shares the main features of option 2 that were supported by stakeholders, but it also shares the same risks and challenge as option 2. It seeks to draws on the main innovation and efficiency advantages of option 4, and to a lesser extent option 3, by increasing the ability of bidders to propose innovative solutions to a higher-level indicative specification. It also makes a range of minor changes and clarifications to the allocation of responsibility for other activities.

The Commission's initial assessment is that this model is likely to better balance the costs and benefits of contestability than the strawperson options in the options paper. That does not mean that we currently propose that this model should be adopted or that we consider that its benefits are likely to outweigh the costs. More detailed analysis would be required to determine a preferred model, and a detailed cost-benefit assessment would be required before concluding that this option or any other option is likely to have net benefits compared with the counterfactual. In particular, the potential efficiency benefits would need to be quantified and carefully assessed against the risks related to accountability and transparency and the implementation costs.

3.5.3 Description of the candidate model

The table below provides a detailed comparison of the counterfactual and the candidate model.

It adopts the same approach as the comparison between the counterfactual and each strawperson model that was set out in Appendix G of the options paper. The table breaks down each key stage of the transmission planning and investment lifecycle into the key functions and activities within each stage. It then details the proposed party responsible for performing the relevant functions.

The new functions required for contestability are shaded grey. The level of contestability is shown using the same colours as in Chapter 3: blue indicates competitive provision of the related functions/activities, orange indicates some degree of competitive provision and purple indicates no competition.

A comparison of the four strawperson contestability models, the counterfactual and the candidate model is also provided in Appendix B.

Table 1 Candidate contestability model

	Functions	Counterfactual	Candidate model
1: Plan	1a: Develop planning scenarios, inputs and assumptions	AEMO (ISP)	AEMO (ISP)
	1b: Identify needs	AEMO (ISP)	AEMO (ISP)
	1c: Identify credible options to address the needs	AEMO (ISP) and Primary TNSP based on RIT-T	AEMO (ISP) and jurisdictional body based on RIT-T[1]
	1d: Assess costs and benefits of credible options	AEMO (ISP) and Primary TNSP based on RIT-T	AEMO (ISP) and jurisdictional body based on RIT-T
	1e: Determine the 'best' option	AEMO (ISP) and Primary TNSP based on RIT-T	AEMO (ISP) and jurisdictional body based on RIT-T
	1f: Make decision to implement 'best' option[2]	Primary TNSP	Jurisdictional body
2: Preparatory activities	2a: Undertake or direct preparatory activities and early works	Primary TNSP	Jurisdictional body
	2b: Develop REZ design reports	Primary TNSP (as jurisdictional planning body)[3]	Jurisdictional body
3: Engage	3a: Undertake stakeholder engagement activities at the planning stage	Primary TNSP	Jurisdictional body
	3b: Undertake stakeholder engagement activities during construction and operation	Primary TNSP	Selected tenderer
4: Undertake contestable tender process	4a: Determine whether to utilise a contestable process and, if so, undertake the contestable tender	N/A	Jurisdictional body
	4b: Develop functional specification for contestable assets/services	N/A	Jurisdictional body develops an 'indicative solution' to use in the tender process

1 The NSW EII Act model uses an alternative to the RIT-T but that approach is not included in this option.

2 The decision to implement the option is subject to approval of revenues at function 9a.

3 The Primary TNSPs are all currently also the jurisdictional planning body in their jurisdiction (AEMO performs this role in Victoria).

	Functions	Counterfactual	Candidate model
	4c: Contract with network operators for delivery and coordination of services	N/A	Jurisdictional body
5: Construct	**5a: Undertake detailed design and route selection**	Primary TNSP (contestably procured in practice)	Selected tenderer
	5b: Acquire land, consents and approvals	Primary TNSP	Jurisdictional body and selected tenderer
	5c: Construct assets	Primary TNSP (contestably procured in practice)	Selected tenderer
	5d: Contract with non-network providers	Primary TNSP	Jurisdictional body (if a non-network provider wins the tender in its own right) or selected tenderer (if the network operator who wins the tender engages non-network providers for part of the solution)
	5e: Construct network interface works	N/A	Primary TNSP
6: Finance and Own	**6a: Own network assets**	Primary TNSP	Selected tenderer
	6b: Finance network assets	Primary TNSP (debt financing is contestably procured in practice)	Selected tenderer
7: Operate and maintain	**7a: Operate network**	Primary TNSP	Selected tenderer[4]
	7b: Provide connection services	Primary TNSP (some connection services are contestable)	Selected tenderer, but likely with some involvement from the Primary TNSP (eg in relation to generator performance standards)
	7c: Maintain network	Primary TNSP	Selected tenderer
	7d: Replace and augment network	Primary TNSP	Selected tenderer for minor replacements and non-separable augmentations, with responsibility for major replacement and augmentations works to be determined

[4] The successful tenderer could contract with the Primary TNSP for the Primary TNSP to provide some or all of the network operation and maintenance functions if the parties agreed.

	Functions	Counterfactual	Candidate model
	7e: Operate and maintain interface works	N/A	Primary TNSP
8: Control	**8a: Control transmission system**	Primary TNSP and AEMO	To be determined. Likely to largely remain with Primary TNSP and AEMO, but allocation of responsibilities and boundary with selected tenderer's operation and maintenance responsibilities to be considered further
9: Regulate and price	**9a: Set overall revenue or price cap**	AER based on chapter 6A assessment of efficient costs	AER regulates selected tenderer's revenues based on contestable tender outcomes. AER regulates Primary TNSP's revenues for its activities (eg interface works, control functions) based on chapter 6A assessment of efficient costs
	9b: Set connection prices	Primary TNSP	Selected tenderer (for connections to its network)
	9c: Set use of system prices	Primary TNSP	Primary TNSP (as coordinating NSP)[5]

[5] The NSW EII Act model recovers costs through a scheme financial vehicle and contributions by NSW DNSPs rather than through transmission charges, but that approach is not included in this option.

ABBREVIATIONS

ACT	Australian Capital Territory
AEC	Australian Energy Council
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
BEIS	Department of Business, Energy and Industrial Strategy
CEIG	Clean Energy Investor Group
Commission	See AEMC
CRG	Consumer Reference Group
DNAs	Designated Network Assets
EII Act	Electricity Infrastructure Investment Act 2020 (NSW)
ENA	Energy Networks Australia
ESO	Electricity System Operator
ISP	Integrated System Plan
IUSA	Identified User Shared Assets
MCE	Ministerial Council on Energy
NEL	National Electricity Law
NEM	National Electricity Market
NEO	National electricity objective
NER	National Electricity Rules
NERL	National Energy Retail Law
NERO	National energy retail objective
NGL	National Gas Law
NGO	National gas objective
NSW	New South Wales
PIAC	Public Interest Advocacy Centre
QREZ	Queensland Renewable Energy Zones
REZ	Renewable Energy Zones
RIT-T	Regulator Investment Test for transmission
STPIS	Service target performance incentive scheme
TNSP	Transmission network service providers
US	United States
VTIF	Victorian Transmission Investment Framework

A IMPACT ASSESSMENTS OF THE POTENTIAL BENEFITS OF CONTESTABILITY INTERNATIONALLY

A.1 Examples of contestable projects in Great Britain

A.1.1 Onshore contestability regime

Ofgem is in the process of developing a proposed early competition model for onshore electricity transmission networks in Great Britain. This model has not yet been finalised and implemented after more than 6 years of development and consultation by Ofgem and the Electricity System Operator (National Grid ESO).[98] The legislative changes required to authorise this model are contained in the Energy Bill 2022, which is currently progressing through the UK Parliament.[99] Ofgem's proposed model informed option 4 in our options paper and the key features of it are summarised in the options paper and the KPMG report.

Ofgem published an impact assessment on the proposed model in 2021.[100] This assessment concluded that the benefits of continuing to develop the model exceeded the costs. The costs assessed were the costs to Ofgem and the ESO of development, implementation and running tenders, and the costs of bidders.

Ofgem also undertook a qualitative assessment of the potential benefits of contestability and concluded that these benefits would exceed the implementation costs. Ofgem's assessment of the benefits was based on the Hartburg-Sabine and Duff Coleman projects in the United States (discussed in Box 4 below). Ofgem concluded that, based on the claimed savings for these two US projects, competition could lead to savings of 22-44% of the initial indicative design cost. As discussed in Box 4, we consider that significant caution must be applied when trying to use this sample of two small US projects, one of which never proceeded, to estimate potential savings for major transmission projects in the NEM.

The Department of Business, Energy and Industrial Strategy (BEIS) also published an impact assessment on the proposed onshore competition regime in 2021.[101] BEIS also concluded that the benefits of extending competition to onshore transmission projects would exceed the costs. The benefits were the expected cost savings based on offshore transmission connection projects delivered under Ofgem's existing offshore competition regime, discussed below.

A.1.2 Offshore contestability regime

Ofgem implemented contestability for offshore transmission projects in 2009. In 2014, CEPA and BDO undertook an evaluation for Ofgem of the benefits of projects delivered under the offshore framework and identified significant net benefits.[102] The largest benefit was due to a reduction in financing costs. However, this saving was unrelated to contestability and was

98 More information on Ofgem's proposed early competition model for onshore electricity transmission networks is available here.

99 For more information on the Energy Bill 2022, see here.

100 Ofgem, *Impact Assessment on developing arrangements to allow for early competition to be applied to future projects on the onshore electricity transmission network*, available here.

101 BEIS, *Extending competitive tendering in the GB electricity market, Impact Assessment*, July 2021, available here.

102 CEPA and BDO, *Evaluation of OFTO Tender Round 1 Benefits, Prepared for Ofgem*, May 2014, available here.

due to the regime moving liability for payment for these assets from connecting generators under contracts, to customers under regulated network charges which significantly reduced the credit risk for financiers. Significant savings were also found in relation to reduced tax liabilities and operating costs. It is unclear which, if any, of these savings would be relevant for major transmission projects in the NEM.

Importantly, the offshore contestability regime applies to projects that would be classed as 'connection assets' or 'designated network assets' in the NEM. We note that these projects are already subject to contestability. It is unclear to what extent learnings from these projects are applicable for assessing the costs and benefits of contestability for much larger and more complex major transmission projects in the NEM.

A.2 Examples of contestable projects in the United States

Contestability of transmission projects is possible in various regions of the United States, including MISO, PJM, New York and California.[1] These models informed option 4 in our options paper and are discussed in the options paper and the KPMG case studies report.

As illustrated in those reports, few projects have been delivered under these regimes to date. The main examples of contestable projects are detailed below.

A.2.1 Midcontinent Independent System Operator (MISO) contestable projects

MISO is the Midcontinent Independent System Operator and covers 15 US states and the Canadian province of Manitoba.

Hartburg-Sabine Junction

This project was proposed to consist of a new substation and 37 km of new 500kV transmission lines with an estimated total cost (opex and capex) of US$95 million over the life of the project.

MISO undertook a competitive tender process in 2018 and awarded the project to NextEra. MISO's tender selection report assessed tenders based on an estimated benefit-to-cost ratio and considered that NextEra's bid had a benefit-to-cost ratio of 2.2. This compared to an estimated benefit-to-cost ratio of 1.35 based on MISO's 'scoping-level estimates'. NextEra's total project cost of US$95 million compared with MISO's scoping-level estimate of US$122 million.[103]

However, this project was never undertaken. Its commencement was delayed by legal disputes and in August 2022 MISO cancelled the project based on a range of factors including new generation connections in the area which meant the project no longer delivered net benefits.[104]

103 MISO, *Selection Report, Hartburg-Sabine Junction 500 kV competitive transmission project*, November 2018, available here.

104 MISO, *Hartburg-Sabine Junction 500 kV competitive transmission project Notice of variance analysis outcome – Cancellation*, August 2022, available here.

Duff Coleman

This is the only contestable project that has been delivered in the MISO region to date. It involved the construction of 50 km of new 345 kV transmission lines. MISO undertook a competitive tender process in 2016 and appointed Republic Transmission. Republic Transmission's total project cost of US$45 million compared with proposals from other bidders ranging from US$34 to $57 million and MISO's internal cost estimate of US$59 million. This project was completed in June 2020.

A.2.2 NYISO – Empire State Line (originally called the Western New York Public Policy Transmission Project)

The New York electricity grid is managed by the New York Independent System Operator (NYISO). NYISO has issued request for proposals for three contestable projects to date, with one of these projects completed.

The Empire State Line project involved two new substations and 32 km of new 345 kV lines. NYISO undertook a competitive tender process and awarded the project to NextEra in 2017. Bidders proposed a range of different technical solutions with construction costs varying from US$157 to $487 million. NextEra's proposed construction cost of US$181 million was 22% below the US$232 million cost submitted by the incumbent for a similar technical solution.[105] The project was completed in June 2022.

A.2.3 PJM – Artificial Island

PJM is the regional transmission organisation that originally covered Pennsylvania, New Jersey and Maryland, and now covers 13 states and the District of Columbia. The KPMG report notes that from the 16 competitive tender windows conducted by PJM from 2013 to 2017, 142 projects were awarded to developers with three awarded to non-incumbents.[106] The main example of a project awarded to a non-incumbent was the Artificial Island project. This project involved work to address system security issues at the Artificial Island nuclear complex in New Jersey.

Following a tender process in 2013, PJM awarded the project in part to LS Power (8 km of new overhead and submarine 230 kV transmission cables, switchyard and transformers for US$116-144 million) and in part to the incumbent PSE&G (new SVCs and upgrades to protection systems, lines and transformers for $US137 million). Tenderers proposed a range of very different technical solutions with costs varying from around US$100 million to $US1.5 billion. LS Power's proposed costs for the transmission line component of the project were materially lower than the incumbent's proposals.

This project experienced significant cost overruns and delays. It was suspended by PJM in 2017 due to cost increases. The project was re-scoped and the costs increased, although

105 NYISO, *Western New York public Policy Transmission Planning Project, Final Report*, October 2017, available here.

106 KPMG case studies report, p. 54.

most of the approved cost increases related to PSE&G's works.[107] This project was completed in 2021.

A.2.4 The Californinia Independent System Operator (CAISO) contestable projects

The California Independent System Operator (CAISO) manages the grid in 80% of California and a small part of Nevada.

The KPMG report noted that over the eight transmission planning windows undertaken by CAISO since 2013, 16 projects have been subject to competitive solicitation. It is not known how many of these projects were won by incumbents vs non-incumbents. The KPMG report does not provide case studies of any specific CAISO projects. The only CAISO project discussed in other public reports on contestability we are aware of is the Oakland Clean Energy Initiative, which was delivered by the incumbent PG&E.[108]

As noted in the KPMG report, the Federal Energy Regulatory Commission (FERC) is currently consulting on reducing the scope for contestability. In April 2022, FERC proposed reintroducing the federal right of first refusal for incumbent transmission businesses to own and operate new transmission projects or establish joint ownership arrangements with non-incumbents.[109]

A.2.5 There are limits on this information informing a details cost-benefit assessment

The United States examples above provide useful information on the potential efficiency benefits of competition which we have used to inform the high-level analysis in this report. However, there are limits on this information in informing a detailed cost-benefit assessment for major transmission projects in the NEM due to:

- the very small sample size and the cancellation of one of the key projects
- the relatively small size of these projects compared to larger and more complex major transmission projects in the NEM[110]
- the claimed savings being based primarily on internal planning estimates, and
- important differences in the counterfactual between the US and the NEM regulatory regimes.

Other than for the MISO projects, there is limited visibility around the basis for the estimated cost savings. For the MISO projects, the estimated savings are primarily based on the matters:

- A return on equity of 9.8% locked in for the life of the project. We note that this compares with AER transmission decisions at the time of those projects that allowed a return on equity of 7.1 to 7.4%. Locking in the return for the 40-year life of the project

107 See PJM's materials available here and here, the KPMG report, and FTI Consulting, *Case studies of early competition, memorandum for National Grid ESO*, November 2019, available here.

108 FTI Consulting case studies of early competition report, p. 24.

109 KPMG case studies report, p. 37.

110 For example, an average cost of around $US100 million and an average line length of just 32km for the projects discussed in Box 4 versus an average cost of around AU$2.5 billion and line lengths of up to 600 km for the 2022 ISP actionable projects.

could have benefits if market rates materially increase during that time, but also exposes consumers to risks if market rates fall.

- Cost containment measures and caps on project costs. Cost containment measures were a key reason MISO selected the winning bidders. However, it is unclear how applicable these savings would be in the NEM noting that the US regulatory regime is generally a 'cost of service' regime with greater ability for incumbent TNSPs to recover their actual costs compared to the NEM incentive regulation regime.
- Tax cost savings due to the tax exempt status of some bidders. While this results in a saving for electricity consumers, it is unclear if it is a net benefit for society and it is unlikely that such tax structures would be permitted in Australia.

The points above illustrate the differences in the counterfactual between the US and the NEM and the challenges in using that information to develop estimates of cost savings in the NEM.

We expect that more information will become available in the future as contestability models are implemented, including potential insights from the initial contestable projects under the NSW Roadmap, the Western Renewables Link, and any major contestable projects delivered under the VTIF and Ofgem's proposed early competition model for onshore transmission.

B SUMMARY OF CONTESTABILITY STRAWPERSON OPTIONS, THE COUNTERFACTUAL AND THE CANDIDATE MODEL

APPENDIX A. SUMMARY OF CONTESTABILITY STRAWPERSON OPTIONS, THE COUNTERFACTUAL AND THE CANDIDATE MODEL

Table: Summary of contestability strawperson options, the counterfactual and the candidate model

	Functions	Counterfactual: Current arrangements	Strawperson 1: Contestability for construction and ownership	Strawperson 2: Contestability for ISP/RIT-T solutions + increased jurisdictional involvement	Strawperson 3: Contestability for ISP/RIT-T solutions + AEMO declared network functions	Strawperson 4: Competition for solutions to ISP identified need	Candidate model: Modified version of strawperson 2 + features of 3 and 4
1: Plan	1a: Develop planning scenarios, inputs and assumptions	AEMO (ISP)	AEMO (ISP) [6]	AEMO (ISP)	AEMO (ISP)	AEMO (ISP or replacement)	AEMO (ISP)
	1b: Identify needs	AEMO (ISP)	AEMO (ISP) and jurisdictional body with input from PTNSP	AEMO (ISP)	AEMO (ISP)	AEMO (ISP or replacement)	AEMO (ISP)
	1c: Identify credible options to address the needs	AEMO (ISP) and PTNSP based on RIT-T	AEMO (ISP) and jurisdictional body with input from PTNSP based on RIT-T	AEMO (ISP) and jurisdictional body based on RIT-T[7]	AEMO (ISP and RIT-T)[8]	Tenderers	AEMO (ISP) and jurisdictional body based on RIT-T[9]

[6] Options 1 and 2 could potentially also involve a jurisdictional body having a role in functions 1a and 1b, eg as the Consumer Trustee does in the NSW EII Act model.

[7] The NSW EII Act model uses an alternative to the RIT-T but that approach is not included in this option.

[8] The ISP is undertaken by AEMO's national planning team. RIT-Ts would be undertaken by a separate AEMO jurisdictional planning team, like the current Victorian planning team.

[9] The NSW EII Act model uses an alternative to the RIT-T but that approach is not included in this option.

	Functions	Counterfactual: Current arrangements	Strawperson 1: Contestability for construction and ownership	Strawperson 2: Contestability for ISP/RIT-T solutions + increased jurisdictional involvement	Strawperson 3: Contestability for ISP/RIT-T solutions + AEMO declared network functions	Strawperson 4: Competition for solutions to ISP identified need	Candidate model: Modified version of strawperson 2 + features of 3 and 4
	1d: Assess costs and benefits of credible options	AEMO (ISP) and PTNSP based on RIT-T	AEMO (ISP) and jurisdictional body with input from PTNSP based on RIT-T	AEMO (ISP) and jurisdictional body based on RIT-T	AEMO (ISP and RIT-T)	AEMO based on tenders and modified ISP or RIT-T[10]	AEMO (ISP) and jurisdictional body based on RIT-T
	1e: Determine the 'best' option	AEMO (ISP) and PTNSP based on RIT-T	AEMO (ISP) and jurisdictional body with input from PTNSP based on RIT-T	AEMO (ISP and RIT-T)	AEMO (ISP and RIT-T)	AEMO based on tenders	AEMO (ISP) and jurisdictional body based on RIT-T
	1f: Make decision to implement 'best' option[11]	PTNSP	Jurisdictional body	Jurisdictional body	AEMO	AEMO	Jurisdictional body
2: Undertake preparatory activites	**2a: Undertake or direct preparatory activities for future ISP projects and actionable ISP projects**	PTNSP	Jurisdictional body with input from the PTNSP	Jurisdictional body	AEMO (as jurisdictional planning body)	Selected tenderer (if preparatory activities remain relevant)[12]	Jurisdictional body

[10] Functions 1d and 1e would need a revised process that undertakes a cost-benefit assessment and ensures the project has net benefits based on the tender outcomes, eg a modified version of the ISP feedback loop, RIT-T or the NSW Consumer Trustee determination of the maximum capital costs for a REZ network infrastructure project.

[11] The decision to implement the option is subject to approval of revenues at function 9a.

[12] Preparatory activities for future ISP projects and actionable ISP projects as currently occurs under the ISP would be more difficult with this option and may not be relevant or possible.

	Functions	Counterfactual: Current arrangements	Strawperson 1: Contestability for construction and ownership	Strawperson 2: Contestability for ISP/RIT-T solutions + increased jurisdictional involvement	Strawperson 3: Contestability for ISP/RIT-T solutions + AEMO declared network functions	Strawperson 4: Competition for solutions to ISP identified need	Candidate model: Modified version of strawperson 2 + features of 3 and 4
	2b: Develop REZ design reports	PTNSP (as jurisdictional planning body)[13]	Jurisdictional body or PTNSP (as jurisdictional planning body)	Jurisdictional body	AEMO (as jurisdictional planning body)	Jurisdictional planning body[14]	Jurisdictional body
3: Engage	**3a: Undertake stakeholder engagement activities at the planning stage**	PTNSP	Jurisdictional body with input from PTNSP	Jurisdictional body	AEMO and selected tenderer	Selected tenderer[15]	Jurisdictional body
	3b: Undertake stakeholder engagement activities during construction and operation	PTNSP	Selected tenderer and PTNSP	Selected tenderer	Selected tenderer	Selected tenderer	Selected tenderer

[13] The PTNSPs are all currently also the jurisdictional planning body in their jurisdiction (AEMO performs this role in Victoria).

[14] The jurisdictional planning body role would need to be transferred from the PTNSP to a new jurisdictional body or AEMO to maintain competitive neutrality.

[15] Meaningful engagement by the successful tenderer could not occur until after it has won the tender process so engagement under this option on issues like route selection and design are likely to be more limited. AEMO or a jurisdictional body could potentially undertake limited engagement prior to undertaking the contestable tender process.

	Functions	Counterfactual: Current arrangements	Strawperson 1: Contestability for construction and ownership	Strawperson 2: Contestability for ISP/RIT-T solutions + increased jurisdictional involvement	Strawperson 3: Contestability for ISP/RIT-T solutions + AEMO declared network functions	Strawperson 4: Competition for solutions to ISP identified need	Candidate model: Modified version of strawperson 2 + features of 3 and 4
4: Undertake contestable tender process	**4a: Determine whether to utilise a contestable process and, if so, undertake the contestable tender**	N/A	Jurisdictional body	Jurisdictional body	AEMO	AEMO	Jurisdictional body
	4b: Develop functional specification for contestable assets/services	N/A	Jurisdictional body with input from PTNSP	Jurisdictional body	AEMO	AEMO	Jurisdictional body develops an 'indicative solution' to use in the tender process
	4c: Contract with network operators for delivery and coordination of services	N/A	Jurisdictional body	Jurisdictional body	AEMO	AEMO	Jurisdictional body
5: Design and construct	**5a: Undertake detailed design and route selection**	PTNSP (contestably procured in practice)	Selected tenderer	Selected tenderer	Selected tenderer	Selected tenderer	Selected tenderer
	5b: Acquire land, consents and approvals	PTNSP	PTNSP and selected tenderer	Jurisdictional body and selected tenderer	Selected tenderer	Selected tenderer	Jurisdictional body and selected tenderer

	Functions	Counterfactual: Current arrangements	Strawperson 1: Contestability for construction and ownership	Strawperson 2: Contestability for ISP/RIT-T solutions + increased jurisdictional involvement	Strawperson 3: Contestability for ISP/RIT-T solutions + AEMO declared network functions	Strawperson 4: Competition for solutions to ISP identified need	Candidate model: Modified version of strawperson 2 + features of 3 and 4
	5c: Construct assets	PTNSP (contestably procured in practice)	Selected tenderer	Selected tenderer	Selected tenderer	Selected tenderer	Selected tenderer
	5d: Contract with non-network providers	PTNSP	PTNSP	Selected tenderer	AEMO and/or selected tenderer	AEMO and/or selected tenderer	Jurisdictional body (if a non-network provider wins the tender in its own right) or selected tenderer (if the network operator who wins the tender engages non-network providers for part of the solution)
	5e: Construct network interface works	N/A	PTNSP	PTNSP	PTNSP[16]	PTNSP	Primary TNSP
6: Own	6a: Own network assets	PTNSP	Selected tenderer	Selected tenderer	Selected tenderer	Selected tenderer	Selected tenderer
	6b: Finance network assets	PTNSP (contestably procured in practice)	Selected tenderer	Selected tenderer	Selected tenderer	Selected tenderer	Selected tenderer

[16] 'PTNSP' is used here for simplicity and consistency with other options, but can be a confusing term given the division of roles under the declared network functions provisions of the NER. Those provisions distinguish between the roles of AEMO (as the jurisdictional planning body and a TNSP for certain purposes), contestable Declared Transmission System Operators (DTSOs) and the incumbent DTSO (AusNet Services in Victoria). The incumbent DTSO would perform roles that are listed here as the responsibility of the PTNSP.

	Functions	Counterfactual: Current arrangements	Strawperson 1: Contestability for construction and ownership	Strawperson 2: Contestability for ISP/RIT-T solutions + increased jurisdictional involvement	Strawperson 3: Contestability for ISP/RIT-T solutions + AEMO declared network functions	Strawperson 4: Competition for solutions to ISP identified need	Candidate model: Modified version of strawperson 2 + features of 3 and 4
7: Operate and maintain	**7a: Operate network**	PTNSP	PTNSP (may contract some functions to selected tenderer)	Selected tenderer[17]	Selected tenderer	Selected tenderer	Selected tenderer[18]
	7b: Provide connection services	PTNSP (some connection services are contestable)	PTNSP (some connection services are contestable)	Selected tenderer	AEMO and selected tenderer	Selected tenderer	Selected tenderer, but likely with some involvement from the Primary TNSP (eg in relation to generator performance standards)
	7c: Maintain network	PTNSP	PTNSP (may contract some functions to selected tenderer)	Selected tenderer	Selected tenderer	Selected tenderer	Selected tenderer
	7d: Replace and augment network	PTNSP	PTNSP (may contract some functions to selected tenderer)	Selected tenderer(s)[19]	Selected tenderer(s)	Selected tenderer(s)	Selected tenderer for minor replacements and non-separable augmentations, with responsibility for major replacement and augmentations works to be determined

[17] Under options 2 to 4, it would be possible for the successful tenderer to contract with the PTNSP for the PTNSP to provide some or all of the network operation and maintenance functions the parties agreed.

[18] The successful tenderer could contract with the Primary TNSP for the Primary TNSP to provide some or all of the network operation and maintenance functions if the parties agreed.

[19] In all options, minor augmentations and replacements would be undertaken by the successful tenderer in accordance with the original tender, while major augmentations and replacements would likely be the subject to a new tender process.

	Functions	Counterfactual: Current arrangements	Strawperson 1: Contestability for construction and ownership	Strawperson 2: Contestability for ISP/RIT-T solutions + increased jurisdictional involvement	Strawperson 3: Contestability for ISP/RIT-T solutions + AEMO declared network functions	Strawperson 4: Competition for solutions to ISP identified need	Candidate model: Modified version of strawperson 2 + features of 3 and 4
	7e: Operate and maintain interface works	N/A	PTNSP	PTNSP	PTNSP	PTNSP	Primary TNSP
8: Control	**8a: Control transmission system**	PTNSP and AEMO	PTNSP and AEMO	PTNSP and AEMO	PTNSP and AEMO	PTNSP and AEMO	To be determined. Likely to largely remain with Primary TNSP and AEMO, but allocation of responsibilities and boundary with selected tenderer's operation and maintenance responsibilities to be considered further
9: Price	**9a: Set overall revenue or price cap**	AER based on chapter 6A assessment of efficient costs	AER based on contestable tender outcomes	AER based on contestable tender outcomes	AEMO	AEMO	AER regulates selected tenderer's revenues based on contestable tender outcomes. AER regulates Primary TNSP's revenues for its activities (eg interface works, control functions) based on chapter 6A assessment of efficient costs
	9b: Set connection prices	PTNSP	PTNSP	Selected tenderer	Selected tenderer	Selected tenderer	Selected tenderer (for connections to its network)

	Functions	Counterfactual: Current arrangements	Strawperson 1: Contestability for construction and ownership	Strawperson 2: Contestability for ISP/RIT-T solutions + increased jurisdictional involvement	Strawperson 3: Contestability for ISP/RIT-T solutions + AEMO declared network functions	Strawperson 4: Competition for solutions to ISP identified need	Candidate model: Modified version of strawperson 2 + features of 3 and 4
	9c: Set use of system prices	PTNSP	PTNSP (as coordinating NSP)[20]	PTNSP (as coordinating NSP)[21]	AEMO	PTNSP (as coordinating NSP)	Primary TNSP (as coordinating NSP)[22]

[20] The Coordinating NSP role is currently used in the Chapter 6A transmission pricing provisions where there is more than one TNSP in a jurisdiction. All Coordinating NSPs are currently also PTNSPs (AEMO performs this role in Victoria).

[21] The NSW EII Act model recovers costs through a scheme financial vehicle and contributions by NSW DNSPs rather than through transmission charges, but that approach is not included in this option.

[22] The NSW EII Act model recovers costs through a scheme financial vehicle and contributions by NSW DNSPs rather than through transmission charges, but that approach is not included in this option.