



19 October 2018

John Pierce  
Chairman  
Australian Energy Market Commission  
PO Box A2449  
Sydney South NSW 1235

Submitted online: [www.aemc.gov.au](http://www.aemc.gov.au)

Dear Mr Pierce,

### **Coordination of Generation and Transmission Investment – Options Paper**

Origin Energy Limited (Origin) welcomes the opportunity to comment on the Australian Energy Market Commission's (AEMC) Options Paper on coordination of generation and transmission investment (COGATI).

Given an ageing stock of coal fired generation, and the entry of increasing amounts of both grid connected and distributed renewable energy, efficient coordination of transmission and generation investment is increasingly important. In the coming decades, billions of dollars of investment will likely be made in networks, generation, storage, and demand management control systems, with the precise technological mix and location of these assets is difficult to predict.

In such an environment, the tasks of policy makers should be to minimise the cost of transition, but also mitigate the stranding risk inherent in strategic transmission planning. When considering the Integrated Systems Plan (ISP) and future development of Renewable Energy Zones (REZs), this balance must be preserved.

Our views on the main topics covered in the Options paper are summarised below with further detail provided in Attachments A (Discussion of issues raised) and Attachment B (Responses to questions in submission).

- **The role of the Integrated System Plan:** The ISP provides high quality strategic guidance to participants and governments to inform future investment decisions. However, the input assumptions are inherently uncertain which increases the margin of error, and the potential risk of stranding. Given this, policy makers should take a staged approach implementation that allows for a series of checks and balances along the way
- **The Regulatory Investment Test for Transmission (RIT-T):** The RIT-T has an important role to play in assessing projects, and managing risks for consumers that pay for investment. This should be retained to identify best choice project proposals. Origin does not support any move to arbitrarily shorten the test given the complexities of the issues under consideration and the time needed to complete a robust and transparent process.
- **Renewable Energy Zones:** There are clear information benefits of AEMO proposing REZs in its ISP. However, construction of transmission to meet a REZ should not be funded by consumers without clear demonstration of benefit through RIT-T.
- **Treatment of storage:** Currently connected to the transmission network is currently required to be registered as a load, implying payment of TUOS. However, in practice, most storage

units are not required to pay TUOS due to the services provided. This should be clarified in a transparent manner.

Should you have any questions or wish to discuss this information further, please contact Alex Fattal in the first instance via email [alex.fattal@originenergy.com.au](mailto:alex.fattal@originenergy.com.au) or phone, on (02) 9375 5640.

Yours sincerely

A handwritten signature in blue ink, consisting of a stylized, cursive 'S' followed by a vertical line that curves slightly to the right at the top.

Steve Reid  
Group Manager, Regulatory Policy

## Appendix A: Coordination of Generation and Transmission Investment – Options Paper

*Concept of a strategic transmission plan is sound, but there are inherent limitations*

Origin supports the development of a strategic plan that sets out a path to the least cost approach for transmission investment in the NEM. With state based TNSPs typically having a regional focus, a national plan with an emphasis on the optimisation of the overall system is important, particularly given the market transition currently underway.

Notwithstanding these issues, policy makers should remain mindful of the limitations of any type of strategic planning. Given the 20-year time horizon, the ISP is based on inherently uncertain assumptions. Forecasting multiple decades into the future is likely to have a significant margin of error. This is not necessarily through any lack of skill or consultation, but rather due to the basic uncertainty regarding environmental targets, technology and fuel costs and a host of other variables.

Where the underlying assumptions in the plan do not eventuate as forecasted, this could undermine the expected market benefits. Origin is concerned the plan for increased interconnection across the NEM will increase the risk of stranded assets, the costs of which will be borne by energy consumers. It is crucial that any suggested increase in transmission spend under the ISP, does not place upward pressure on retail electricity prices, particularly noting the previous over-spending on distribution networks.

Given the limitations of such a document, Origin's view is that the ISP should be viewed less as a binding blueprint and more as a guide to the efficient development of the transmission network (given a specific set of assumptions), with a staged approach to implementation that allows for checks and balances along the way.

*Actioning the ISP should balance the aim of realising the potential benefits of strategic planning with managing the inherent risks and costs to energy consumers*

Transmission construction is undertaken by regulated monopoly network businesses, and the cost is passed through to consumers. Due to the large size of these investments, consumers continue paying these costs decades after the construction to meet an identified need. Consumers have minimal ways of directly offsetting this cost, and are reliant on the outcomes of the regulatory process to minimise the risks they face.

Given the uncertainty involved in this type of strategic transmission planning, a series of checks and balances should be put in place to minimise any risk of stranding. This can largely draw on the current regulatory framework (with enhancements as required), which would facilitate the ease of actioning the ISP. This approach is more aligned with Options 1 and 2 presented in the AEMC's Options Paper.

Under these options, there would be a prominent role for all three market bodies to work with market participants, regulated networks and consumers in implementing the strategic vision.

- AEMO would use the ISP to identify proposed augmentations with NEM wide benefits, including REZs.
- The AER would have a role overseeing the RIT-T process undertaken by the TNSPs to evaluate projects to meet the identified needs in the ISP.
- The AEMC could direct TNSPs to undertake a RIT-T to consider an investment if the TNSP had not voluntarily done so. This would be in instances where the AEMC has formed a view that such investments would result in national benefits. This could be through an enhanced Last

Resort Planning Power (LRPP). The AEMC would be required to consult broadly and review the underlying assumptions underpinning the proposed augmentation.

We understand that AEMO proposes that the COAG Energy Council follow Option 4 as laid out by the AEMC. Under this option, AEMO can direct TNSPs to build the “best” project as specified in the ISP. This is not supported by Origin as it removes the checks and balances that minimises consumers’ risk.

*RIT-T is largely working as designed but improvements are always possible*

As set-out above, the RIT-T has an important role in assessing the construction of new transmission assets. Assessing a large project, with expenditures of potentially hundreds of millions of dollars, is a complex task. The importance of the cost benefit analysis is underlined by the fact that consumers are directly responsible for the costs of any project.

Origin welcomes the AER’s recent draft RIT guidelines which proposes TNSPs consider the options presented in the ISP when determining their list of credible options against the identified need.

The RIT-T is not just an assessment of whether to “build or not build” but also evaluates the best option to meet an identified need, including different routes and non-network solutions. A network business, or national planner, may not be able to have all the information at hand and so there is need for rigorous consultation and feedback.

Considering the requirements before construction outside of the RIT-T, such as environmental assessments and land access, it is not clear that the RIT-T adds much time before construction of identified large projects. For assets that consumers will be required to fund, for decades, a few months of assessment is not unreasonable. The timeline of RIT-Ts include mandated consultation periods, which is an important step in ensuring that the viewpoints and ideas of stakeholders are properly considered.

Origin notes that there are potential improvements to the RIT-T that could be considered. Concerns about potential bias against non-network options have been raised previously and are discussed in the options paper. The regulatory process needs to ensure that it provides for these to be adequately included in any assessment.

In addition, projects at the lower end of the cost spectrum that require a RIT-T may benefit from a streamlined process if consumer risks are low. However, these projects are unlikely to be identified as strategic projects through the ISP.

*The role of Renewable Energy Zones (REZs) in the ISP should be clarified*

The ISP identified several REZs, where renewable generation would likely be built if there were sufficient capacity to connect. However, it is impossible for the generation to be built without the relevant transmission infrastructure. On the other hand, the transmission infrastructure cannot be justified without committed generation. If transmission capacity is built, there is a risk that the expected generation investment does not occur, leaving a stranded asset.

The role of the REZ concept within the broader ISP framework should be clarified. For example, it is unclear to what extent the aim of the ISP is bring REZs to market. We note that the proposals for Snowy 2.0 and the Battery of the Nation projects are central to the Group 2 and 3 projects. While it could be argued that these projects have been publicly announced and should therefore form part of any core set of assumptions, the economics of each is unlikely to stack up without socialising the cost of transmission afforded by their inclusion in the ISP. To the extent the development of these projects (or any REZ), is deemed to be part of some broader national objective (e.g. meeting emissions reductions targets at least cost), this should be made explicit, and ultimately demonstrated.

Providing for low-cost new entry connections, with minimal risk for consumers paying for stranded assets, should be the aim of REZ policy. Importantly, such assessments of REZs should not occur in a manner that crowds out efficient private sector generator or storage investment in favour of government backed proposals.

The Options Paper provides four AEMC models of managing the risk associated with constructing new infrastructure to connect a REZ, along with a number of models proposed by stakeholders.

We note that these models are not mutually exclusive. The framework for these options can be introduced and potentially used for augmentations in different areas of the NEM, depending on circumstance. That said, Origin is strongly opposed to any option that leads to risks being allocated on consumers, as they have no ability to manage the risk. As highlighted in our previous submission we support further development of the options that encourage greater coordination amongst market participants, which if successful could go some way in minimising the need for oversizing and the accompanying risk of stranding.

We also observe that many of the models proposed may not operate effectively where there is the potential that projects identified in the ISP are subject to a direction. In such a scenario, instead of investing to unlock a REZ, the optimal behaviour of TNSPs and generators may be to wait for AEMO to provide a direction to a TNSP to build, thus transferring any stranding risks to consumers.

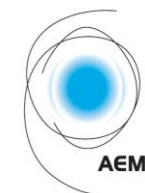
Additionally, there have also been policy proposals relating to government taking the risk in some manner to allow for the development of REZs. We consider that the AEMC and the ESB should consider how this would operate, both in terms of integrating initial expenditure into the planning process and long term asset regulation.

#### *Registration and transmission charging for storage is an area for further review*

Currently, storage is required to be registered both as a load and a generator. The battery trades under the relevant category, depending on its operation at a moment at time. The Options Paper discusses some of the concerns with this approach, including the requirement fact that load (including storage) pays Transmission Use of Storage (TUOS).

TUOS is paid by loads as they receive the benefit of the transmission network and the subsequent reliability standards. However, storage is supplying a service to the market and consumers, including potentially when it is charging. Additionally, storage units would have a different profile to most load. Storage would likely only be charging when prices and local demand are low, not during peak periods when networks are most stressed. This means that the cost of providing supply to these loads would be minimal.

Therefore, there is merit to the view that much of the time, storage operating as load should not be paying TUOS. Indeed, we note that most, if not all, large storage units have agreements with the local TNSP which amounts to an exemption from paying TUOS. Therefore, it would be preferable to increase transparency in these arrangements, as it would make it easier for storage to organise finance and coordinate connection.



## Coordination of generation and transmission investment – options paper: stakeholder feedback template

The template below has been developed to assist stakeholders in providing their feedback on the questions posed in this paper and any other issues that they would like to provide feedback on. The AEMC encourages stakeholders to use this template to assist it to consider the views expressed by stakeholders on each issue. Stakeholders should not feel obliged to answer each question, but rather address those issues of particular interest or concern. Further context for the questions can be found in the options paper.

Organisation: Origin Energy  
Contact name: Alex Fattal  
Contact details (email / phone): [alex.fattal@originenergy.com.au](mailto:alex.fattal@originenergy.com.au)  
(02) 9375 5640

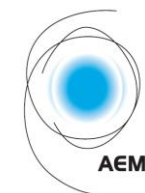
Questions		Feedback
<b>Chapter 4 – Making the ISP an actionable strategic plan</b>		
<b>Question 1: Questions arising from the ISP</b> - The paper considers a number of questions about the role and regulatory implications of the ISP, including the links between the ISP and transmission investment decisions.		
A)	Are there any questions about the role and regulatory implications of the ISP that are not set out in the options paper?	The role of the REZ concept within the ISP framework should be clarified. To what extent is the ISP striving to bring REZs to market? We note that the proposals for Snowy 2.0 and the Battery of the Nation projects are central to the Group 2 and 3 projects. While it could be argued that these projects have been publicly announced (though FID has not been taken), the economics of each is unlikely to stack up without socializing the cost of transmission afforded by their inclusion in the ISP.
B)-	Is our approach to making the ISP actionable (i.e. strengthening the link between the ISP and investment decisions) appropriate?	Yes, broadly, but consideration should also be given to the approach (if any) taken in international jurisdictions to the

Questions		Feedback
		type of strategic transmission planning envisioned under the ISP.
<b>Question 2: Interaction between the ISP and government policies</b>		
A)	The ISP will necessarily have to take into account government environmental and industry policies in modelling ISP scenarios. Do stakeholders consider it would be helpful for the COAG Energy Council to provide formal advice to AEMO as to what government policies or scenarios should be modelled in the ISP?	<p>Yes, to the extent that this can be relied on as an indicator to the policy direction in the market. The best way for governments to encourage long-term outcomes from the energy market is to have a set of clear and consistent policies that can be used as an input for participant planning and investment as well as the ISP.</p> <p>If governments consider that the ISP is to include specific considerations, this information should be presented early in the process and publicly.</p>
B)	Are there other ways in which government policies that impact on the NEM could be incorporated as modelled scenarios in the ISP?	As said in response to question 2(a), the best way of accounting for government policies is an input into the modelling. Where there is uncertainty on the long-term policy, a range of inputs may be necessary.
<b>Question 3: “Strategic, national” investments and regional investments</b>		

Questions		Feedback
A)	It is proposed that the ISP only focusses on “strategic, national” investments. Do stakeholders consider this is appropriate?	<p>A “strategic, national” ISP is appropriate. This could focus on inter-regional investments such as interconnection, and relieving interregional constraints.</p> <p>To the extent REZs are wholly located within a region, it could be argued that they should be an issue for local TNSPs. However, if the development of REZs is deemed to be part of a broader national objective, (e.g. in meeting emissions reduction targets at least cost) then it would be reasonable to include REZs in the ISP.</p> <p>As mentioned in response to question 1(a), the role of REZs in the strategic planning framework should be clarified and made explicit. This is particularly in the case of remote REZs and the innate challenges these resources face in getting to market.</p>
B)	If so, how could this threshold be defined, or what criteria could be used to define it?	See above
<b>Question 4: Risk allocation</b>		
A)	The paper canvasses a number of options for making the ISP actionable. How may the existing risk allocation for consumers, TNSPs and generators change under the proposed options?	The risk to consumers increases towards the right of the table. For the options to the right of the table, consumers bear stranding risk of assets which are not independently assessed.
B)	What other regulatory changes may be required in order to mitigate against changes in the risk allocation?	A long held principle in the NEM is that risks are most effectively managed by those best able to do so. To the extent the ISP confers risk on consumers, it should be explicitly acknowledged that they have limited means of managing this. It is crucial, therefore, that the regulatory framework puts in place measures to do so on behalf of consumers.

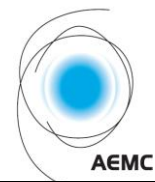


Questions		Feedback
<b>Question 5: Level of consultation required under each of the options for how the ISP could be made actionable</b>		
A)	What do stakeholders think about the level of consultation that would be required under each of the options considered for how to make the ISP an actionable strategic plan?	As an important strategic document, AEMO should undertake detailed consultation whenever it prepares an ISP. This should include collaborative workshops in input assumptions, and at least one draft report. The draft report should include detailed modelling to inform consultation.
B)	Should there be more consultation for options that fall to the right-hand side of the table?	Origin does not consider that the options to the right are appropriate as they extend the scope of the document from one focussed on strategic market guidance, to assessment of projects. However, if these options were to be considered more extensive consultation would be required given they represent a fundamental shift from the status quo.
<b>Question 6 – 10 on the ISP options are merged into table below</b>		



AEMC Question	Option 1 Requirement for TNSPs to consider ISP and identified needs in their TAPRs	Option 2 – Requirement for TNSPs to conduct RIT-T on ISP	Option 3 – AEMO determines “best” option	Option 4 – AEMO directs TNSP to proceed with the “best” option	Option 5 – AEMO directs TNSP to implement the investment
<p>What are stakeholder views on this option for how to make the ISP an actionable strategic plan?</p>	<p>We do not know of any examples of a TNSP being unwilling to consider implementation of an identified project in either the ISP or NTNDP. The AEMC has never had to use its Last Resort Planning Power, to require assessment of a project for interregional congestion.</p> <p>These options may provide additional confidence that identified strategic issues are being addressed. The ISP would need to specify which of the projects the networks are required to assess on publication of the ISP.</p>		<p>It will be difficult for AEMO to determine best option without rigorous consultation as laid out below</p>	<p>Having AEMO provide direction is problematic, as it removes checks and balance on consumers facing stranding risk. Projects identified in the ISPs should be independently evaluated outside of the forecast scenarios.</p>	
<p>Would the effective delivery of this option have an impact on the speed with which “strategic, national” investments are made?</p>	<p>These options may lead to a marginal reduction in the length of time for projects to be assessed than under Option 1. TNSPs will be more likely to commence RIT-T in a more rapid manner.</p>		<p>A regulatory assessment from the TNSP will still be necessary to identify best way of meeting identified need. Option 3 will not be much more timely than Option 1, Option 2 or the status quo.</p>	<p>AEMO is not the body that is responsible for non-energy regulatory approvals, such as environmental plans or land access.</p> <p>Undertaking these approvals will take time, and potentially change the nature of the “best” option. Therefore, time saved from these options will likely be minimal.</p>	
<p>Are there any</p>	<p>Would likely involve an extension of the AEMC’s LRPP power. The LRPP would be the logical place</p>		<p>If AEMO is responsible for determining a best solution, there would need to be detailed project</p>		<p>In addition to the issues raised to the left, AEMO</p>

<p>regulatory or other implications that are not raised in the discussion of this option?</p>	<p>to hold requirement to confirm that TNSPs are assessing of all identified ISP projects.</p>	<p>consultation and independent dispute resolution process.</p> <p>Consultation on the ISP would not be only on the assessment of needs, but also on preferred solutions. Sufficient time must be included in consultation for participants to adequately design proposals to meet the identified needs.</p> <p>Considering the size of relevant investments, there would need to be a requirement for clear guidelines on the process AEMO will follow on developing the choice of best offer, along with process steps for proponents not chosen to challenge decisions based on different information.</p>	<p>would need to lay out the tender process that would be followed in directions to implement the proposed investment.</p>
---	--	---	--



<b>Question 11: Other options and considerations</b>		
A)	Are there other options to strengthen the link between the ISP and individual TNSP investments that are not raised here?	The options proposed by the AEMC represents a scale that is useful for discussion of implementation of transmission planning from future ISPs.
B)	Are there any other matters that should be taken into account when considering options to strengthen the link between the ISP and TNSPs' individual investments?	<p>TNSPs have an incentive to strongly consider, either through the RIT-T or the Annual Planning Reports, any proposal in the ISP.</p> <p>The AEMC's Last Resort Planning Power can be extended to provide additionally recourse if TNSPs are choosing to not properly evaluate a proposal in the ISP.</p> <p>When considering this link, also need to consider how to provide checks which protect consumers from risks for stranded assets.</p>
<b>Chapter 5 – the regulatory investment test for transmission</b>		
<b>Question 12: RIT-T benefits</b>		
A)	Are there any additional benefit categories that should be considered in the RIT-T?	Origin considers the current benefit categories are appropriate.
B)	Why have no network businesses sought approval from the AER for additional benefits to be considered in RIT-T assessments as allowed for under the current NER?	
<b>Question 13: Potential concerns with the RIT-T process</b>		
A)	What are stakeholder views on current limitations with the RIT-T process?	The main issues from the RIT-T are the perceived bias against non-network solutions, and potential timeliness impacts for smaller projects.

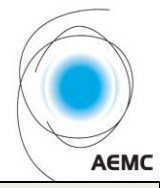
B)	Setting aside the ISP and how to make it more “actionable,” what other issues warrant attention when considering the objective of the RIT-T?	The RIT-T has an important role determining the best project among differing options to meet the identified need. The assessment’s important role should not be removed for larger more strategic projects.
C)	What changes may make the existing RIT-T process “faster”?	There is a potential for a streamlined RIT-T for smaller, less risky projects.
D)	What is the role of a dispute process in the RIT-T? How could spurious disputes be minimised?	Dispute resolution is important in the RIT-T process as it allows for confidence that risks taken on
<b>Chapter 6 – Renewable Energy Zones</b>		
<b>Question 14: REZ options – enhanced information provision</b>		
A)	Do stakeholders agree with our conclusions for how this model can occur under current regulatory arrangements?	Increased information is always useful to participations when making decisions on future investments.
B)	Do stakeholders agree with our assessment of whether this REZ model is consistent with the options discussed for making the ISP actionable? What other considerations should be taken into account?	We agree that this model would be improved by the strategic overview information being provided to the market by the ISP.
<b>Question 15: REZ options – generator coordination</b>		
A)	Do stakeholders agree with our conclusions for how this model can occur under current regulatory arrangements?	As noted in the option paper, It is difficult to coordinate generators, as these businesses are often in direct competition.
B)	Do stakeholders agree with our assessment of whether this REZ model is consistent with the options discussed for making the ISP actionable? What other considerations should be taken into account?	The introduction of the ISP would not remove the commercial drivers making this model difficult.

<b>Question 16: REZ options – TNSP speculative investment</b>		
A)	Do stakeholders agree with our conclusions for how this model can occur under current regulatory arrangements?	<p>The selling of ‘bonds’ to new entrants as set out is one way that speculative investment by the TNSP could be funded.</p> <p>Alternatively, TNSPs could potentially undertake such investment and bear the risks. As the investment would be partially speculative, and at least partially improve the shared network, a process would need to be determined to allocate these costs.</p>
B)	Do stakeholders agree with our assessment of whether this REZ model is consistent with the options discussed for making the ISP actionable? What other considerations should be taken into account?	<p>This option is consistent with the introduction of the ISP, as the improved information would help inform decisions of the TNSP, or potential purchasers of ‘bonds’.</p> <p>However, if AEMO were to have power to provide directions based on the ISP, then the incentive would be for generators and TNSP parties to wait for direction, rather than take speculative risks. This may delay development of REZs.</p>
<b>Question 17: REZ options – TNSP prescribed services</b>		
A)	Do stakeholders agree with our conclusions for how this model can occur under current regulatory arrangements?	Under the current situation, a TNSP construction of such type could only occur after the completion off a RIT-T.
B)	Do stakeholders agree with our assessment of whether this REZ model is consistent with the options discussed for making the ISP actionable? What other considerations should be taken into account?	<p>The issue with this model is that it places large risks on consumers, risks that consumers can do little to mitigate.</p> <p>Therefore, including REZ development in the prescribed service is not supported by Origin unless the construction meets the RIT-T assessment.</p> <p>The provision of information and strategic guidance form ISP would lead to TNSPs, and other parties, to have</p>

		access to better information when considering augmentations under a RIT-T to develop a REZ.
<b>Question 18: REZ options – clustering</b>		
A)	Do stakeholders agree with our conclusions for how this model can occur under current regulatory arrangements?	We agree that the model would require further assessment before being introduced and implemented.
B)	Do stakeholders agree with our assessment of whether this REZ model is consistent with the options discussed for making the ISP actionable? What other considerations should be taken into account?	Similar to what has been stated in response to questions 14 and 16, the provision of greater information through the ISP could lead to improved confidence of generators in investment decisions. However, if the ISP can be developed through direction powers, generators would be unlikely to take part and instead wait for networks to be built through directions.
<b>Question 19: REZs and access</b>		
	Do stakeholders agree with our conclusion about the types of REZ models that are feasible under the current transmission access framework?	An additional model of REZ design that has been raised by some stakeholders is that governments supply some initial funding or take on some of the risk. While Origin does not necessarily support this proposal, the AEMC and ESB should consider how best to integrate such funding with existing regulatory requirements for TNSP revenue and generator access.
<b>Chapter 7 – Congestion and access</b>		
<b>Question 20: Conclusion on need to consider access issues</b>		
	Do stakeholders agree with the Commission's conclusion in this Chapter that access and congestion management issues are likely to need to be addressed in the near term, once the role of the ISP has been addressed?	Ongoing monitoring of congestion is warranted; however, it is not conclusive that significant changes to the current congestion management regime are required. We agree that the role of the ISP and REZs would first need to be

		clarified prior to any meaningful discussion on congestion.
<b>Chapter 8 – Treatment of storage</b>		
<b>Question 21: Storage and TUOS</b>		
	Do stakeholders agree with the way the Commission has framed the issue of whether or not storage should pay transmission use of system charges?	Proponents of transmission connected storage require a transparent regulatory regime. The benefit storage units provide to consumer that should be clearly be reflected in the TUOs charging arrangement that they face.
<b>Question 22: Storage and TUOS - current arrangements</b>		
	Do stakeholders have any comments on the Commission’s initial views on storage and transmission charges? Are there any other arguments that are not discussed?	The policy intent of TUOS charging for loads, is that the transmission network is providing a service for loads. However, storage units are often operated for the service of the NEM (either security or market benefits), and consumers.  This should be considered when determining the TUOS charge requirement for storage.
<b>Question 23: Storage and TUOS - considering changing existing arrangements</b>		
	Are there any matters the Commission hasn’t discussed that should be addressed if a change to the existing arrangements for transmission charging for storage is considered?	See above





**Question 24: Storage and TUOS - additional considerations**

When considering the approach to the recovery of transmission charges, are there any additional factors worthy of consideration that the Commission has not listed?

One issue that the AEMC should consider is the level of transparency for newly connected storage units, ESB should consider streamlining and improving transparency of the process of determining TUOS.