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AEMC EPR0087 Transmission Planning and Investment Review – Consultation Paper

Submission on Chapter 5 - Material Change in Network Infrastructure Project Costs Rule Change Request

Introduction and Summary

This is a joint submission from the proponents of the rule change – Energy Users Association of Australia, Major Energy Users, ERM Power (now Shell Energy), Delta Electricity and AGL – to support the rule change.

The driver for our rule change was the significant increase in capital costs for Project Energy Connect (PEC) and the Eyre Peninsula upgrade transmission projects following the completion of their Project Assessment and Conclusions Report (PACR) stage and the AER's approval of the preferred option based on the PACR costs, both of which occurred before the TNSP's Contingent Project Applications (CPA) to the AER for much higher costs. Robust capital cost estimates are essential for a properly functioning cost benefit analysis in the RIT-T and CBA processes.

Reasonably accurate estimates of transmission costs are also essential to achieve the National Electricity Objective (NEO). The long term interests of consumers is best served by the PACR capex estimates on which the RIT-T net market benefits is calculated, being as close as possible to the final costs presented to the AER in the network's CPA project funding application. We do not think the NEO was best served when the CPA capex for PEC increased over 50% from the PACR estimate.

Our proposed rule change would, consistent with the NEO, therefore be in the long term interests of consumers by promoting a more rigorous approach to the development, and assessment, of major regulated network infrastructure projects. This more rigorous approach would further promote efficient investment in electricity services.

The improved governance and increased transparency in the RIT processes under the proposed rule change would further benefit consumers through increased engagement. This increased stakeholder engagement is crucial to ensuring continued confidence in the RIT and AEMO ISP processes at a time of unprecedented changes in Australia's Electricity Sector. The multi-billion dollar capital expenditure associated with regulated network infrastructure projects is paid for by consumers for the life of the project, making it necessary that they have sufficient information to determine whether their money is being spent efficiently.

While the rule change covers both transmission and distribution projects under the RIT process, the primary focus is on transmission projects because they have the largest costs and have the greatest risk of capital cost increases. This higher risk of over investment is not in the long term interests of consumers. Hence this submission focusses on the impact on major transmission investment.

Under the current rules it is the project proponent (TNSP) that decides if there has been a material change subsequent to completion of the PACR. The TNSP is potentially incentivised not to identify if there is a material change as it would then have to re-open the PACR. This approach is contrary to best practice governance principles. Our rule change would have the AER fulfill that role where there is an increase in PACR costs beyond a percentage trigger. We believe that this would bring greater transparency to the decision – not only about whether the PACR should be re-opened but also enabling the AER to exercise its discretion to decide what that re-opening would involve depending on the individual project.

The aim is to ensure that the preferred option at the PACR stage is based on similar costs that are submitted to the AER in the project funding approval stage. This is achieved through a transparent process that consumers have confidence in, not a TNSP run process that limits the ability of consumers to question the network's decision when consumers are at a significant information asymmetry with the proponent.

The fundamental elements of our rule change proposal are deliberately quite simple. If, following the completion of the PACR and prior to the submission of the project funding approval application to the AER, the capital cost of the preferred option increases by more than a specified percentage, then the TNSP would be required to formally advise the AER. The AER would then have the discretion to:

- Waive the requirement for reapplication of the RIT-T if the revised capital cost is <\$150m for transmission projects, or
- Set out how that reapplication would apply for that particular project if the revised capital cost is ≥ \$150m.

This reapplication could be no more than simply re-doing the PACR with the revised capital costs of the preferred option and an adjustment to the capex of the other options (eg by some material cost index) to see if the original preferred option still has net benefits and is still the preferred option. This process would include a round of stakeholder engagement to give them confidence in the revised results. In other cases, it might be more comprehensive.

We have amended our original rule change proposal in two ways to increase that simplicity:

- there is no requirement that the PACR capex analysis is any particular level of accuracy; eg an AACE class.
- The increase in capex needs to be ≥10% for the network to notify the AER.

We are simply seeking to ensure that the capex used in the PACR cost benefit analysis is within 10% of the capex used for the feedback loop and project funding approval application.

Some stakeholders have criticised the RIT process as adding unnecessary time to the approval process and is delaying required network investment. We do not think that this requirement will add unnecessary time and contribute to any further delay.

- We think it is reasonable to ensure a robust CBA in the PACR to ensure the NEO is met; how can the NEO be met if there is a rush to approve a project that subsequently proves to be much more expensive with consumers picking up that extra cost and if there is doubt about whether it should have been built in the first place?
- The expansion in the importance of ‘social licence’ issues is now the most critical timetable driver for building new transmission network, not the formal RIT timetable. Delays in the proposed ISP timetable are now occurring because of the changed expectations of best practice engagement with affected landowners along the route. These delays are well after the completion of the RIT-T process.
- Land acquisition and biodiversity costs are an increasingly important part of total project costs and should be included in the PACR cost benefit analysis. We cannot see how deciding on the preferred option without extensive understanding of these social licence costs is in the long term interests of consumers. Networks are having to deal with social licence issues they have never dealt with when they last built large projects 15-20 years ago.
- We think it is better for consumers that the network has a much more comprehensive understanding of these social costs at the PACR stage than having to redo the PACR because costs have subsequently increased significantly prior to the submission of the project funding approval application. Networks are going to have to estimate these costs as part of the project funding approval process so why not ensure an appropriate level of costs for these are incorporated in the PACR so consumers have confidence that the preferred option is, indeed, the preferred option and it has net benefits?
- The selection of cost used in the PACR CBA resides with the RIT proponent. There is no requirement that the mid-point of any cost estimate be used for the CBA. The proposed rule change simply requires assessment by the AER of a “material change” where the costs proposed at the funding approval stage increases by greater than 10% from the cost used in the PACR CBA.

Further, we do not see the rule change imposing unnecessary additional costs on networks. If the network decides to do the required work at the PACR stage and avoid the risk of the AER requiring reopening, then the rule change will simply bring forward what they do now post PACR and pre-CPA anyway. If it does involve additional costs, then we would support the network being able to apply to the AER for a pass through of the additional costs and let the AER rule on whether they were prudent and efficient.

We would consider the rule change a complete success if the AER never had to rule on a reopening of a PACR CBA stage. That would indicate that networks have done a good job in capex estimation at the PACR. It would also help ensure that consumers could have confidence that the revenue sought in the project funding approval application is robust for a project that is the preferred option.

This submission begins with a discussion of our original rule change and the two proposed amendments mentioned above given developments since we submitted our proposal in February and issues raised in the Consultation Paper (the ‘Paper’). Then we respond to the questions asked in the Paper.

An appendix discusses three projects – Humelink, the Western Victorian Network Project and Project Energy Connect (PEC) to highlight the importance of ‘social licence’ costs and why those costs need to be fully considered at the PACR stage.

We would also note that given AER and Government approvals for PEC, we are no longer proposing that the AEMC should approve a one off special transitional provision that would require reassessment of PEC via a requirement for the project proponent ElectraNet to issue an updated

PACR. We look forward to further detailed engagement with the Commission as it develops its position on the rule change.

The rule change proponents are separately providing their responses to Chapters 1-4 of the Paper.

Yours sincerely



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Submission - AEMC EPR0087 Transmission Planning and Investment Review – Consultation Paper

Why we proposed the rule change

The rule change is driven by the need to ensure the RIT process meets the long term interests of consumers by promoting efficient investment in electricity services under the National Electricity Objective (NEO). We want the multi-billion dollar network infrastructure expansions that will be required to facilitate the transition of the NEM from a highly concentrated synchronous generation system to a highly decentralised weather-dependent generation system to be built on time and on budget.

The need for a more rigorous approach to cost estimation is well recognised across all stakeholders and many reports to energy market bodies have provided evidence to support this. For example, Houston Kemp in their report to the AER on the regulatory treatment of large transmission projects noted¹:

“The magnitude of the investment projects foreshadowed in the ISP, both individually and as collective, brings into focus the regulatory processes that will be engaged to assess and approve them. Once approved and built, consumers will be paying for these projects for decades into the future, and so it is critical to the long term interests of consumers that they:

- are procured at least cost to consumers; and
- proceed only where they provide benefits to consumers.”

and²:

“The costs of these large, discrete projects are similarly uncertain. Most of the ISP transmission projects serve to increase interconnection capacity between NEM regions, increase connection with renewable energy zones (REZs) or both. These projects represent new challenges for TNSPs since they generally require them to extend the physical reach of their networks through the construction of entirely new transmission lines, rather than augmenting existing capacity. This means that the estimated costs of these projects are subject to considerable uncertainty, because:

- TNSPs do not have recent experience of projects of this type and scale, with few best practice examples against which to benchmark; and
- route design for new transmission lines can affect costs substantially but TNSPs’ ability to select routes may often be affected by environmental approvals processes, the cost and timing of which may not be in their close control.”

The MBB report to AEMO on the Transmission Cost Database highlighted` seventeen reasons for underestimation of costs in the early project stages³.

¹ See p. 1

<https://www.aer.gov.au/system/files/HoustonKemp%20-%20Regulatory%20treatment%20of%20large%20transmission%20investments%20-%20August%202020%2811698947.1%29.pdf>;

² Op cit p.8

³ See pp 8-10 https://www.aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/inputs-assumptions-methodologies/2021/transmission-cost-database-phase-1-report.pdf?la=en

The Grattan Institute recently published a research paper on the risks of cost escalation on ‘megaprojects’⁴. While the focus was road and rail projects, we consider the evidence very relevant to network projects. The analysis compared the published cost at the time of project sanction (effectively the equivalent of the CPA) with the published actual cost for all public road and rail projects completed from Q1 2021 to Q1, 2020. The main conclusions included:

- the larger the project the greater the cost overrun,
- a few large projects account for most of the overrun – often the overrun is equal to a large project size itself,
- the earlier the project cost announced the larger the overrun, and
- costs can increase significantly even after contracts are let depending on the contract conditions.

The experience of Project Energy Connect (PEC) and the Eyre Peninsula upgrade reflects these findings - a significant increase in capex between completion of the PACR and application for contingent project approval. At the time of completion of the RIT-T for PEC the capital cost was \$1.53b and this was the cost AER used in its 5.16.6 review concluding that net benefits were ~\$269m rather than the proponent’s claimed \$924m⁵. The cost estimate was an AACE Class 4 estimate that implies only 1-15% of scope had been defined⁶.

However, when the CPA was submitted, the requested capital cost had increased to \$2.4b. Given it was then up to Transgrid and Electranet to decide if there was a ‘material change’ under the rules (Clause 5.16.4(z3), stakeholders had no opportunity to properly question their decision. All we could see was continually rising costs and the networks claiming continually rising and untested benefits so that the project always demonstrated net benefits.

Appendix C in the Paper refers to the publication in March 2021 by Electranet of the “PEC Review of economic assessment” reviewing the likely impact on the project of various changes in policies and assumptions. This very high level 13 page report concluded that these changes had a positive \$140-\$290m impact on net benefits⁷. Yet there was no way for consumers or the AER to independently assess the veracity of that report given (i) the RIT-T process had ended, (ii) Clause 5.16.6 had been removed from the rules for ISP projects and (iii) the huge information asymmetry between the network with its proprietary modelling and consumers. What we do know is that:

- the AER’s 5.16.6 review published in January 2020 substantially reduced the networks’ claimed net benefits
- it was reasonable to assume given the AER’s view of net benefits, using a \$2.3b capex would have meant the project would not pass the 5.16.6 review by the AER
- when Electranet sought the AER’s assurance on their updated CBA as a precursor to Electranet’s CPA, the AER in a letter to Electranet on 28th September 2020 said⁸:

⁴ Grattan Institute “The Rise of Megaprojects – Counting the Cost” November 2020 <https://grattan.edu.au/wp-content/uploads/2020/11/The-Rise-of-Megaprojects-Grattan-Report.pdf>

⁵ See p.7 <https://www.aer.gov.au/system/files/AER%20-%20Determination%20-%20SAET%20RIT-T%20-%2024%20January%202020.pdf>

⁶ Op cit p.79

⁷ <https://www.electranet.com.au/wp-content/uploads/projects/2016/11/PEC-Review-of-economic-assessment-Final-31-Mar-2021.pdf>

⁸ See

https://www.aer.gov.au/system/files/AER%20-%20Letter%20of%20response%20to%20ElectraNet%20-%2028%20September%202020_0.pdf

“The updated modelling results indicate that PEC is likely to remain the preferred option, but that the net economic benefits remain finely balanced and there is a significant zone of uncertainty. It is difficult to precisely estimate the net economic benefits with a high degree of confidence and there are a number of reasons for this.”

and then goes on to detail three reasons before stating:

“In addition to these uncertainties, we consider that the estimated benefits of PEC are likely to be overstated...”

So it is understandable that our organisations are reluctant to accept the proponents claims about net benefits when we do not have the resources or the information that the AER has to review what a proponent provides as justification.

Evidence since we made our rule change submission has only reinforced our view of the need for this rule change. Humelink is now the most expensive ISP project and is subject to considerable dispute with a range of stakeholders about its route through the Snowy Mountains National Park and other areas considered to have significant environmental value. The PACR (July 2021) estimated capex for the preferred option 3C is \$3,317m⁹, a nearly 250% increase compared with the PADR (January 2020) estimate of \$1,350m. Lines and substations increased 230% from \$1,030m to \$2,380m and biodiversity costs increased nearly 300% from \$320m to \$935m. The PACR estimate is classified as a Class 4 estimate and hence still has a considerable degree of uncertainty.

For example, the recent dispute raised by Wunelli Pty Ltd with the AER¹⁰:

“...on the grounds that it believes the Humelink RIT-T Project Assessment Conclusions Report (PACR) fails to identify and consider all credible options to address the network need.”

may be a sign of what is more likely in the future when landowners dispute the route selection and drive costs higher. This is indicative of the limits of using Class 4 estimate for the PACR.

The rising importance of ‘social licence’ and the significant number of greenfield transmission infrastructure projects required under AEMO’s ISP means that using a Class 4 estimate at the PACR stage for the final cost benefit assessment for RIT-T approval is of even more limited use to consumers seeking to judge whether a project should proceed. These were not large considerations when the last large projects – QNI and Basslink were built 15-20 years ago. Social licence issues mean that consumers and other stakeholders cannot make an informed decision on whether they support a project based on a Class 4 capex estimate – which is what they are currently required to do under the rules.

There is almost a Catch 22 situation - because TNSPs are only doing Class 4 type estimates even at the PACR stage, they have not completed the work required to enable an accurate estimate of land acquisition and biodiversity costs (eg route selection and engagement with landowners). This is then compounded by the choice to use the midpoint of this estimate in the PACR CBA where historical observations indicate that costs submitted at the funding approval stage are closer to the maximum

⁹ Transgrid “Reinforcing the Southern Shared Network to increase transfer capacity to demand centres” (Hemelink) PACR 29 July 2021 pp 15-16 <https://transgrid.com.au/what-we-do/projects/current-projects/Reinforcing%20the%20NSW%20Southern%20Shared%20Network/Documents/TransGrid%20Hemelink%20PACR.pdf>

¹⁰ See <https://www.aer.gov.au/communication/aer-extends-timeframe-for-making-a-decision-on-humelink-rit-t-dispute>

value in the estimate range. The Appendix discusses Humelink, the Western Victorian Network Project and PEC to illustrate the growing importance of these costs and the need to include robust estimates of them in the PACR.

The large cost increases between the completion of the PACR and submission of the project funding approval application for a number of RIT-T projects suggest that TNSPs have an incentive to underestimate capex at the PACR stage as this increases the chances of a project showing net benefits and hence getting AER approval¹¹. When the capex subsequently increases, it seems the project proponent are always able to find enough 'benefits' to meet the 'net benefits' test and for the PACR option to remain the preferred option. Given that, under the current Rules, it is the project proponent which decides on whether a material change has occurred, we do not believe this process is consistent with the NEO as the end result is that consumers are then expected to pay for an asset following limited scrutiny of costs and benefits. We see this lack of scrutiny and the incentive it potentially creates as a major problem with the RIT-T governance framework. The Paper acknowledges this important governance issue.

We noted in our rule change application that there had been a number of initiatives to improve the accuracy of capex costs in transmission projects; eg, AEMO's transmission cost database (TCD), the feedback loop in the ISP and the AER's Guidance Note on the contingent project application process for ISP projects. But these do not address the fundamental governance issue identified.

The rule change is designed to lessen the chance of an inefficient project (one without net benefits or not the preferred option due to capex rises since the completion of the PACR) getting to the project funding approval stage where the AER Guidance Note is only going to ensure the project (irrespective of whether it has net benefits and is still the preferred option at the revised cost) has an efficient cost put into the allowable revenue.

The Paper agrees with our rule change submission that the feedback loop is not a substitute for RIT process:

"While this is an important safety net, the feedback loop does not seek to answer the same question as the RIT-T: namely, what is the option that achieves the identified need in the most efficient way (or "maximises the present value of net economic benefit")? Rather, the feedback loop focuses on the upper bound of acceptable costs, while the RIT-T seeks to identify the lower bound or least cost option that will meet the identified need."

We argued in our rule change that we:

"... consider there is a gap in the middle around the PACR and RIT approval as it transitions through to the CPA in ensuring that a project continues to provide a net benefit when significant cost increases occur and that is where this proposed rule change is specifically focussed."

The final point to note is that while the AER's CPA Guideline will somewhat mitigate the risk of cost increases post CPA approval, we expect that heightened social licence issues will inevitably mean TNSPs will apply for a cost pass through of these additional costs on the basis that they were prudent and efficient. It is then too late if that higher cost would not have passed the RIT or feedback loop tests. In our view this further supports the aim of the rule change for a more accurate estimate at the PACR stage.

¹¹ This is the opposite of what we think is the case for the ex ante capital in the revenue reset process.

What we proposed in the original rule change and an amendment to our rule change proposal

Our rule change is relatively simple. If, following the completion of the PACR and prior to the submission of the project funding approval application to the AER, the capital cost of the preferred option increases by more than a specified percentage, then the TNSP would be required to formally advise the AER. The AER would then have the discretion to:

- waive the reapplication if the revised capital cost is <\$150m for transmission projects
- determine how the PACR should be reapplied for that particular project if the revised capital cost is \geq \$150m.

In line with best practice governance arrangements, it would be the AER, not the sponsoring TNSP, that decides whether a material change has occurred and what the TNSP would be required to do in reopening the RIT-T. The intention of our rule change is to drive network behaviour to produce more accurate forecasts as part of the RIT process to avoid the risk of the AER deciding that the process would be re-opened. We would consider the rule change a complete success if the AER never had to rule on a reopening of a PACR. That would mean that the network would have done a good job in estimating the capex value used in the PACR. It would also help ensure that consumers could have confidence that the revenue sought in the project funding approval application is robust for a project that is the preferred option.

As the Paper discusses, the rules are not precise on what the AER is to take into account in making any determination, nor in what the terms 'reopen' or 'reapply' mean. The Paper argues that:

“...a requirement to “reapply the RIT” means the proponent is required to go back to the start of the process and complete all the steps again.”

But the Paper then notes the conclusion of the Commission’s 2017 determination regarding replacement expenditure planning arrangements that referred to the discretion the AER has, saying:

“...the AER may conclude that all of the RIT-T process should be carried out, certain elements of the RIT-T [should] be re-run or, the RIT process is not required [to be re- run]”.

Our rule change proposal was that the AER be able to exercise that discretion on what 'reopen' or 'reapply' means on a case by case basis. Our default position was that it may simply require the proposing network(s) to redo the PACR with the higher capex and undertake a range of stakeholder engagement to see if it still has net benefits and is still the preferred option. If so then the project assessment would proceed to the next stage – running through the feedback loop and then the project funding approval process. If it was no longer the preferred option, then greater scrutiny would be required.

In our rule change we also proposed that the current PACR practice, which seems to be the project proponent developing an AACE Class 4 cost estimate, was an inadequate basis for effectively making the final decision on the preferred option. Costs can increase significantly from that decision point in a way that may render the preferred project to no longer be the preferred project at the time of submitting the project funding approval application. We then proposed that in order to address this risk, the capex estimate in the PACR should be an AACE Class 2 estimate.

However, since we made our original rule change proposal in February there has been considerable discussion around the definition and use of cost classes at different stages of the RIT and project funding approval process. We have seen the AEMO publish its Transmission Cost Database which

discusses the different classes, but presents accuracy bands based on GHD analysis that are different from the accuracy bands in the AACE classification we were using in our original proposal.

Given this difference we consider that prescribing a particular cost category to the PACR could be confusing to all stakeholders. As a result, rather than a prescriptive requirement in the rules which can be open to interpretation, we now propose to leave it up to the proponent(s) to decide the level of accuracy to adopt for the purpose of calculating the PACR capex estimate.

As a result of this change, we are now proposing that the rules do not require a specific class of cost estimate at the PACR stage and that the trigger for the network to advise the AER of a capex increase post PACR should be a 10% increase for all projects, rather than 15% for lower cost projects and 10% for higher cost projects.

Responses to Questions

QUESTION 11: WHO SHOULD DECIDE WHETHER THE RIT MUST BE REAPPLIED?

1. Should this decision remain the responsibility of the proponent or should it be a matter for the AER? Why?
2. If the decision remains with the proponent, should the AER have the right to test that opinion?

Response

Given the current approach whereby it is solely up to the project proponent to decide if there has been a material change, we are not surprised there has been no instance where a proponent has reapplied the RIT as a result of a self-determined material change. They would not want to go through the process again given their view of the time and cost involved and, perhaps more particularly, in case it shows the preferred option changes or that there are no longer net benefits. Networks want to build assets as that is where their return is.

This is precisely the reason we proposed that it be the AER that makes the decision rather than the project proponent. We prefer a deterministic decision rule rather than having the option for the AER to decide whether to review. This later approach in part 2 of the question could get very complicated; eg, will stakeholders have the ability to apply to the AER to review? What evidence will they have to provide (which will be difficult given the information asymmetry between the proponent and consumers seeking a review)? We are happy to leave that decision up to the AER based on a deterministic trigger threshold with the AER having discretion to call for submissions as it considers its decision.

Best practice governance would clearly dictate that it should be an independent regulator, the AER, and not the network that should be the entity decided if a material change had occurred. We agree with the view in the Paper where it discusses whether it should be the TNSP or the AER (p.51):

“While the proponent will be most familiar with the project's costs and benefits and thus may be best placed to identify if the ranking of the preferred option has changed, it may naturally be reluctant to reapply the RIT or even be seen to have a conflict of interest. By contrast, the AER is impartial and focussed on consumer protection. As such, it may be considered the more objective judge of whether reapplication of the RIT, in some form, is warranted.”

QUESTION 12: COST THRESHOLDS

1. Should the NER include a requirement to reapply the RIT, or update analysis, when costs increase above specified percentage thresholds? If so, do you have a view as to what those percentage thresholds should be?
2. Do you consider this requirement should apply to all RIT projects or only those above a particular cost threshold/thresholds? If so, do you have a view as to what the cost threshold/s should be?
3. Do you have any views regarding the suggested alternative “decision rule” approach?
4. Should updated project cost data be provided to AEMO to help improve the accuracy of the ISP?
5. Do you have any other suggestions regarding alternative ways to manage cost increases?

Response

Our principal focus in the rule change was on large projects that go through the RIT-T process. These are the projects where poor quality cost estimates can have the largest impact on consumers. That is why we proposed AER discretion below the \$150m/\$50m threshold. We support having a cut-off point based on capital costs and the Paper’s suggestion for that to accord with the threshold for contingent projects is reasonable. Discussions with a couple of DNSPs suggested there are very few RIT-D projects that would be potentially subject to AER review under this rule change. There are only a relatively small number of ISP projects above \$150m capex.

For projects that are above the \$150m/\$50m thresholds, our proposal is a mandatory requirement:

- for the proponent to inform the AER, prior to the submission of the project funding application, if capital costs have increased by >10% from the costs used in the PACR CBA, and
- for the AER to reopen the RIT-T and exercise its discretion to determine the level and complexity of that reopening

We did not want to force the AER to undertake a review of every project given the administrative costs. The proposal is specifically directed at only a small number of large projects where the risk of cost increases have the largest impact on consumers. There will be some form of indexation on these trigger points to preserve their real value.

We do not accept the argument against the re-opening of the larger projects because it would be costly. The Paper cites a cost estimate of 1-3% for a detailed feasibility study. Based on the PADR cost for Humelink of \$1.35b, it would cost \$13-40m to prepare a detailed cost estimate, although we consider the upper level is somewhat overstated. Given the PACR estimate of \$3.32b capex for the preferred option, we think consumers would be happy to pay \$13-40m to get a more robust capex estimate than Class 4, recognising that these costs are going to be incurred anyway in the lead-up to submission of the project funding approval application. The same reference the Paper uses to source this cost estimate supports doing the additional work¹²:

¹² See <https://www.processindustryinformer.com/short-cutting-front-end-engineering-design-feed>

“Not an insubstantial sum but the operator gets a return on its investment. Progress on the project is made in terms of the engineering, but more importantly greater certainty on the cost of the project is provided.”

The Paper suggests that the +10%/15% thresholds for the AER to consider a review:

“...may be considered too low in light of the wide error margins typically associated with cost estimates for complex projects at the RIT stage.”

This seems to ‘put the cart before the horse’, and perhaps even somewhat ‘defeatist’. The problem the rule change is seeking to address is ‘the wide error margins’ in the capital cost used in the RIT-T CBA. How can consumers have confidence in the preferred project at the PACR stage remaining the preferred project up to the project funding approval stage when there are such wide error margins in the capex? How can it be in the long term interests of consumers to have decisions about spending billions of dollars in network investment that consumers will pay for over the next 50-60 years when there are such ‘wide error margins’? Therefore, how can this position be consistent with the NEO?

The Paper raises an interesting point in reference to decision rules and evaluation of network vs non-network options. It is not just a case of the movement in costs of network vs non-network options, it is also about the level of accuracy.

Based on the AEMO Transmission Cost Database (TCD), AEMO uses the mid-point of the Class 5/4 capex estimates in ISP modelling. As we noted above, we do not think that is justified, but let’s assume it is for this discussion. Yet the CSIRO approach to measuring the accuracy of generation and storage capex is quite different to the TCD. CSIRO describe their approach as¹³:

“Our preferred definition of current costs are the costs that have been demonstrated to have been incurred for projects completed in the current financial year (or within a reasonable period before). We do not wish to include in our definition of current costs, costs that represent quotes for delivery of projects in future financial years or project announcements.”

This approach suggests a Class 1 estimate or perhaps a Class 2 for non-network options. It seems an unequal playing field for AEMO modelling to be comparing midpoints of Class 5/4 estimates for network vs Class 1/2 estimates for batteries. We illustrate this with an example of two competing projects – one will definitely cost \$1b using a non-network solution, and the other costs \$975m ±50%. Under the RIT-T and ISP frameworks, we understand that the \$975m project will be generally considered optimal. That does not make sense to us. The lower risk of cost increase for the \$1b option would be more favourable than the risk profile for the network option, particularly noting the potential for the non-network option to be reused elsewhere if the benefits of the project are not realised in the future.

We do not see the need to complicate the process with ‘more nuanced sensitivity analysis’ or ‘bespoke’ decision rules. We are proposing that the AER is able to exercise its discretion under the rules to decide what ‘reopening’ means. The Paper’s suggestion that (p.53):

¹³ See CSIRO “Gen Cost 2020-21” Final Report June 2021 p.16 <https://www.csiro.au/en/news/News-releases/2021/CSIRO-report-confirms-renewables-still-cheapest-new-build-power-in-Australia>

“...the PACR could specify that, if the cost of the preferred option were to increase by X% (following market testing) and/or the cost of the second option reduce by Y% (e.g. based on producer price indexes or market data), then the outcome of the RIT should be revisited.”

risks introducing unnecessary complications around definitions requiring complex legal drafting that may provide scope for TNSPs avoiding the desired impact of the rule change.

We support publishing of the capex breakeven cost (as was the case for VNI West in the 2020 ISP which had net benefits up to cost if \$2.6b) and do not think that will allow gaming by potential contractors.

We support the revised cost data being provided to AEMO to help improve the accuracy of the ISP capex estimates. We also support this information being publicly available as AEMO prefers. Transgrid only provided cost data to AEMO for the Transmission Cost Database on a confidential basis which prevented AEMO from transparently assessing the AACE class of the numbers¹⁴. We would seek AEMC’s advice on whether this transparency is possible without a rule change.

QUESTION 13: REQUIREMENTS WHEN REAPPLYING THE RIT

1. Should the requirement to reapply the RIT be more targeted?
2. Should any additional analysis and modelling that is required to be undertaken be published and subject to public consultation?

Response

The Paper’s commentary here seems to imply that the rule change requires a complete re-application of the RIT process. This is not the case. We propose that the AER will be able to exercise its discretion on what ‘reopen’ or ‘reapply’ means in each particular case. Our default position was that discussed in the Paper - the proposing network would simply redo the PACR with the higher capex and undertake a range of stakeholder engagement if the option still has net benefits and is still the preferred option. If so, then the time involved would be brief and the cost small. If it was no longer the preferred option, then greater scrutiny would be required.

We proposed a deterministic decision rule (and the 30 day window for an AER decision) so there is no protracted debate on whether a review should take place. All parties want the issue to be dealt with promptly so that good investment decisions are not delayed.

The question is whether this more targeted approach should be prescribed in the Rules or left to the AER’s discretion under the existing Rules. We tend to favour leaving it to the AER’s discretion. There might be a myriad of possible outcomes and these would be hard to define in the rules but we have confidence the AER would apply the rules in a transparent and consistent manner.

QUESTION 14: TRIGGER TO REAPPLY THE RIT

1. Do you have any views as to how the requirement to reapply the RIT should be given effect, including for contingent and non-contingent projects?

¹⁴ See discussion at pp 20-21 <https://aemo.com.au/-/media/files/major-publications/isp/2021/transmission-cost-report.pdf?la=en>

2. Should there be a cut-off point (e.g. once the AER approves the CPA, or once construction commences) beyond which any requirement to update analysis cannot be triggered? If so, what would be an appropriate cut-off point?
3. Should there be a limit on how many times RIT analysis must be updated?

Response

Our focus in the rule change was on projects that have received RIT-T approval, but the cost has increased significantly at the project funding approval stage. We can see both sides of the discussion:

- Exclude non-contingent projects from the rule change given they are considered as part of the ex ante capex approval process; if a particular project increases in cost following the end of the RIT, then the network simply has less capex available for other projects given the fixed capital approval amount
- Include 'major' (say >\$50m) non-contingent projects in the rule change to improve project transparency and help inform other capex estimates

On balance we would support the latter as the risk to consumers of a capex blowout remains much the same regardless as to whether the project is 'contingent' or not.

Our proposal was intended to allow the proponent to advise the AER of the >10% cost increase at any time prior to submitting their project funding approval application. We expect any advice to be provided as closely as possible to the application to eliminate the risk of triggering multiple review processes if the project has a further >10% increase in cost. The intent is that the revised capex cost to be subject to the AER review is the cost that will go into the feedback loop and be the subject of the project funding application.

QUESTION 15: SHOULD RIT COST ESTIMATES BE MORE RIGOROUS?

1. Do you consider that the current level of rigour used for RIT cost estimates is suitable? If not, what level of rigour is appropriate? In particular, would it be appropriate to require an AACE 2 estimate (i.e. a detailed feasibility study) for each credible option?
2. If more detailed cost estimates are required at the RIT stage, should this apply to all RIT projects, or only to larger projects? If so, which projects should be subject to this requirement?
3. Do you have any other suggestions to address the issues raised in the rule change 3 request?

Response

The rule change is driven by our view that the current level of rigor is insufficient to further the National Electricity Objective. The cost estimate coming out of the PACR needs to be much closer to the cost level the network will submit in the project funding approval application.

The Paper claims (p.53):

“As part of its efforts to improve transmission cost estimation for the ISP, AEMO has set out what it considers an appropriate approach to estimating project costs for the purposes of the ISP, the RIT and the CPA. This uses the same classification system (developed by the

Association for the Advancement of Cost Engineering (AACE)) as suggested by the rule change proponents but takes a different view as to the level of rigour that is appropriate to require at the RIT stage.

...

By contrast, AEMO considers that a class 4 or 3 AACE estimate is adequate for use at the RIT stage (the RIT-T for PEC was based on a class 4 estimate) while a CPA should be based on a class 3 estimate or better. For a major or complex project, a class 4 estimate has an error margin of -30% to +50% while a class 3 estimate has an error margin of -20% to +30%. The percentage cost increases suggested in the rule change request (10 per cent for larger projects and 15 per cent for smaller projects) are well within these error margins and hence may be considered too low. A proponent could prepare a cost estimate in accordance with AEMO's guidance and still experience a material cost increase as defined in the rule change request." (p.53)

and (p.58):

"The rule change request proposes that the AER guidelines be amended to require proponents to develop more rigorous (and expensive) cost estimates for the PACR or FPAR. The proponents suggest this should be based on an AACE class 2 estimate or detailed feasibility study.

This is at odds with the approach adopted by AEMO in its 2021 Transmission cost report (which recommends a class 4 or 3 estimate at the RIT stage, and a class 3 estimate or better at the CPA stage) and by other organisations such as CSIRO."

The Paper's description of the AEMO view is incorrect. The reference given by the Paper to support their view is from the AEMO 2021 Transmission Cost Report, published as part of the 2022 ISP. It discussed the indicative approach currently taken by TNSPs to measuring capital cost accuracy and is shown in Table 6. AEMO then go on to comment¹⁵:

"The indicative class levels shown here reflect AEMO's current understanding of levels typically used at each stage, which may vary across the TNSPs and across projects. AER guidelines¹¹ outline the expectations for each stage of the RIT-T, however they do not currently stipulate a specific class level for cost estimates, as estimate accuracy achieved at each stage will depend on the nature of the project."

AEMO is simply trying to fit the responses they received from TNSPs on their current practice into the AACE cost categories – hence their description as 'indicative'. They are shown as 'indicative' because that is what they are. AEMO received cost estimates from each TNSP that has their own methodology that may or may not have any relativity to the AACE categories. AEMO then used the transmission cost database to try to get some alignment among the different types of estimates (though it was complicated by Transgrid only providing confidential \$ numbers). Further AEMO has confirmed to us that they do not seek to specify a particular class for a particular RIT-T stage. They do use the Transmission Cost Database to develop what AEMO considers are Class 5 estimates for future ISP Projects.

The Commission also refers to a CSIRO report in footnote 155 as supporting its view:

¹⁵ See p.12 <https://aemo.com.au/-/media/files/major-publications/isp/2021/transmission-cost-report.pdf?la=en>

“CSIRO adopts a similar approach to AEMO, only using FEEDs once a preferred option has been identified.”

We think the first half of the sentence misinterprets what CSIRO says. The CSIRO webpage is a general commentary on project development, not referring to any particular project. It notes:

“The definitions described herein should be used more as a ‘thought guide’ as not all projects will necessarily follow the (exact) decision path set out below.”

It talks about ‘progressively more detailed and complex steps’ as the projects goes through the stages of project development leading up to:

“The key decision point is when a positive final investment decision (FID, or similar depending on an organisation’s investment progression framework) is taken; the project can then be classified as having moved from development planning into construction (and then into operations).”

The CSIRO makes no mention of its view on what AACE Class would apply to a FEED study (or any other project development stage). In our experience of projects of similar size to ISP projects:

- The evaluation of options (sometimes referred to as ‘pre-feasibility’) is on the basis of a Class 2/3 cost analysis (depending on the complexity of the project) to determine the preferred option, not a class 4 - ‘pre-feasibility’ is the PACR equivalent when the final preferred option is chosen
- Once a final option is selected, that triggers the detailed feasibility study on the preferred option – which is often referred to as a FEED analysis
- At the end of the FEED analysis there is a Class 2/1 type estimate (again depending on the complexity of the project) for the preferred option that is then submitted for investment approval to spend – what CSIRO refers to as FID; that stage is equivalent to the project funding application.

The Paper seems to confuse PACR as the equivalent of a FEED study, which it is not. The second half of footnote 155 - using FEED once the preferred option has been identified - aligns with our experience.

As we noted above, we have reconsidered our original proposal for a Class 2 at the PACR stage. As we have examined the debate around the AEMO Transmission Cost Database for the 2022 ISP that has occurred since we made our original rule change proposal, one conclusion is clear. While discussion of what an appropriate cost class might or should be at different stages of the RIT-T or CPA process, there is considerable variation in what a particular class actually means. The AACE accuracy bands are¹⁶:

Class 5	Class 4	Class 3	Class 2	Class 1
L: -20% to -50% H: +30% to +100%	L: -15% to -30% H: +20 to +50%	L: -10% to -20% H: +10% to +30%	L: -5% to -15% H: +5% to +20%	L: -3% to -10% H: +3% to +15%

¹⁶ See p. 3 https://web.aacei.org/docs/default-source/toc/toc_18r-97.pdf.

By contrast, the GHD developed accuracy bands developed for AEMO’s Transmission Cost Database are¹⁷:

Table 8 Total unknown risk factors, on average, at different cost estimate classes and associated accuracy range

Cost estimates	Class 5	Class 4	Class 3	Class 2	Class 1
Total unknown risk factor	~15%	~9%	~4%	0%	0%
Accuracy range	±30%	±20%	±15%	±10%	±5%

The AEMO bands are both smaller and symmetrical (equal risk of costs being higher or lower) compared to the AACE accuracy bands being wider and asymmetrical (higher risk of an increase than a decrease). This leaves specifying a particular class open to interpretation. For those reasons we propose leaving the PACR class estimate to the project proponent’s discretion.

¹⁷ See p. 30 <https://aemo.com.au/-/media/files/major-publications/isp/2021/transmission-cost-database---ghd-report.pdf?la=en>

Appendix – The increasing important of ‘social licence’ costs for networks

Social licence costs were much less of an issue back when QNI and Basslink were built. They have increased significantly in importance in recent years as the scale of network construction has expanded and community expectations of compensation and environmental amenity have changed. This is recognised in the Paper with the discussion of jurisdictional, environmental and planning approvals behind Question 10. This is why the current transmission development process can take six to seven years end-to-end. It is also why land acquisition and biodiversity costs are now a large and increasing proportion of total capex.

In developing the Transmission Cost Database for the 2022 ISP, GHD noted¹⁸:

“Biodiversity – greenfield projects impact threatened species with high offset values, not able to be fully understood until significant work is undertaken.”

There is almost a Catch 22 situation - because TNSPs are only doing Class 4 type estimates even at the PACR stage, they have not completed the work (eg, route selection and engagement with landowners) to enable an accurate estimate of land acquisition and biodiversity costs. So it should not be surprising that we are seeing large changes in costs between the PACR and project funding approval application stages.

This Appendix discusses three case studies that show the growing importance of these costs as the driver for cost increases during the RIT-T. The long term interests of consumers are best served by these costs being considered as part of the RIT-T. This would give consumers confidence that there is appropriate governance and rigor around the RIT-T and project funding approval decision making process. It would also give consumers confidence that the project costs the AER is deciding on in the project funding approval process are, in fact, realistic project costs.

(i) Humelink

This is the most expensive ISP project and subject to considerable dispute with a range of stakeholders about its route through the Snowy Mountains National Park and other areas considered to have significant environmental value.

The PACR (July 2021) estimated capex for the preferred option 3C is \$3,317m¹⁹, a nearly 250% increase compared with the PADR (January 2020) estimate of \$1,350m. Lines and substations increased 230% from \$1,030m to \$2,380m and biodiversity costs increased nearly 300% from \$320m to \$935m. The PACR estimate is classified as a Class 4 estimate and hence still has a considerable degree of uncertainty.

These costs are being driven by the level of biodiversity offset costs. The range of options presented in the PACR showed these costs varied from 24-44% of total capex – with 28% for the preferred Option 3C.

	1A	1B	1C	2B	2C	3B	3C
Lines and substations	1470	1990	1725	3150	2585	2560	2380

¹⁸ ISP Transmission Cost Database May 2021 p.5

¹⁹ Transgrid “Reinforcing the Southern Shared Network to increase transfer capacity to demand centres” (Humelink) PACR 29 July 2021 pp 15-16 <https://transgrid.com.au/what-we-do/projects/current-projects/Reinforcing%20the%20NSW%20Southern%20Shared%20Network/Documents/TransGrid%20HumeLink%20PACR.pdf>

Biodiversity	1060	1320	1340	1150	815	1220	935
Total	2530	3310	3065	4300	3400	3780	3317
Biodiversity as % of total	42	40	44	27	24	32	28

The importance of these costs was recognised by Transgrid establishing an Office of the Landowner and Community Advocate earlier this year²⁰. The Office’s review between April and June resulted in many recommendations implemented by Transgrid to improve their engagement. It remains to be seen how implementing these recommendations impact the next capex estimate in what is, as noted above, currently a Class 4 estimate.

(ii) Western Victorian Network Project

This is an ‘anticipated’ project (ie, it has met three of the five criteria under the AER’s CBA Guidelines) in the 2022 ISP that is assumed to be part of the future network and, hence, AEMO does not estimate capex costs. There is currently a dispute between landowners and AusNet Services on the proposed route²¹. AusNet has an obligation to consider undergrounding as part of its Environmental Effects Statement as well as the RTT-T options analysis. A report commissioned by the Moorabool Council concluded that²²:

“It was determined that not only is a HVDC system utilising underground cables a technically feasible alternative, but it is also likely to be more reliable and efficient for the movement of renewable energy to major centres whilst presenting significantly reduced impact to social and environmental factors.”

The consultant estimated the cost of undergrounding at ~ \$2.7b, or five times the cost of the preferred overhead towers option. The Council claimed that AusNet had previously indicated that undergrounding might be ten times the cost²³.

Even at five times the cost it will more than offset the benefits and result in the line not being built. AEMO comments that²⁴:

“HVAC underground cable is suited to lengths below approximately 50 km. Beyond 50 km length, AC lines at high voltage level will be subject to very large charging currents, requiring significant reactive compensation and design considerations.”

While compulsory acquisition is always the fallback, it is poor engagement practice to do so. There is a risk of significantly increased costs – either through higher land purchase costs or a change of route if the network is not willing to exercise compulsory acquisition. And those costs may not be known until late in the final design and construction phase. Although AusNet has provided a

²⁰ <https://www.transgrid.com.au/news-views/lets-connect/stakeholder-engagement-program/Office%20of%20the%20Landowner%20and%20Community%20Advocate/Pages/default.aspx>

²¹ See <https://www.abc.net.au/news/rural/2021-06-30/western-victoria-transmission-network-project-proposal/100254178>

²² Amplitude Consultants “Western Victorian Transmission Network Project High-Level Alternative HVDC Scoping Project” <https://www.moorabool.vic.gov.au/files/content/public/about-council/large-projects-impacting-moorabool/western-victoria-transmission-network-project/wvtnp-high-level-hvdc-alternative-scoping-report.pdf>

²³ See <https://www.abc.net.au/news/2021-06-22/moorabool-shire-transmission-line-report/100231730>

²⁴ Transmission Cost Report p.23

notionally ‘firm’ contract price for the project, additional costs can still be passed through to consumer post construction.

While AEMO’s classification of this project as ‘anticipated’ may meet the AER’s definition under the CBA Guidelines, which means that project costs are not considered in the ISP, this results in flawed modelling. Land acquisition and biodiversity offsets are still for too uncertain.

(iii) Project Energy Connect

The impact of uncertain environmental and biodiversity costs can be shown by the Project Energy Connect capex forecasts submitted to the AER last year as part of the contingent project application. The table summarises the capex forecast from the initial application to the AER in June 2020²⁵ and the revised Best and Final Offer (BAFO) provided to the AER in September 2020²⁶:

	\$(2017-18)m		% of total capex	
	June 2020	BAFO September 2020	June 2020	BAFO September 2020
Property and easements	\$109.5	\$109.5	4.8%	5.8%
Environmental offsets	\$74.7	\$139.4	3.2%	7.3%
Risks - biodiversity	\$122.1	\$122.1	5.3%	6.5%
Sub - Total	\$306.3	\$371.0	13.4%	19.6%
Total Capex	\$2,290.9	\$1,894.6		

The updated numbers showed a significant increase in the share of these components to nearly 20% of the total costs. These updated costs reflect²⁷:

“...updated expert reports from Jones Lang LaSalle (JLL) and WSP on property and easement costs and environmental offset costs, which reflect the new PEC route via Dinawan, the current process of acquisition negotiations and on-site investigations”

These costs also included the same level of biodiversity risk. The JLL report²⁸ dated August 2020 makes clear that it is a complicated process as routes change and consultation is undertaken. Even at this CPA stage:

- While individual Assessments of Compensation have been assessed for Stage 3, between Balranald and Four Corners, no direct engagement and socialisation of compensation with affected property owners had yet occurred
- A high-level review of design options for Stage 4, between Four Corners and Wagga Wagga is underway but not completed
- Option agreements had only been negotiated with 30% of the 81 land owners along the NSW part of the route

²⁵ See

<https://www.aer.gov.au/system/files/TransGrid%20-%20Project%20%20EnergyConnect%20-%20Principal%20Application%20-%2029%20June%202020.pdf>

²⁶ See Table 2.2 p.5

<https://www.aer.gov.au/system/files/TransGrid%20-%20A.5A%20-%20PEC%20-%20Supplementary%20Capex%20Forecasting%20Methodology%20BAFO%20-%2030%20September%202020.pdf>

²⁷ Ibid p. 1

²⁸ See

<https://www.aer.gov.au/system/files/Transgrid%20-%20JLL%20Report%20Land%20Acquisition%20Costs%20Revised%20-%2025%20August%202020.pdf>

Table 2.0 Number of Option Agreements per Stage

STAGE	SECTION	NO. OF OWNERS	NO. OF OPTION AGREEMENTS
1	Border to Buronga	17	12
1A	Buronga to Red Cliffs	13	1
2	Buronga to Balranald	25	11
3	Balranald to Four Corners	26	-
4	Four Corners to Wagga Wagga	TBD	-

JLL comment that time pressure on project development increase the risk of higher levels of compensation being required.

“The timelines for requiring access to land for construction activity (possession of site) and subsequent project delivery in general has the greatest bearing on the extent to which a proponent is prepared to negotiate a voluntary commercial agreement in excess of valuation.

It follows that the tighter the delivery timeframe for access to land for construction purposes, the less time is allocated to negotiating voluntary commercial agreements with directly impacted landowners and subsequently agreed compensation will be inflated to a greater degree above valuation.

Landowners and their advisors in the current environment are very astute and are more cognisant of their ability to drive a higher compensation amount if proponents are under pressure to achieve access to land in a short timeframe.

This is particularly evident in instances where a proponent has insufficient time to acquire land and easements by compulsion.”

Project Energy Connect is represented publicly as a project that has to be built quickly. As Transgrid notes in its CPA application to the AER²⁹:

“The timing for the submission of this Application is driven by our commitment to meet our contractual obligations to the SA Government in accordance with our early works agreement with them.”

The AER eventually concluded that³⁰:

“We found that the majority of the easement and land acquisition costs are likely reasonably estimated...”

Conclusion

The three case studies in this Appendix demonstrate the growing importance of ‘social licence’ costs as the driver for cost increases during the RIT-T and, thus, how it is in the long term interests of consumers for these costs being considered as part of the RIT-T. This would give consumers confidence that there is appropriate governance and rigor around the decision making process, and

²⁹ See p. 1

<https://www.aer.gov.au/system/files/TransGrid%20-%20Project%20%20EnergyConnect%20-%20Principal%20Application%20-%2029%20June%202020.pdf>

³⁰ See p. 21

<https://www.aer.gov.au/system/files/AER%20-%20Final%20Decision%20-%20TransGrid%20-%20Project%20EnergyConnect%20Contingent%20Project%20-%20May%202021.pdf>

that the project costs the AER is deciding on in the project funding approval process are, in fact, realistic project costs.