PRELIMINARY POSITION

TransGrid Contingent Project

Project EnergyConnect

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AUSTRALIAN ENERGY REGULATOR

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Executive Summary

Project EnergyConnect is a proposed new interconnector between South Australia at Robertstown and New South Wales (NSW) at Wagga Wagga, together with a spur line linking to Victoria at Red Cliffs. It will be jointly constructed and managed by ElectraNet (South Australia) and TransGrid (NSW).

TransGrid's forecast capital expenditure for the NSW component of the project is $1,894.6 million ($2017-18). The project is proposed to be completed by June 2023.

On 30 September 2020, TransGrid applied to the Australian Energy Regulator (AER) to increase its revenue allowances to fund construction of the NSW component of the project. This is the final step in the regulatory process before TransGrid may begin recovering the costs of the project from customers.

Our role is to determine the incremental revenues that will be added to TransGrid's revenue allowance, and the forecast prudent and efficient capital expenditure (capex) and operating expenditure (opex) required to deliver the project.

We have considered the matters set out in TransGrid's application. Table 1 sets out our preliminary views on the forecast capex required to undertake the project, the incremental revenues that TransGrid would be able to charge customers, and the estimated impact on the transmission component of residential customer electricity bills in NSW. We also estimated these impacts under changes to the rules being proposed by TransGrid to support its ability to finance the project.

Table 1 Project EnergyConnect contingent project — preliminary assessment of forecast capex, revenues and bill impact

	Current rules	Proposed rule change
Forecast capex reasonably required to construct the project	$1,695.7 million	$1,695.7 million
Incremental revenue to be recovered from customers in 2018-23	$59 million	$132 million
Indicative increase in residential electricity bills in NSW in 2018–23	$5 p.a.	$11 p.a.
Indicative increase in residential electricity bills in NSW in 2023–28	$19 p.a.	$26 p.a.

Source: AER analysis.

While we have formed preliminary views on TransGrid's application, it would be premature for us to make a determination to increase TransGrid's allowed revenue so that it can begin recovering the project costs from customers. This is because we are not satisfied that TransGrid's Board has committed to proceed with the project.

The project trigger event has not occurred

We are only required to determine the expenditures and incremental revenue required to deliver a contingent project, and allow TransGrid to recover costs from customers, if we are satisfied that the trigger event has occurred. This is because consumers should not be charged for new significant projects, such as Project EnergyConnect, until the cost is reasonably known and it is certain the project will proceed.

TransGrid's project trigger for Project EnergyConnect involves three elements:

- successful completion of a regulatory investment test for transmission (RIT-T) demonstrating an overall network investment by all parties involved in the interconnector construction that maximises the positive net economic benefits
- a determination by the AER that the proposed investment satisfies the RIT-T
- TransGrid Board commitment to proceed with the project subject to the AER amending the revenue determination pursuant to the Rules.

In June 2020, TransGrid's Board resolved to commit to the project, subject to:

- the AER awarding incremental revenue commensurate with the capital and operating costs of the project proposed by TransGrid
- TransGrid obtaining debt and equity funding on terms satisfactory to it, and
- the Board of ElectraNet making a corresponding commitment.

We are not satisfied that the project trigger event has occurred. This is because we are not satisfied that the TransGrid Board has yet committed to proceed with the project if we were to amend its revenue determination pursuant to the National Electricity Rules (NER). This is required to satisfy the third element of the trigger event.

We consider that the TransGrid Board has not yet committed to the project because:

1. TransGrid has expressed the view that it requires a change to the NER in order to obtain debt and equity funding for Project EnergyConnect on terms satisfactory to it. On 1 October 2020, it proposed a rule change to the Australian Energy Market Commission (AEMC). On 5 November 2020, the AEMC stated that it expects to publish a determination on TransGrid's rule change proposal on 31 March 2021. While this rule change process remains unresolved, it is not clear that TransGrid's Board is committed to the project.
2. It is not clear that TransGrid's Board would make a final investment decision and commit to proceed with the project based on our preliminary assessment of the costs reasonably required to undertake the project. As set out below, our analysis of the incremental revenue required to undertake the project is based on a preliminary assessment of prudent and efficient capital costs that are materially different to those proposed by TransGrid.

The forecast costs of Project EnergyConnect

The key component of TransGrid's application and driver of the incremental revenues that would be recovered from consumers following a contingent project determination is the forecast amount of capex reasonably required to construct the project.

TransGrid's application proposed $1,894.6 million ($2017-18) in capex to undertake the Project EnergyConnect contingent project. We have examined TransGrid's proposed capex forecast and our preliminary view is that a reasonable estimate of prudent and efficient capex required to deliver the project is $1,695.7 million ($2017-18). This is 10 per cent less than TransGrid's proposal.

The majority of TransGrid's forecast capex would be incurred by an efficient and prudent operator to deliver this project. Approximately 77 per cent of the forecast capex has been market tested through a comprehensive and competitive tendering process, and therefore reflects a realistic expectation of actual costs that can be delivered by the market. The proposed project scope reflects refinements in line route, cost-efficient design and construction techniques, and lower costs for large specialist equipment than TransGrid could achieve itself.

We note that TransGrid's forecast capex for transmission lines is higher than comparable benchmarks. This may be explained by the specific line route, line deviations, market conditions, and project specific topographical, geotechnical and other factors. However, we consider it is also likely to be influenced by TransGrid's project delivery model and its proposal to enter into a fixed-price contract with a single supplier to design, procure and construct all of the required works. While not unreasonable, this is a conservative approach to contracting as it transfers the majority of project risk to the contractor.

We consider that TransGrid has likely overstated the capex reasonably required for the cost of offsetting the environmental impacts of the project. The most recent and accurate information on the impact of the project on biodiversity and protected species in NSW suggests that TransGrid will require significantly lower costs than forecast in its application. This is partially because TransGrid has taken actions throughout the development of the project to reduce the impact of the project on the environment, and elements of its forecasts are now outdated.

Further, we found that TransGrid has also overstated the prudent amounts for contingencies for additional construction costs and route deviation provisions. This is because TransGrid does not appear to have undertaken a prudent probabilistic risk-based approach to estimating these costs, and therefore has not quantified the costs in a way that prudently reflects the nature of the risk.

Next steps

We expect to be able to make a determination on TransGrid's contingent project application after the project trigger event occurs. We are well placed to do this given the substantial work undertaken to date.

For the trigger event to occur Transgrid will need to resolve the project financing issues highlighted in its rule change proposal to the AEMC. This appears unlikely to happen before the AEMC publishes its final determination on the rule change proposal, which is expected on 31 March 2021. It will also need to demonstrate that it is willing to make a final investment decision based on a forecast of the project costs that are commensurate with our assessment of prudent and efficient costs.

In the interim, we welcome feedback from interested stakeholders on our preliminary assessment of forecast capex in this document, and the occurrence of each element of the defined project trigger event. We will take this into account as we finalise our assessment and make a determination once we are satisfied that the trigger has occurred.

Contents

1 Project EnergyConnect contingent project

Project EnergyConnect is a proposed $2.4 billion ($2017-18) contingent project to construct a new high voltage interconnector over a route of approximately 860 km between the electricity networks of South Australia at Robertstown and New South Wales at Wagga Wagga.

The construction of the new transmission line is proposed to be completed by June 2023. TransGrid is seeking $147 million in incremental revenues over the 2018–23 regulatory control period to undertake the Project EnergyConnect contingent project. The actual project capex would then be added to TransGrid's regulatory asset base (RAB) at the end of the current regulatory control period.

The forecast expenditure associated with this project was not included in TransGrid's revenue determination for the 2018–23 regulatory control period.

The regulatory process to date

Project EnergyConnect is the preferred option identified in the *South Australia Energy Transformation* Regulatory Investment Test for Transmission (RIT-T) process. This process has been undertaken by ElectraNet to explore options for reducing the cost of providing secure and reliable electricity to SA in the near term, while facilitating the longer-term transition of the energy sector across the National Electricity Market.

In February 2019, ElectraNet published its final report that identified a new SA-NSW interconnector as the preferred option that maximises the net economic benefits. As this project involves interconnection with NSW, it is a joint project with TransGrid. At this time, the total project cost was estimated at $1.5 billion.

On 24 January 2020, we determined under clause 5.16.6 of the NER that the preferred option identified by ElectraNet's RIT-T satisfies the RIT-T.

The majority of the benefits of the project are associated with avoiding high cost gas generation in South Australia. While we accepted the majority of inputs and assumptions used by ElectraNet in its RIT-T as reasonable, we considered that ElectraNet likely overstated estimated gas fired generation usage. We considered that the net economic benefits of the project were likely to be around $269 million.

As part of our determination, we stated that if updated costs and benefits of the project differ materially from the analysis in the RIT-T, ElectraNet (the RIT-T proponent) should consider whether there has been a material change in circumstances such that the preferred option may no longer maximise the positive net economic benefits.

On 29 June 2020, TransGrid provided an initial contingent project application for its component of the project. This application proposed a significantly higher estimate of project capital costs than was assumed in the RIT-T. AEMO also published its final 2020 ISP in July 2020.

ElectraNet conducted an updated cost benefit analysis using the updated 2020 ISP inputs and assumptions and took into account the updated capital costs for the project. This updated analysis was conducted for the central scenario and indicated that the net benefits of the project are likely to be positive.

ElectraNet provided this updated analysis to us seeking our confirmation that the outcome demonstrated that Project EnergyConnect remains the preferred option and therefore there is no need to reapply the RIT-T.

On 28 September, we advised ElectraNet that its updated cost benefit analysis, which relies on AEMO inputs and assumptions from the 2020 ISP, provides a not unreasonable basis for ElectraNet's opinion that Project EnergyConnect remains the preferred option. However, we highlighted that the net benefits remain finely balanced and there is a significant zone of uncertainty associated with the benefits. In particular:

- The analysis is sensitive to gas price forecasts that are uncertain.
- There is uncertainty about whether large scale batteries may contribute to managing system security risks in SA in the absence of the interconnector.

Since September 2020, there have been a number of developments in the NEM that could potentially impact on the net benefits from Project EnergyConnect. These developments include:

1. The Australian Government's commitment to finance up to 1,000MW of gas generation in the Hunter Valley by April 2021.
2. The NSW Government's recently passed legislation (referred to as the *NSW Electricity Infrastructure Bill 2020)* targeting 12GW of renewable energy across a number of designated renewable energy zones with associated transmission upgrades and 2GW of long duration storage by 2030 as well as facilitating the installation of dispatchable capacity.
3. The Victorian Government's budget announcements about the creation of new renewable energy zones and completion of tendering for the System Integrity Protection Scheme (i.e. a new battery service).
4. The passing of legislation for the Tasmanian Renewable Energy Target to double Tasmania's renewable generation to 200 per cent of current needs by 2040.
5. The announcement by AGL on its intention to build a 250MW battery at Torrens Island in South Australia by 2024.

These developments may increase or decrease the net benefits of the project, and are not reflected in the 2020 ISP. If a material change in circumstances has occurred which, in ElectraNet's reasonable opinion, means that Project EnergyConnect is no longer the preferred option, then the NER requires ElectraNet to reapply the RIT-T unless the AER determines otherwise.

The contingent project process

The next step in the regulatory process is the AER's decision on TransGrid's contingent project application. This will be the final step before TransGrid will be entitled to begin charging customers for the costs of the project.

Under the NER, contingent projects are significant network augmentation projects that may arise during a regulatory control period, but the need, timing and/or cost of the project is uncertain. As such, project costs are not provided for in expenditure forecasts for a regulatory control period. Rather, contingent projects are linked to unique investment drivers, which are defined by a 'trigger event' set by the AER when it determines to accept a proposed contingent project in a revenue proposal.[1]

TransGrid's contingent project application

On 29 June 2020, TransGrid provided an initial contingent project application for its component of the project. TransGrid noted that it was part way through its tender process and its forecast capex for the project at this time was likely to substantially change.

On 23 July 2020, we wrote to TransGrid advising that we could not at that time commence the formal contingent project determination process because TransGrid’s application did not meet the pre-requisites for the decision making process under the NER to commence, as it:

- did not contain a forecast of capital expenditure which TransGrid considers is reasonably required for the purpose of undertaking the contingent project, as required by clause 6A.8.2(b)(3) of the NER, and
- was subject to a claim of confidentiality, over its entirety, that means that the application is not capable of being published in accordance with clause 6A.8.2(c) of the NER.

On 30 September 2020, TransGrid submitted an updated contingent project application to the AER seeking an increase in its allowed revenue to construct the NSW component of the new interconnector. ElectraNet also submitted a contingent project application for the South Australian component of the project.

Our role in assessing TransGrid's contingent project application

Our role is to assess TransGrid's contingent project application in accordance with clause 6A.8.2 of the NER, which specifies the process we must undertake and the determination we must make on a contingent project application.

First, to be eligible to seek approval of the funding for a contingent project, TransGrid must demonstrate that the specified trigger event has occurred and that the project costs exceed a materiality threshold.

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[1] NER, cl. 6A.8.1(c).

Second, if we are satisfied these conditions have been met, we must determine:

- the total capex that is reasonably required for the project and the amount of capex for each remaining year of the regulatory control period
- the incremental opex for each remaining year of the regulatory control period
- the incremental revenue which is likely to be required by TransGrid for each remaining regulatory year as a result of the efficient capex and opex for the contingent project, and
- the likely commencement and completion dates.

In making our determination, we are required to consider whether we can accept TransGrid's proposed revenues and project expenditure included in its application. This includes considering if its proposed project costs are prudent and efficient. If we are not satisfied that we can accept TransGrid's forecast revenues and project costs, we are able to determine a different forecast.

Financeability rule change

Since submitting their contingent project applications, TransGrid and ElectraNet have both sought changes to the NER to support the financeability of the project. The impact of the proposed rule changes is to bring forward the timing of revenues into the current regulatory period to support the businesses in obtaining financing for the project, and other major ISP projects, on satisfactory terms.

TransGrid's contingent project application shows the impact of its proposed rule change on the incremental revenues for its component of Project EnergyConnect in the 2018-23 regulatory control period. It shows that incremental revenues would be $147 million, which is around 135 per cent higher than under the current rules.

We understand that the AEMC expects to make a determination on the rule change proposals in March 2021.

2 The project trigger event

In order for TransGrid to be able to apply to amend its revenue determination to increase allowed revenues for a contingent project, the specified trigger event must have occurred. We are only required to determine the expenditures and incremental revenue required to deliver the contingent project if we are satisfied that the trigger event has occurred.

As noted in section 1, contingent projects are significant network augmentation projects that may arise during a regulatory control period, but the need and or timing of the project is uncertain. As such, project costs are not provided for in expenditure forecasts as part of the revenue determination for a regulatory control period. In this context, consumers should not be charged for new significant projects until the cost is reasonably known and it is certain the project will proceed.

In our final decision on TransGrid's 2018–23 revenue determination, we set out three elements of an event that would trigger the Project EnergyConnect contingent project. Table 2 outlines these trigger elements.

Table 2 Project EnergyConnect contingent project trigger elements

Element	Description of trigger element
1	Successful completion of a RIT-T demonstrating an overall network investment by all parties involved in the interconnector construction that maximises the positive net economic benefits from establishing a new high voltage interconnection from South Australia, and/or that addresses a reliability corrective action.
2	Determination by the AER that the proposed investment satisfies the RIT-T.
3	TransGrid Board commitment to proceed with the project subject to the AER amending the revenue determination pursuant to the Rules.
4	Clauses 1 and 2 do not apply if a change in the law occurs that allows the inclusion of the proposed investment in TransGrid's maximum allowed revenue under this revenue determination even if a RIT-T is not carried out.

Source: AER, *TransGrid transmission revenue determination, Attachment 6 - Capital expenditure*, May 2018.

Before we can make a decision approving a contingent project application for Project EnergyConnect, we must be satisfied at the time of that decision that all three elements of the trigger event have occurred. This includes remaining satisfied, as required by the first element of the trigger event, that the RIT-T process has been successfully completed.

In relation to the second element of the trigger event, we made a determination on 24 January 2020 that the preferred option identified by ElectraNet's *South Australian Energy Transformation RIT-T* satisfies the RIT-T. As discussed in detail below, the third element of the trigger has not yet occurred. This is because it appears that the TransGrid Board has not yet committed to proceed with the project if we were to amend its revenue determination in accordance with our preliminary assessment.

Because the third element of the trigger had not occurred at the time ElectraNet and Transgrid submitted their contingent project applications, and still has not occurred, those applications did not meet, and still do not meet, the pre-requisites for the decision making process under the NER to commence. This means we are not yet required to make a determination on TransGrid's contingent project application.

TransGrid Board resolution to commit to the project

TransGrid's application stated that, on 26 June 2020, the TransGrid Board resolved to commit to proceed with the project subject to:

- the AER awarding incremental revenue commensurate with the capital and operating costs of the project proposed by TransGrid
- TransGrid obtaining debt and equity funding on terms satisfactory to it, and
- The Board of ElectraNet making a corresponding commitment.

In our view, this does not satisfy the project trigger event. Based on the information available to us, we are not satisfied that a determination by us to amend TransGrid's revenue determination, in accordance with this preliminary assessment and pursuant to the current rules, will be sufficient at this time for TransGrid's Board to make a final investment decision and proceed with the project.

This is for two reasons:

1. It appears that TransGrid requires a change to the NER in order to obtain debt and equity funding for Project EnergyConnect on terms satisfactory to it. On 1 October 2020, it proposed a rule change to the Australian Energy Market Commission (AEMC). On 5 November 2020, the AEMC stated that it expects to publish a determination on TransGrid's rule change proposal on 31 March 2021.
2. Our preliminary analysis of the incremental revenue required to undertake the project is based on a preliminary assessment of capital costs that are materially different to those proposed by TransGrid. It is not clear that TransGrid's Board would make a final investment decision and commit to proceed with the project based on our preliminary assessment of the costs reasonably required to undertake the project.

TransGrid obtaining satisfactory financing

The TransGrid Board's 29 June 2020 resolution to commit to Project EnergyConnect was made subject to obtaining debt and equity funding on terms satisfactory to it.

On 1 October 2020, TransGrid sought a rule change with the AEMC to alter the revenue recovery timing of Project EnergyConnect and other major ISP projects. TransGrid's rule change request states that:[2]

> In the course of our assessment of PEC … we have identified there are features of the regulatory framework that have significant implications for the financeability of large scale projects with long asset lives, such as PEC.

TransGrid's contingent project application explains that it has sought the rule change due to concerns about the financeability of the project:[3]

> This Rule change is required because the current regulatory arrangements result in a misalignment between when a network service provider (NSP) incurs costs and when it recovers revenues, particularly in the early years of projects. For Major ISP Projects, this means that an NSP cannot achieve the benchmark credit rating and gearing assumptions in the AER's 2018 Rate of Return Instrument, which are used by the AER to calculate the rate of return. This in turn undermines an NSP's ability to access efficient debt finance and therefore the financeability of these projects.

It also states:[4]

> Our Financeability Rule change proposal is being made in good faith, ahead of the changes to 2022 Rate of Return Instrument, to facilitate the delivery of PEC in line with the timing set out in the Final 2020 ISP and to meet Government and other stakeholders' timing expectations.

The AEMC's consultation paper on the rule change similarly noted that without the rule change, TransGrid considered that there is a "serious risk that the ISP projects may not be delivered, or are not delivered in a timely fashion."[5] TransGrid considered that its rule change request should be considered as urgent because "it is required to enable us to establish finance for the ISP projects in time to ensure they are delivered consistent with maximising benefits to customers."[6]

The Major Energy Users also made an observation about the rule change:[7]

> The proponents have commented that unless these changes are implemented then the project is not financeable based on the current approach to setting of the WACC for networks. The MEU considers that this implies that the project has undergone a material change due to the need for changes to the regulatory approach in order to allow the project to be

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2 TransGrid, *Rule Change Proposal – Making ISP Projects Financeable*, 1 October 2020, p. 3.

3 TransGrid, *Letter to AER - TransGrid Final Capex for PEC*, 30 September 2020, p. 2.

4 TransGrid, *Letter to AER - TransGrid Final Capex for PEC*, 30 September 2020, p. 3.

5 AEMC, *Participant derogation – financeability of ISP projects, Consultation paper*, 5 November 2020, p. 8.

6 TransGrid, *Rule Change Proposal – Making ISP Projects Financeable*, 1 October 2020, p. 7.

7 Major Energy Users, *Submission on Project EnergyConnect contingent project applications*, 28 October 2020, p. 3.

> financeable. As a material change, the AER should require the project to be exposed to further detailed review by stakeholders.

TransGrid's statements indicate that it considers the rule change is required to obtain satisfactory debt and equity funding, which is a condition of TransGrid's Board to commit to the project. In the absence of a rule change, and prior to the AEMC making its decision on TransGrid's rule change proposal, we do not consider that TransGrid will make a further final investment decision or otherwise commit to proceeding with the project. Until its financing is resolved, we cannot be satisfied that the project trigger event has occurred.

The AEMC is currently assessing TransGrid's rule change proposal. TransGrid had proposed that its rule change request be expedited on the grounds that the proposed rule is an “urgent rule” under the National Electricity Law. On 5 November 2020, the AEMC advised in its consultation paper on the rule change request that it does not consider that the rule change request meets the test for an “urgent rule”. The final outcome of the rule change proposal will therefore likely not be finally resolved until at least the end of March 2021. The AEMC has stated that it expects to publish a determination on TransGrid's rule change proposal on 31 March 2021, with a draft determination expected on 21 January 2021.[8]

Capital and operating costs proposed by TransGrid

The TransGrid Board's resolution to commit to Project EnergyConnect was also made subject to the AER awarding incremental revenue commensurate with the capital and operating costs of the project proposed by TransGrid.

We have set out our preliminary consideration of the prudent and efficient capex and opex required by TransGrid to deliver the project in section 3 below. Based on our initial consideration of TransGrid's application, we do not consider that the capital costs proposed by TransGrid are prudent and efficient and reasonably required for the purpose of undertaking the contingent project. Our preliminary assessment of the capex reasonably required to deliver the project is materially lower than TransGrid's proposal.

It is not clear that TransGrid's Board would make a final investment decision and commit to proceed with the project were we to make a determination of required capex that is materially lower than TransGrid's proposed costs. Until we are satisfied that the TransGrid Board would commit to the project based on forecast capex that is commensurate with our assessment of prudent and efficient capex, we cannot be satisfied that the project trigger has occurred.

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8 AEMC, *Participant derogation – financeability of ISP projects, Consultation paper*, 5 November 2020, p. 2.

3 Prudent and efficient project expenditure

This section outlines our consideration of TransGrid's proposed forecast capex and opex for Project EnergyConnect, and our preliminary views on the likely estimate of the prudent and efficient expenditure necessary to undertake the project.

We are not, at this time, amending TransGrid's revenue determination to account for a forecast of expenditure required to deliver Project EnergyConnect. However, the analysis set out in this section provide an indication of the prudent and efficient costs we consider would be reasonably required to undertake the project.

These forecasts of capex and opex are building block inputs to determine the incremental revenue TransGrid may recover in the current regulatory control period. They are also added to the target capex and opex for TransGrid's expenditure incentive schemes.[9] Any incentive rewards and penalties TransGrid receives as a result of under or overspending on the project would be applied as additional revenue adjustments in the next regulatory control period.

3.1 Forecast of capital expenditure

Table 3 sets out our indicative view on the total capex required for the project and the capex for each year of the 2018-23 regulatory control period based on our analysis to date. We have not accepted TransGrid's proposed forecast capex and have estimated a different forecast.

Table 3 AER preliminary estimate of forecast capex ($m, 2017-18)

	2018-19	2019-20	2020-21	2021-22	2022-23	Total
TransGrid's proposal	3.5	23.3	222.7	914.6	730.6	1,894.6
AER estimate	3.4	22.8	216.1	754.1	699.3	1,695.7
Difference (%)	-2.0%	-2.0%	-3.0%	-17.6%	-4.3%	-10.5%
Difference ($m)	-0.1	-0.5	-6.6	-160.5	-31.3	-198.9

Source: AER analysis.

Note: Numbers may not add up due to rounding.

TransGrid's contingent project application forecasts that the project will require $1.9 billion ($2017-18) in capex.[10] This forecast is comprised of:[11]

9 The Capital Expenditure Sharing Scheme (CESS) and the Expenditure Benefit Sharing Scheme (EBSS).

10 TransGrid, *Letter to AER - TransGrid Final Capex for PEC*, 30 September 2020, p. 2.

11 TransGrid, *Project EnergyConnect Supplementary Capex Forecasting Method BAFO,* 30 September 2020, p. 5.

- $1,270.2 million in new transmission lines and substation upgrades, which is being outsourced to an external contractor via a competitive tender process
- $198.4 million in large specialist equipment and other construction costs
- $135.8 million in TransGrid's project overheads to oversee the contractor and ensure overall project delivery
- $165.6 million in environmental offsets (including environmental offset risk)
- $121.5 million in land and easement acquisition costs
- $3.2 million in real labour cost escalation.

TransGrid's contingent project application included a range of supporting documents. This includes a detailed scope of work document, a summary of its procurement process and a detailed break-down of the project cost elements. It also included supporting consultant reports.

We have examined TransGrid's proposed capex forecast and found based on our analysis of the information available that a prudent and efficient estimate of the forecast capex for the New South Wales component of Project EnergyConnect is $1,695.7 million ($2017-18). This is 10 per cent less than TransGrid's proposal.

We were supported by our consultants, Energy Market Consulting associates (EMCa), which applied its technical and engineering expertise to examine the capex forecast, identify key areas of TransGrid's application that required further analysis, and assess the prudency and efficiency of the forecast.

Our key preliminary conclusions are:

- TransGrid's forecast capex for transmission lines, substations and large specialist equipment, while at the higher end of an acceptable range, is likely to reasonably reflect prudent and efficient expenditure. TransGrid has undertaken a comprehensive competitive tendering process, and realised cost savings. However, it has also sought to allocate the majority of risk to third parties which has likely increased tendered costs in a non-transparent manner.
- TransGrid has estimated additional construction costs and route deviation provisions that are contingencies for uncertainty and risks of project delay not borne by the contractor. TransGrid does not appear to have undertaken a prudent probabilistic risk-based approach to estimating these costs, and therefore has overstated the prudent amounts.
- TransGrid's project delivery costs are reasonably required for a project of the size and complexity of Project EnergyConnect.
- TransGrid has reasonably valued the land and easements necessary to locate the new transmission lines and substations. However, it has sought an allowance for negotiating above market rates that exceeds the likely efficient estimate of these costs.
- TransGrid has overestimated the likely efficient costs required for environmental offsets for clearing vegetation and impacting biodiversity.

Table 4 sets out our preliminary assessment of ElectraNet's capex components and how we arrived at our preliminary estimate of total capex for the project.

Table 4 Preliminary assessment of capex components ($m, 2017-18)

Capex component	TransGrid estimate	AER estimate	Adjustment
Lines and substations	1,270.2	1,249.0	-21.2
Large specialist equipment	140.2	140.2	0.0
Other construction costs	58.2	43.7	-14.5
Property and easements	121.5	97.5	-24.0
Environmental offset costs (including risk)	165.6	26.5	-139.1
Project delivery costs	135.8	135.8	0.0
Real cost escalation	3.2	3.2	0.0
Total project capex	1,894.6	1,695.7	-198.9
Difference			-10.5%

Source: AER analysis.

Note: Numbers may not add up due to rounding.

The remainder of this section sets out our findings in more detail.

Tendered costs for transmission lines and substation works

The largest component of the Project EnergyConnect contingent project is $1,468 million ($2017-18) for transmission lines and substation works, including large specialist equipment. This is 77 per cent of the total project costs.

TransGrid is outsourcing the design, construction and delivery of the transmission lines and substation works (and procurement of large specialist equipment) to a third party engineering contractor. It has estimated the costs for these works through a competitive tendering and procurement process it has been conducting since 2019. As a result of its tendering process, it has chosen a single supplier to undertake all the necessary works (and purchasing of materials and equipment) under a fixed price design, engineering and construct contract. TransGrid is currently finalising the project design and regulatory approvals, and is expecting to execute a fixed price design and construct contract with its preferred contractor in early 2021.

We consider that the majority of TransGrid's forecast capex for transmission lines and substations is likely to reasonably reflect the efficient costs that would be incurred by a prudent operator. This is because:

- TransGrid's forecast capex is the result of a comprehensive and competitive tendering process which means that the materials and construction costs have been market tested and reflect a realistic expectation of costs that can be delivered.
- TransGrid's proposed scope of works that are reflected in the tendered costs is appropriate and reflects refinements in line route, cost-efficient design and construction techniques, and lower costs for large specialist equipment than TransGrid could achieve itself.

Despite this, however, we note that TransGrid's forecast capex for transmission lines (which comprises the majority of the costs) are higher than some comparable benchmarks. Specifically, when we compare TransGrid's forecast capex per kilometre of line, it is higher than ElectraNet's component of Project EnergyConnect and higher than benchmarks from Jacobs' *Transmission Line Cost Review* that it undertook for ElectraNet.

There are likely multiple reasons why TransGrid's costs are higher than comparable benchmarks, including the specific line route, line deviation, topographical and geotechnical issues, construction techniques, and other factors

One potentially important reason is TransGrid's project delivery model and contract it proposes to enter into with the successful tenderer. As noted, TransGrid proposes to enter into a fixed-price contract with a single supplier to design, procure and construct all of the required works. This is effectively a 'turn-key' project in which the contractor will procure all materials and equipment, construct the necessary infrastructure, and deliver the completed product to TransGrid. TransGrid's responsibilities will be limited to high level design, contractual oversight, regulatory approvals, land access, and integration.

This is a conservative approach to contracting as it transfers the majority of risk to the contractor. This will provide cost certainty and reduce delivery risk for both TransGrid and consumers. However, it likely increases tendered costs because the contractor will instead bear procurement and construction risk. Alternative contracting approaches may lower tendered costs but would potentially increase TransGrid's own costs (including overheads and contract management) and risk.

This may be reasonable where it efficiently balances risk such that the party most able to bear a specific risk should incur the costs. For Project EnergyConnect, this contracting model may be appropriate for TransGrid given that it is relatively inexperienced in delivering a project as large and complex as Project EnergyConnect. It may also have reduced TransGrid's own project delivery costs, when compared to alternative project delivery and contracting models.

However, based on the information available to us, we are not able to identify the quantum of project risk held by the contractor and its forecast costs for specific items and responsibilities. This means we cannot effectively assess whether contractor risk is potentially driving higher transmission line costs, and how the quantum of risk is being shared between the contractor and TransGrid.

We recognise that given the contracts were entered into following a competitive tender process, any risk premium included in the contracted prices will at least reflect the lowest efficient amount that the contractors are willing to bear. TransGrid's approach also in large part protects consumers from the risk of project cost overruns due to poor project delivery or unforeseen events. On balance, our preliminary view is TransGrid's tendered costs are likely to reasonably reflect the prudent and efficient costs required to deliver the project.

Other transmission and substation construction costs

In addition to the tendered costs for the transmission lines and substation works, TransGrid has estimated other construction costs that it considers may be incurred in the construction of Project EnergyConnect, but which were not included in the bidder’s proposal. This includes:

- $58.2 million in 'other construction costs'. This includes allowances for construction delays (e.g. Covid-19, extreme weather, unforeseen environmental approval requirements, EIS approval delay, micro-siting alignment issues, track possessions delays and baseline planning conditions), as well as project commissioning and safety and quality assurance program costs.
- $32.6 million as a contingency allowance for route deviations. This amount reflects the forecast capex to construct an additional 20 kilometres of transmission lines above the tendered construction costs.

These costs largely reflect allowances for risk and uncertainty (with the exception of commissioning and safety and quality assurance program costs). However, we do not consider that TransGrid has quantified the costs in a way that prudently reflects the nature of the risk. In particular, it has not consistently quantified the costs in a probabilistic way by assessing both the cost of the identified consequence and the likelihood of the cost being incurred.

We consider that assigning a probability weighting to these risk costs, where not applied by TransGrid, would result in a more reasonable estimate of prudent and efficient costs. These probability weightings are necessarily subjective. We have considered the basis for the proposed costs and applied a probabilistic assessment of known risks associated with the proposed costs that reflects the stage of the project in the delivery cycle and complexity of the works involved for a project of this nature and scale.

Table 5 sets out our preliminary view of the individual contingences and other construction costs that are required to deliver the project.

Table 5 TransGrid's proposed contingencies and other construction costs

Cost item	TransGrid proposal (million $2017-18)	Assessment	Position (million $ 2017-18)
Route deviations	$32.6	TransGrid's estimate significantly overstates the likelihood and costs of route deviations. Its estimate assumes that the full 20 km in additional line length will be required. TransGrid's actions to revise its route to avoid Darlington Point, and align with existing transmission easements for half the corridor, should reduce the likelihood that route deviations are required. We have applied a 35 per cent likelihood of these costs being required, which is consistent with ElectraNet's approach to route deviation risk.	$11.4
Baseline planning conditions	$0.9	Plausible risk and amount appears reasonable.	$0.9
Track possessions	$0.5	Plausible risk and amount appears reasonable.	$0.5
Micro-siting alignment issues	$1.5	Required to resolve issues that arise during construction relating to the final location of towers and mitigate environmental offsets costs.	$1.5
Commissioning costs	$11.9	Required to undertake commissioning activities in accordance with the preferred bidders commissioning schedule.	$11.9
Safety and Quality Assurance Program	$4.7	We have reviewed the costs for an independent safety and quality assurance program required to meet TransGrid Board and stakeholder expectations for the execution of the project works and consider them reasonable.	$4.7
Environmental Impact Statement (EIS) approval delay	$11.9	It is prudent to allow for a delay above the minimum approval times. TransGrid's estimated consequence of delay is based on the scenario of a two month delay, which is not unreasonable. The cost does not appear to be excessive as it is based on a negotiated price for mobilisation delay which is incorporated into the Contractor Engineer Procure Construct deed. However, we consider that a probabilistic approach should be applied to estimate the likely cost associated with this risk occurring. We consider this risk may be likely to occur and have therefore applied a 75 per cent probability.	$8.9
Covid-19	$8.0	TransGrid's estimated consequence cost is based on discussions with its contractor about the consequence of further Covid-19 impacts on the project schedule. This is in addition to the base-line assumptions about Covid-19 impacts within the tendered costs. We consider that a probabilistic	$6.0

		approach should be applied to estimate the likely cost associated with the risk. At this time, we consider the scenario identified by TransGrid may be considered likely to occur, and have therefore applied a 75 per cent probability.	
Unforeseen environmental approval requirements	$8.1	The BAFO tender price assumes baseline environmental approval conditions. TransGrid is responsible for any approval conditions more onerous than the baseline. We consider TransGrid's assumption of a 10 per cent reduction in productivity for 25 per cent of the workforce from its BAFO base labour cost to be reasonable.	$8.1
Extreme weather	$10.7	We consider TransGrid's methodology overstates the likelihood for the impact of a 1 in 100 year flood event on the construction of the project. TransGrid's methodology assumes nine chances (one for each segment of the line) out of 100 that this cost will be incurred. This is equivalent to nine years of exposure in 100 years, rather than 1 year in 100 years. We consider that floods on each 'segment' of the line are not independent events and TransGrid's methodology overestimates the probability of a 1 in 100 year event affecting the project. Our substitute assessment is based on two years construction of equal exposure to this risk.	$1.2

Source: TransGrid, AER analysis.

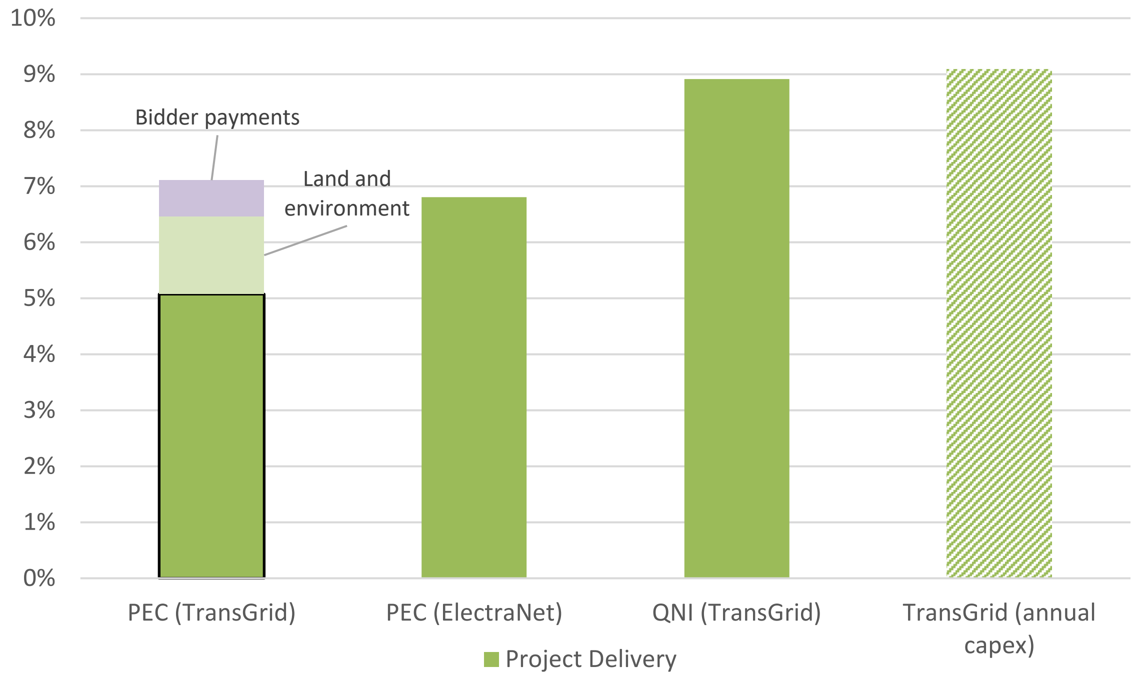
Project delivery costs

TransGrid forecasts $135.6 million ($2017-18) in project delivery overhead costs for its component of Project EnergyConnect. This is comprised of:

- $97 million in forecast staffing for project development and delivery (including actual costs incurred to date for design and procurement)
- $27 million in land and environmental management (including stakeholder engagement)
- $12 million in bidder payments (compensation to unsuccessful tenderers).

We have benchmarked TransGrid's project delivery costs because they are most comparable to TransGrid’s overheads on historical projects. As shown in Figure 1, TransGrid’s project delivery costs for Project EnergyConnect are significantly less than the forecast project delivery costs on its recent QNI Minor project, as well as its annual capitalised overheads.

Figure 1 Capitalised overheads as proportion of total capex (TransGrid)



Source: TransGrid, ElectraNet, AER analysis.

These results are consistent with our expectations of forecast project delivery costs from a prudent operator in these circumstances. While the project is more complex than a typical brownfields project in terms of planning and project management, this is offset by the size of the project and the ability to spread fixed costs over a larger amount of material and contracting costs. This is also consistent with ElectraNet's forecast project delivery costs for its component of Project EnergyConnect, which are likely higher than TransGrid's in part due to its smaller total project costs.

We have also sought EMCa to examine TransGrid's assumptions about project staffing, forecast unit costs (e.g. wages and corporate overheads) and its project delivery plan. This supported our top-down benchmarks by reviewing the forecast from a bottom-up perspective. EMCa found that TransGrid's labour and labour-related costs were reasonably estimated. However, it did observe that TransGrid's labour rates appear to be at the higher end of an acceptable range, and that some of its resource profiles may be biased towards overstatement of actual needs.

Land and easement acquisition

TransGrid has forecast $121.4 million ($2017-18) in capex for the purchase of new easements, land for substations, and associated costs relating to compensating landowners along the route between the South Australian border and Wagga-Wagga. This comprises 6.5 per cent of total project forecast capex.

We have reviewed these costs by examining the basis of estimate and the various assumptions. We found that the majority of the easement and land acquisition costs are likely reasonably estimated, and are supported by independent data on land valuations in New South Wales.

However, TransGrid’s forecast includes a contingency for negotiating with landowners to secure easements at above market rates. This contributes to $30 million in forecast capex. We found that the majority of this allowance for negotiating with landowners is likely not required to secure land for the project.

TransGrid's primary reason for including an allowance for negotiations is the desire to avoid compulsory acquisition of property along the route. TransGrid considers compulsory acquisition will be detrimental to relationships with landowners and may delay project construction. In the absence of compulsory acquisition, TransGrid will negotiate with landowners on a commercial basis to reach agreement.

TransGrid has currently secured easements for up to 20 per cent of the route. TransGrid provided information that shows that 80 per cent of these purchases were at the assessed market value of the land. While the remaining land required an additional margin above market, the average margin across the entirety of the easements was only 7 per cent. This is significantly less than the margin that TransGrid has allowed for in its forecast capex.

TransGrid has also made decisions that reduce the likelihood and necessity for a negotiating margin along the remainder of the route. In particular, TransGrid has:

- selected a proposed corridor that will run parallel to existing 220kV easements for 71 per cent of the route, which should have the effect of minimising the impact on landowners and correspondingly their likelihood of seeking higher compensation for their land
- avoided regions where there is a “high risk that negotiations with land owners may not be successful and require instances of compulsory acquisition”,[12] in particular by revising the route to avoid extensive irrigation zones and agricultural land near Darlington Point and instead will run primarily through less intensively farmed land around Dinawan[13]
- changed the scope for the 220 kV line between Buronga and Red Cliffs to minimise easement requirements and associated risks to project delivery.[14]

We consider that a negotiating margin of $6 million is reasonable for TransGrid to secure access to easements for the project. This reflects an amount that is broadly consistent with the average negotiating margin that TransGrid has required on the land and easements it has been able to secure to date.

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12 TransGrid, *A.5.A Supplementary Capex Forecasting Method BAFO*, 30 September 2020, p. 18.

13 GHD, *PEC – Scope Independent Verification and Assessment TransGrid*, 30 September 2020, p. 70.

14 TransGrid, *A.4 Specification and Scope BAFO*, 30 September 2020, p. 14.

Environmental offsets

TransGrid’s forecast includes capex for environmental offsets, as the NSW *Biodiversity Conservation Act 2016* requires that developers who impact land must establish an ‘offset’ area of land to be protected. The area of land that needs to be protected is determined by a credit system where credits are generated when land is disturbed and resolved when a protection area is established, and/or through payments into a Biodiversity Conservation Fund. The amount of biodiversity credits will be determined by the NSW Department of Planning, Industry and Environment (DPIE) based on an application from TransGrid.

TransGrid’s capex forecast includes $127.4 million ($2017-18) for its environmental offset costs, and a contingency of $38.2 million for additional biodiversity risk costs.

TransGrid's forecast is based on reports undertaken by environmental consultants WSP. They undertook studies that identified a range of scenarios of environmental impact of the project along the proposed route, and their likely costs in terms of offsetting these impacts. This included three scenarios: [15]

1. Lower 19,848 credit liability
2. Mid-range 24,811 credit liability
3. Upper 29,773 credit liability

TransGrid’s forecast capex for its environmental offset costs is similar to the upper scenario as it is based on a 29,380 biodiversity credit liability. In addition, TransGrid's forecast $38.2 million biodiversity offset risk cost is based on WSP's impact estimate of a hypothetical “full clearing” scenario of 62,788 credits where the entire width of the corridor is cleared for the entire route, in perpetuity.[16] WSP explain that: [17]

> … the effect of applying the limited clearing scenario above on offset liability is that, compared to the full clearing scenario, offset liability is reduced in order to reflect what it is considered will be the actual practical impacts of the project on-site. As more design information becomes available, the approach to applying the limited clearing scenario can be refined and justified in detail in consultation with the determining authorities.

The offset risk cost component of TransGrid’s application had been included based on TransGrid's assumption that there is a 30 per cent likelihood that the NSW DPIE will reject limited clearing and require TransGrid to offset the effects of complete vegetation clearing for the entire easement width and maintain in perpetuity.[18]

15 TransGrid, A.5 Appendix WSP Biodiversity Offset Liability Estimate, 28 November 2019, p.17.

16 WSP, Biodiversity Offsets Memo, 9 September 2020, p.20.

17 TransGrid, A.5 Appendix WSP Biodiversity Offset Liability Estimate, 28 November 2019, p.19.

18 TransGrid, *Supplementary Capex Forecasting Methodology for PEC – BAFO*, 30 September 2020, p. 38.

WSP's reports describe their assumptions in relation to clearance impacts and costs as conservative, and intended to be replaced with more accurate estimates as they undertake field work and studies. In October 2020, TransGrid provided the NSW DPIE with the outcome of some of these detailed surveys and studies in its Biodiversity Development Assessment Report (BDAR) for the Western section of the route. This report showed that the expected environmental impacts in the Western section are below those forecast in WSP's lowest scenario impacts.

In addition, TransGrid has already negotiated significant Biodiversity Stewardship Agreement (BSA) land, which is able to provide both ecosystem and species credit offsets at a cost in line with WSP's lowest scenario impacts. This land will allow it to generate over 48,000 ecosystem credits, as well as species credits.

We consider that there is a reasonable likelihood that TransGrid's environmental offset requirements across its entire route will be in line with the lower scenario estimated by WSP in its studies. While the final environmental assessments have yet to be determined across the full route, there are reasons why TransGrid should be able to minimise the impact on native vegetation and species on the route. In particular:

- TransGrid has already changed the Project EnergyConnect route to minimise biodiversity and environmental impacts (notably by revising its route to avoid Darlington Point)
- A significant proportion of the final route uses existing infrastructure corridors (71 per cent) and/or impacted agricultural land.
- TransGrid has avoided using guyed towers (large footprint) in environmentally sensitive areas. TransGrid is also using micro-siting and other actions to minimise environmental impacts.
- The NSW offsets policy framework has specific provisions for transmission lines, which allow for calculation of partial vegetation retention within impact zones. This significantly reduces TransGrid's credit liability and offset costs, and provides more certainty in relation to the offset scenario and forecasts that is most likely to occur.

Our preliminary estimate is based on the clearance impacts for the Western section, which is in line with WSP's lower scenario and was costed around $26 million for BSA land offsets. We consider that this preliminary estimate is reasonable, at this point in time, because it results in an offset capex forecast that is more aligned with more recent and accurate offsets information and better reflects the likely offset costs.

We consider that this also means that TransGrid does not reasonably require an additional allowance for offset risk. The full clearance scenario is not a construction or environmental scenario that has been proposed by TransGrid in its Environmental Impact Statements or its BDAR or engineering documents. This was also not a scenario that WSP assigned any probability to occurring.

3.2 Forecast of operating expenditure

Table 6 sets out our preliminary assessment of the incremental opex for each year of the 2018-23 regulatory control period. TransGrid's forecast opex for Project EnergyConnect is $2.6 million over the 2018–23 regulatory period.[19]

We have made no adjustment to TransGrid's proposed incremental opex in its application. TransGrid's incremental opex is minimal given that the interconnector will be under construction, and will enter service, at the end of the current regulatory period. Future maintenance and other opex associated with the new assets will be recovered in future regulatory periods.[20]

Table 6 Proposed incremental opex forecast ($m, 2017-18)

	2018-19	2019-20	2020-21	2021-22	2022-23	Total
Total opex	-	0.0	0.1	0.5	1.9	2.6

Source: TransGrid, *Letter to AER - TransGrid Final Capex for PEC*, 30 September 2020, p. 2.

19 TransGrid, *Letter to AER - TransGrid Final Capex for PEC*, 30 September 2020, p. 2.

20 TransGrid, *Project EnergyConnect Contingent Project Application*, 29 June 2020, p.23.

4 Calculation of incremental allowed revenues

This section calculates the incremental revenue that TransGrid would recover from customers to account for our preliminary assessment of efficient project costs. We have applied an annual building block revenue approach, in accordance with clause 6A.8.2(h) of the NER. TransGrid's application is consistent with this approach.

We are not, at this time, amending TransGrid's revenue determination to account for a forecast of expenditure required to deliver Project EnergyConnect. The preliminary analysis set out in this section provides an indication of the incremental revenue likely to be required by TransGrid as a result of undertaking the project, reflecting the efficient building block costs discussed in section 3.

Incremental revenues under the current rules

Table 7 shows that TransGrid would be entitled to recover $59.4 million ($ nominal) in additional revenues from customers over the 2018–23 regulatory control period.

As a result of recovering these revenues, we estimate that the transmission component of the average residential electricity bill in NSW would increase by $5 per year for the 2018–23 regulatory control period. This would increase to $19 per year for the 2023–28 regulatory control period.

Table 7 Incremental revenue calculation ($m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Return on capital	0.0	1.2	2.7	17.4	70.3	91.5
Return of capital	0.0	–0.1	–0.7	–6.5	–27.3	–34.5
Straight-line depreciation	0.0	0.4	0.4	0.4	0.4	1.6
Less: inflation indexation on opening RAB	0.0	0.4	1.0	6.9	27.7	36.1
Operating expenditure	0.0	0.0	0.1	0.6	2.1	2.8
Revenue adjustments	0.0	0.0	0.0	0.0	0.0	0.0
Net tax allowance	0.0	–0.5	–0.5	–0.2	0.7	–0.5
Annual building block revenue requirement (unsmoothed)[a]	0.0	0.6	1.6	11.3	45.8	59.2
Annual expected maximum allowable revenue (smoothed)	0.0	0.0	0.0	14.2	45.1	59.4
Increase to annual expected MAR (smoothed) (%)	0.0%	0.0%	0.0%	1.7%	5.2%	1.5%

Source: AER analysis.

Note: Numbers may not add up due to rounding.

The incremental revenue requirements for 2019–20 and 2020–21 do not flow into the expected MAR for these years and are instead smoothed into the expected MARs for 2021–22 and 2022–23.

The return of capital or regulatory depreciation is equal to the straight-line depreciation less the inflation indexation on the opening RAB.

The straight-line depreciation increases from 2019-20 due to increased 2018-19 equity raising costs.

The inflation indexation on opening RAB increases from 2019-20 due to the as-incurred PEC capex which begins to enter the RAB from the end of 2018-19.

Table 8 shows the effect of the resultant incremental increase in revenues on TransGrid's total annual building block revenue requirement (unsmoothed), expected maximum allowable revenues and the X-factor for each regulatory year of the remainder of the regulatory control period.

Table 8 Annual building block revenue requirement, expected MAR and X-factors ($m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Annual building block revenue requirement (unsmoothed)	734.3	776.3	786.6	834.3	890.9	4,022.3
Annual expected MAR (smoothed)	734.3	759.5	779.5	842.4	910.4	4,026.1
X-factors	n/a	–1.0%	–0.2%	–5.5%	–5.5%	n/a

Source: AER analysis.

The calculations in Table 7 and Table 8 reflect our standard approach which combines a nominal rate of return with an indexed RAB, and a negative revenue adjustment for the inflation indexation of the opening RAB. Because compensation for inflation is provided through both the RAB and rate of return, the negative revenue adjustment is needed to prevent double compensation for inflation. We make this revenue adjustment through the return of capital component.

The return of capital component therefore comprises straight-line depreciation and a negative revenue adjustment for the inflation indexation of the opening RAB. For TNSPs, straight-line depreciation of forecast capex is calculated on an as-commissioned basis, while the opening RAB used in the inflation indexation calculation is rolled forward with as-incurred capex.

TransGrid's incremental straight-line depreciation for the current regulatory control period is relatively small because the as-commissioned project capex is allocated to 2022–23 and so would not begin to depreciate until year 1 of the next regulatory control period (2023–24). This increase to straight-line depreciation is more than offset by the increase to the component for the inflation indexation on the opening

RAB, which begins in 2019–20 and increases over the remaining 3 years because the project (as-incurred) capex begins to enter the RAB at the end of 2018–19.

Incremental revenues under the proposed rule change

As discussed in sections 1 and 2, TransGrid has requested a rule change with the AEMC to alter the revenue recovery timing of Project EnergyConnect.

The effect of this rule change, if made, would be to bring forward the timing of revenues associated with the project into the current regulatory control period. This will increase incremental revenues in the current regulatory period because the proposed rule change seeks to:

- remove the indexation of the RAB when calculating the return of capital component. This will remove the negative revenue adjustment for inflation indexation that we apply under the current rules and increase incremental revenues relative to the current approach.
- calculate straight line depreciation using a 'capex as-incurred' approach. As explained above, capex is currently depreciated as it is commissioned, which will be from the start of the next regulatory period. If depreciation is instead calculated as capex is incurred, this will be within the current regulatory control period. This will increase incremental revenues relative to the current approach.

Table 9 shows the incremental revenues and indicative impact on customer bills if the financeability rule change were made as proposed by TransGrid.

Table 9 Incremental revenues and pricing impacts under rule change

	Proposed rule change	Comparison to current rules
Incremental revenue in 2018-23	$131.8 million	+$72.4 million
Indicative increase in customer bills in 2018–23	$11 p.a.	+$6 p.a.
Indicative increase in customer bills in 2023–28	$26 p.a.	+$7 p.a.

Source: AER analysis.

Other issues: Asset lives for 'Synchronous condensers' and 'Equity raising costs' asset classes

As part of our preliminary analysis of incremental revenues, we reviewed TransGrid's proposed asset lives for the different types of assets for the project.

We consider that TransGrid's proposed asset lives are broadly consistent with the standard asset lives in previous regulatory determinations and contingent projects. However, as part of our preliminary analysis of incremental revenues, we have applied alternative asset lives for:

- the standard asset life for equity raising costs

- the standard tax asset life for synchronous condensers.

Standard asset life for 'Equity raising costs' asset class

We have applied a standard asset life of 40.3 years to the Equity raising costs' asset class for regulatory depreciation purposes. This is different to TransGrid's proposed standard asset life of 37.9 years.

We calculate the standard asset life of equity raising costs by taking the weighted average (by forecast net capex) of the standard asset lives for each depreciating asset class over the 2018–23 regulatory control period. This reflects the lives of the mix of assets making up the forecast net capex, because the equity raising cost benchmark is associated with that forecast.

TransGrid applied this approach in its contingent project application. However, because our preliminary assessment of forecast capex is different to TransGrid's proposal, we have had to recalculate the standard asset life for this asset class. We also made a slight amendment to TransGrid's weighted average calculation. We therefore amended the standard asset to 40.3 years for this preliminary analysis.

Standard tax asset life for 'Synchronous condensers' asset class

We have applied a standard tax asset life of 30 years to the new 'Synchronous condensers' asset class for tax depreciation purposes. This is different to TransGrid's proposed standard tax asset life of 40 years for this asset class.

We have amended the standard tax asset life to be consistent with the effective life for condensing assets for tax purposes as determined by the ATO.[21] We consider that the standard tax asset life for the purpose of calculating the corporate income tax building block should be consistent with the relevant tax ruling for depreciating assets, which may be different to the economic life for regulatory depreciation purposes.

21 ATO, Taxation Ruling TR2020/3– Income tax: effective life of depreciating assets (applicable from 1 July 2020).

A Submissions

Interested parties were invited to provide submissions on TransGrid and ElectraNet's contingent project applications by 30 October 2020. We have considered these submissions in the course of our preliminary assessment of TransGrid's contingent project application. Table 10 provides a summary of the key issues raised in the submissions received and responses to those issues.

Table 10 Summary of submissions to contingent project applications

Issue	AER consideration
Project scope not consistent with RIT -T *Sam Trinca* TransGrid's contingent project application is not consistent with the preferred Option C3, as identified in the RIT -T as it involves a new substation at Dinawan and does not connect to Darlington Point. The benefit of the original route included providing grid access to solar farms and avoiding the implementation of TransGrid's western grid stability project. The AER should conclude that the relevant 'trigger event' for Project EnergyConnect has not occurred, given the new option was not identified and developed during the RIT-T process.	We consider that the overall route option presented remains consistent with that assessed in the RIT-T, being a 330 kV transmission line from Robertstown in SA to Wagga-Wagga in NSW, with a 220 kV spur line to Red Cliffs in Victoria. The specific line route was not determined at the time of publication of the RIT-T project assessment conclusions report. Detailed route planning and selection is a matter for TransGrid, subject to delivering the identified need of the project The route refinement through Dinawan is considered by TransGrid to be necessary to secure the transmission line corridor and of equivalent cost. Bypassing Darlington Point involves a shorter line route and is less complex in terms of project delivery risk. The line route realignment through Dinawan does not materially affect the level of benefits of the Project assessed in the RIT-T. The scope and cost of the proposed solution remains consistent with that required to deliver the requirements of the project. Addressing network constraints in South Western NSW was not an identified need of the South Australian Energy Transformation RIT-T. TransGrid has initiated a separate RIT-T process to address these constraints. As set out in section 2, we are not satisfied that the trigger event has occurred. We are not satisfied that the TransGrid Board has yet committed to proceed with the project if we were to amend its revenue determination pursuant to the NER.
NSW and South Australia costs and benefits *Sam Trinca* A majority of the benefits of Project EnergyConnect accrue to South Australia. However, given that the majority of the length of the proposed line lies in NSW, a disproportionate share of the costs will ultimately be borne by the NSW consumer. *Public Interest Advocacy Centre* PIAC recommends revisiting the current inter-regional transmission cost allocation to more fairly share costs between NSW and SA consumers.	Currently, the NER allocate the costs of inter-regional transmission investments geographically. We note that inter-regional transmission charging and cost recovery arrangements continue to be subject to review, however amending these arrangements is not within the scope of the AER's review of contingent project applications. We note that TransGrid's modelling of customer bill impacts in NSW suggests a net benefit from the project to NSW customers. We also note that ElectraNet's RIT-T modelling shows benefits to customers in NSW arise from improved diversity of supply and access to cheaper renewable energy sources as the coal fleet progressively retires, as well as allowing renewable energy development along the route.

Benefits of the project *Major Energy Users* While supportive in principle, the MEU has concerns about the latest information used to justify the long term benefits of the project given the current costs. It considers that the AER needs to investigate the project more fully and get formal stakeholder input into whether the project does deliver the net benefits claimed, and remains concerned over key inputs such as gas prices and discount rates. *Public Interest Advocacy Centre* PIAC is concerned that the project does not present a reasonable "return on investment" for consumers under the current regulatory framework. The most recent modelling paints a picture of a project with high costs and comparatively small net benefits. PIAC recommends pausing the regulatory process for Project EnergyConnect to reconsider whether it is in the long-term interests of consumers for it to proceed under the current regulatory framework. *ENGIE* The latest costs appear to exceed the value of the net benefits determined by the AER in the RIT-T. The proponents have also claimed additional benefits, with TransGrid submitting a report from FTI Consulting that assessed so-called "wider benefits". ENGIE is concerned over the sharp rise in costs on the project and urges the AER to do whatever it can within its powers to impose appropriate cost discipline on the proponents and ensure only efficient costs are allowed. *Origin* Capital costs have risen and the net benefits of the project are now marginal at $148 million in the central scenario, with the breakeven cost of the project being $2.7 billion. This implies that an 11% increase in costs would make the interconnector uneconomic. It is important that the AER is confident that the latest cost estimates are robust and reasonable given the updated analysis was not carried out under the full robustness of the RIT-T process.	We note that ElectraNet's updated cost benefit analysis continues to show a positive economic case for the project, based on inputs aligned with the 2020 ISP. However, the net benefits remain finely balanced and there is a significant zone of uncertainty associated with the benefits. Since September 2020, there have been a number of developments in the NEM that may affect the net benefits of the project, and are not reflected in the 2020 ISP. If a material change in circumstances occurs which, in ElectraNet's reasonable opinion as the project proponent, means that Project EnergyConnect is no longer the preferred option, then the NER requires ElectraNet to reapply the RIT-T unless the AER determines otherwise. We have reviewed the prudent and efficient costs of delivering the Project in accordance with the contingent project assessment process under the NER. While we are not making a determination at this time as we are not satisfied that the project trigger has occurred, we have set out our preliminary analysis and conclusions on the prudent and efficient costs we consider to be reasonably required to undertake the project. We do not accept TransGrid's proposed forecast capex and have estimated a different forecast which we consider reasonably reflects prudent and efficient costs. Our forecast is approximately 10 per cent lower than TransGrid's estimate.
Project not financeable *Major Energy Users* The project is not financeable based on the current approach to setting of the WACC, therefore the MEU considers that this implies a material change to the regulatory approach for the project to be financeable and should require further review by stakeholders.	The financeability rule change proposal submitted by TransGrid is subject to the rule making process administered by the AEMC. The AEMC has advised that it expects to make a determination on TransGrid's request in March 2021. In June 2020, TransGrid's Board resolved to commit to the project, subject to TransGrid obtaining debt and equity funding on terms satisfactory to it. TransGrid's statements indicate that it considers the rule change is required to obtain satisfactory debt and equity funding. In the absence of a rule change, and prior to the AEMC making its decision on TransGrid's rule change proposal, we do not consider that TransGrid will make a further final investment decision or otherwise commit to proceeding with the project. Until its financing is

	resolved, we cannot be satisfied that the project trigger event has occurred. We are not satisfied that a determination by us to amend TransGrid's revenue determination, in accordance with this preliminary assessment and pursuant to the current rules, will be sufficient at this time for TransGrid's Board to make a final investment decision and proceed with the project.
Risk and cost sharing *Public Interest Advocacy Centre* PIAC recommends examining alternative options for risk and cost allocation for the project in order to allocate risks to parties better able to manage them and to recover costs on a more beneficiary-pays basis. Consumers are not well-placed to manage the risk of cost increases or the failure to deliver the modelled benefits of Project EnergyConnect. An alternative could include PIAC's risk and cost sharing model for Renewable Energy Zones to recover some costs from connecting generators as Project EnergyConnect is expected to enable new renewable generation connection along its path.	We note that there is currently no provision for the recovery of the costs of the project from generators or other parties under the rules applicable to our determination on the Project EnergyConnect contingent project.
Biodiversity risk costs *ENGIE* ENGIE is interested to understand the appropriateness of TransGrid's claim for "biodiversity risk costs" and ElectraNet's for "project risk". TransGrid's claim for "real input escalators" also requires closer scrutiny, especially when ElectraNet does not appear to have sought similar.	As discussed in section 3, we consider that TransGrid's forecast capex for biodiversity offset costs and biodiversity risk costs is likely to be significantly above the level of prudent and efficient costs reasonably required to deliver the project.
Real input escalators *ENGIE* TransGrid's claim for "real input escalators" also requires closer scrutiny, especially when ElectraNet does not appear to have sought similar.	TransGrid has applied real cost escalation to its expenditure forecasts to capture costs expected to rise faster than inflation. TransGrid's claim for "real input escalators" includes: • Zero real input cost escalation to materials. • Application of the AER's approved real labour input cost escalators to labour. • Total forecast capex for real input cost escalation of $3.2 million ($2017-18). We consider TransGrid's application of real labour cost escalation is consistent with its revenue determination.
Upgrade of line sections to 500kV *Reach Solar* Reach supports the project as an important part of the ISP as an 'actionable' project. Reach supports an upgrade of key sections to 500kV to future proof the project, which would complement HumeLink, which is planned at 500kV.	TransGrid has not proposed to build sections of the line at 500kV. The scope of the proposed solution remains consistent with that required to deliver on the requirements of the project identified in the RIT-T. We expect that any incremental costs required to construct sections of the line with a higher capacity to complement the HumeLink project would require justification and funding through the regulatory process for that project.