



TransGrid

Supplementary Capex Forecasting Methodology for Project EnergyConnect - BAFO

Contingent Project Application for Project
EnergyConnect

30 September 2020

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1. Purpose, structure and scope of this document

1.1 Purpose of this document

On 29 June 2020, we provided the Australian Energy Regulator (AER) with our Contingent Project Application (Application) for Project EnergyConnect (the Project or PEC), which included our Capex Forecasting Methodology – RFT Phase A (Capex Methodology - RFT Phase A).

At the time of submitting our Application, we were part way through our competitive tender process for the Project. The capex forecast of \$2.271 billion¹ (\$Real 2017-18) in our Application for the period 1 July 2018 to 30 June 2023 was based on:

- > outcomes from the three short-listed tenders from Request for Tender (RFT) Phase A that we received on 11 November 2019 (RFT Phase A tender proposals)
- > quotations from suppliers for the large specialist equipment
- > independent expert reports on property and easement costs and environmental offset costs, which both reflected the early proposed PEC route via Darlington Point, and
- > a bottom up build of indirect costs based on our actual costs and our forecast of the additional resources (i.e. Full Time Equivalents (FTEs)) required, labour related costs and associated costs.

We refer to the total of the capex forecast set out in our Capex Methodology - RFT Phase A, in this document, as the RFT Phase A capex forecast.

We committed to providing the AER with a revised capex forecast once we obtained further tender outcomes in the second half of 2020, to ensure that our forecast capex for the Project, and therefore our adjusted revenues and prices, reflects the best available view of the market-tested costs.

The purpose of this document is to:

- > set out the updated capex forecast for PEC based on:
 - the prices from the final stage of our tender process, being the Best and Final Offer (BAFO) stage. We have reflected the prices from the preferred BAFO tenderer that we received on 1 September 2020 in this document
 - updated information on our Other Construction Costs
 - 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, and
 - updated Indirect Cost forecasts, which reflect actuals to 31 July 2020 and other minor revisions.

We refer to the total of these costs in this document as the BAFO capex forecast.

- > explain the differences between the BAFO capex forecast and the RFT Phase A capex forecast, and

¹ Excluding equity raising costs, which were calculated and added separately in the Post-Tax Revenue Model

- > explain how we have verified and validated our capex forecast.

This document forms part of our Application to the AER for PEC and should be read in conjunction with our Principal Application document and other supporting documents, including our Capex Methodology - RFT Phase A.

Unless otherwise stated, all historical and forecast capex values in this document are presented in real 2017-18 dollars and include real input cost escalation.²

1.2 Scope of this document

As noted above, our Capex Methodology - RFT Phase A, (provided at Attachment A.5B of our Application) explains and justifies our RFT Phase A capex forecast. This document:

- > supersedes the information relating to tendered works contained in our Capex Methodology - RFT Phase A, and
- > supplements our Capex Methodology - RFT Phase A, in relation to all other categories of capex.

Importantly, this document does not do any of the following:

- > explain or justify the scope of PEC. This is done in the PACR and the “Specification and scope description” document provided as an attachment to this Application
- > explain the capex forecast for PEC that is attributable to ElectraNet (i.e. the components of PEC in SA), and
- > explain or justify our operating expenditure for the PEC Project. This is done in a separate document entitled Opex Forecasting Methodology for Project EnergyConnect.

1.3 Structure of this document

The remainder of this document is structured as follows:

- > section 2 summarises our BAFO capex forecast
- > section 3 overviews our procurement process since we submitted our Capex Methodology - RFT Phase A to the AER on 29 June 2020, as well as the key remaining steps in our procurement process
- > section 4 describes the changes between our RFT Phase A and BAFO capex forecasts, as well as the changes in our capex forecast since our initial RIT-T PACR estimate
- > section 5 explains how we have developed our BAFO capex forecast
- > section 6 describes the changes to real input cost escalation
- > section 7 summarises our BAFO capex forecast, and
- > section 8 explains the verification and validation of our BAFO capex forecast.

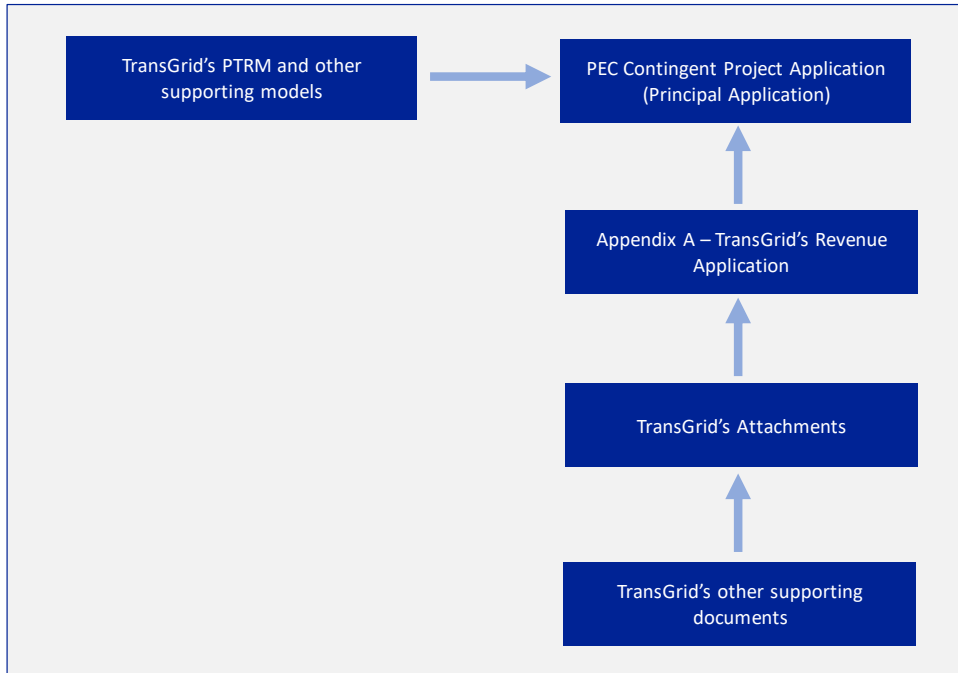
² The financial values for tendered works costs exclude inflation from 30 June 2018 onwards, unless otherwise stated. The financial values for property and easement, indirect, and risk costs exclude *both* inflation and any real input cost escalation (e.g. labour) from 30 June 2018 onwards.

1.4 Structure of PEC Contingent Project Application Documents and Models

There are a number of other attachments and models that support, and form part of, our Application for PEC. This document references these attachments, models and other supporting documents for further detail and should be read in conjunction with them.

Our Application is structured as illustrated in Figure 1-1 to be as clear and accessible as possible to the AER, customers and other stakeholders.

Figure 1-1: PEC Application document structure



2. Summary of our BAFO capex forecast

As discussed in section 1.1, this document reflects our BAFO capex forecast.

Our BAFO capex forecast is \$1,894.6 million (\$Real, 2017-18), which reflects the preferred tenderer's prices³.

The anticipated practical completion date for the Project is December 2023⁴. We will therefore incur most of the expenditure over the remainder of the current 2018-19 to 2022-23 (2018-23) regulatory period, with a small amount expected to be incurred in 2023-24. For regulatory modelling purposes, we have included capex forecast for the 2023-24 financial year in the 2022-23 financial year.

Our BAFO capex forecast for PEC is incremental to our business-as-usual (BAU) capex and would not be incurred if PEC does not proceed.

Table 2.1 compares our BAFO capex forecast and our RFT Phase A capex forecast, which is presented in our Capex Methodology - RFT Phase A (based on proposals received on 11 November 2019). Table 2.1 shows that the competitive tender process is resulting in efficient cost outcomes. The preferred tenderer's proposal for tendered works has reduced by around 20 per cent and our total capex forecast has reduced by around 17 per cent.

Table 2.1: Comparison of our RFT Phase A and BAFO capex forecasts (\$M, Real 2017-18)

| | RFT Phase A capex forecast | BAFO capex forecast |
|----------------------|----------------------------|---------------------|
| Total forecast capex | 2,271.0 | 1,894.6 |

Note: Total capex excludes equity raising costs

³ These values exclude equity raising costs, which are calculated and added separately in the Post-Tax Revenue Model.

⁴ Practical Completion date for the works from Buronga to Wagga Wagga of 31 December 2023, with Final Completion (post energisation, testing and minor finishing works) by 30 June 2024.

Table 2.2 shows our BAFO capex forecast by category.

Table 2.2: BAFO capex forecast by category (\$M, Real 2017-18)

| Type | Description | BAFO capex forecast |
|---|---|---------------------|
| 1. Tendered works | Substations and transmission lines, including access tracks | 1,270.2 |
| | Large specialist equipment | 140.2 |
| | Other construction costs | 58.2 |
| 2. Property capex | Property and easement acquisition and costs | 121.5 |
| | Environmental 'offset' costs | 127.4 |
| 3. Indirect capex | Actual costs | 27.8 |
| | Forecast costs | 108.0 |
| 4. Risk events | Environmental offset risk cost | 38.2 |
| 5. Real input escalators | Real labour cost escalation | 3.2 |
| Total (excluding equity raising costs) | | 1,894.6 |

3. Our procurement approach

PEC is a large project with unique characteristics. It will be:

- > the first interconnector to be built between any Australian states in 15 years, and
- > a greenfield project where there has been no previous electricity infrastructure constructed (or construction occurred many decades ago), resulting in unknown environmental, biodiversity, geotechnical, land access and indigenous heritage risks.

The delivery of PEC is made more complicated because:

- > there is currently significant demand for infrastructure delivery in the Australian market, particularly in NSW, leading to a shortage in available labour and construction resources, and
- > government and other stakeholders have tight timing expectations.

These characteristics and delivery considerations present unforeseeable and unquantifiable costs that arise in a project such as this. These cost risks are magnified by the size and scale of PEC. These unforeseeable and unquantifiable cost risks are not reflected in our capex forecast.

We are committed to delivering PEC at the lowest sustainable, whole of lifecycle cost to maximise benefits to customers. We have used robust estimation methodologies so that 74 per cent of our capex forecast is based on market prices obtained through competitive tender processes. This ensures that customers are paying no more than they should for the services that they will receive.

Our tender process commenced with preparatory work in the first half of 2019, ahead of the formal competitive tender process which commenced in September 2019. The formal tender process involved three phases:

- > Phase A – selected tenderers, capable of undertaking the work, were asked to provide their initial proposals to deliver the project. This phase allowed us to test capability, capacity and experience of selected tenderers and receive price and other information. Shortlisted tenderers were invited to proceed to the next phase.
- > Phase B – this involved an interactive process allowing tenderers to refine their proposals to deliver the Project to allow us to assess value for money and non-price factors. We shortlisted the two lowest cost tenderers to progress to the BAFO.
- > BAFO – tenderers revised their proposals in selected areas for the design and construction of the Project. Their revised proposals incorporate clarifications, additional information or requirements as well as additional efficiencies or improvements. A preferred tenderer has been identified through this process.

The successful tenderer from the BAFO process will deliver the project.

Box 1 provides an overview of our procurement approach.

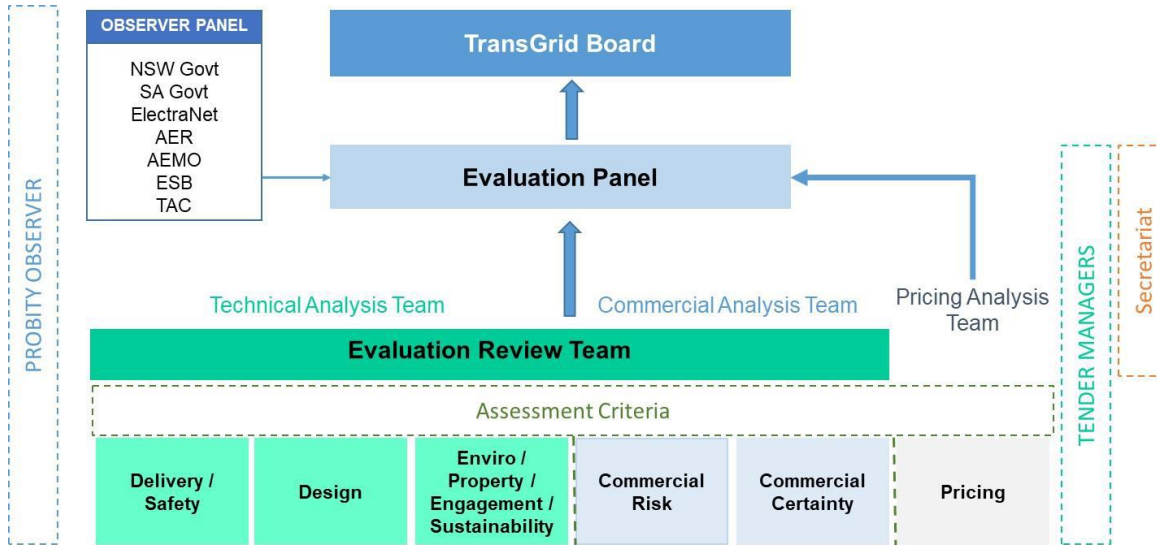
Box 1 - Overview of our procurement approach

Our approach to procuring services from external suppliers for PEC is as follows:

1. Establish a procurement team, including two external procurement specialists, i.e. the Calcutta Group (and later the Wagner Group) to act as the Transaction manager and MBB Group to support the procurement project team
2. Engage an external probity adviser, O'Connor Marsden & Associates to ensure the integrity of the process
3. Develop a Tender Evaluation Plan to ensure that all tenders are evaluated fairly
4. Set up a tender evaluation team, with external advisers and observers from NSW government, SA government and ElectraNet
5. Undertake early market scanning and engagement to identify potential tenderers, including overseas contractors and those who may not ordinarily bid for work like PEC – this process
 - identified 18 parties who could potentially tender for PEC,
 - resulted in 11 parties registering their interest in participating in the formal tender process, and
 - resulted in five tenderers participating in the Phase A tender.
6. Invite tenderers to submit a proposal for the RFT Phase A:
 - the purpose of RFT Phase A was to assess each tenderer's proposed solution and capability, experience and capacity to deliver the works, and
 - five tenderers participated and three were invited to participate in RFT Phase B.
7. Invite tenderers to submit a proposal for the RFT Phase B:
 - the purpose of RFT Phase B is to assess the value for money and non-price factors (e.g., quality of service offered and past experience and performance of tenderers etc).
 - all three RFT Phase B proposals were considered satisfactory on non-pricing factors, and
 - one RFT proposal included significantly higher costs than the other two proposals – the two lowest proposals were invited to participate in the BAFO.
8. Invite two shortlisted RFT Phase B tenderers to submit a BAFO, where tenderers are:
 - provided with the opportunity to revise their proposal in selected areas,
 - provided with clear instructions for preparing their response including outlining the areas of their original proposal that must be addressed and may include submission of an updated cost proposal, and
 - given a briefing that sets out areas that each tenderer may wish to consider in revising their proposal based on TransGrid's analysis of each tenderer's original proposal.

Box 2 overviews the governance structure overseeing the evaluation process.

Box 2 – Governance of the evaluation process



We have received BAFOs from the two short listed tenderers from the RFT Phase B stage and a preferred tenderer has been selected. This is discussed in the following section, which overviews how the PEC procurement process has progressed since 29 June 2020.

A full description of the RFT Phase A procurement process can be found in section 5 of our Capex Methodology – RFT Phase A (provided as Attachment A.5B). This includes a description of the RFT Phase A process and outcomes noting that on 11 November 2019 we received five RFT Phase A proposals and on 28 November 2019, we shortlisted three tenderers to proceed to the next phase of our tender process (i.e. Phase B).

A description of the RFT Phase B and BAFO stages are set out below.

3.1 RFT Phase B evaluation process

On 29 June 2020, we received tender responses to RFT Phase B from the three tenderers.

The evaluation process for the RFT Phase B was undertaken between 30 June 2020 and 6 August 2020 and included over 300 clarification and confirmation questions with tenderers before an evaluation report was submitted to the PEC Tender Evaluation Panel on 4 August 2020.

The Tender Evaluation Panel met on 6 August 2020, to review and evaluate the three RFT Phase B proposals with the intention of deciding which of the three tenderers would be invited to participate in the BAFO. This meeting involved the core evaluation team comprising individuals from:⁵

- > TransGrid
- > Lake Endeavours (external independent evaluation panel member)
- > the Wagner Group (engaged to fulfil the role of Transaction Manager)
- > the MBB Group (engaged to support the procurement and transaction project team), and

⁵ Section 6.1 of our Capex Methodology - RFT Phase A for PEC, submitted to the AER on 29 June 2020, provides a full description of the roles and responsibilities of the evaluation team.

- > O'Connor Marsden & Associates (external probity adviser to assist our legal team and ensure the integrity of the procurement process).

Representatives from the following organisations were also invited to this meeting as observers:

- > Australian Energy Market Operator (AEMO)
- > Australian Energy Regulator (AER)
- > ElectraNet
- > Ethnic Communities' Council of NSW
- > NSW Department of Planning, Industry and Environment
- > Public Interest Advocacy Centre
- > SA Department for Energy and Mining, and
- > St Vincent de Paul.

Each of the three RFT Phase B proposals were assessed using the following two key measures:

- > the price offered by each tenderer, and
- > non-price factors, which were evaluated in order to determine whether the offers were satisfactory and capable of being purchased by us, including:
 - quality of services offered
 - experience and past performance of the tenderers
 - financial strength of participating parties
 - differing risk factors, and
 - quality of the personnel proposed.

Each of the three RFT Phase B proposals were assessed as being satisfactory and capable of being purchased by us on a non-price basis.

On a price basis, one of the RFT Phase B proposals involved a significantly greater cost than the other two (approximately 20 per cent greater than the lowest cost tenderer). The other two proposals presented costs that were close to one another (within 7 per cent). The Tender Evaluation Panel therefore decided to progress the two lowest cost tenderers to the BAFO and determined that the third proposal would not be considered further (i.e. RFT Phase B tenderers).

On 18 August 2020, O'Connor Marsden & Associates provided an independent probity certification report covering the period from 11 February 2020 to 6 August 2020 and culminating in the shortlisting from three to two tenderers. The O'Connor Marsden & Associates report covers the probity aspects of the procurement processes undertaken to confirm compliance with the following key probity principles:

- > attaining best possible value for money under the prevailing circumstances
- > accountability of the participants and transparency of the process
- > fairness, impartiality and honesty in carrying out the process
- > management of actual, potential and perceived conflicts of interest, and
- > maintenance of confidentiality and security of documentation and information.

O'Connor Marsden & Associates concluded that they are not aware of:

- > any material probity risks that have not been identified and assessed. They found that appropriate mitigation strategies had been adopted for the two shortlisted tenderers, or
- > any areas of non-compliance with the relevant policies and guidelines developed to guide the procurement process. The O'Connor Marsden & Associates report has been included as an attachment to our Application.

3.2 BAFO stage and finalising the procurement process

On 7 August 2020, the two lowest cost RFT Phase B tenderers were notified that they have been progressed to the BAFO stage of the procurement process. On 10 August 2020, the RFT Phase B tenderers were provided with the formal BAFO documentation.

Under the BAFO process, RFT Phase B tenderers were:

- > provided the opportunity to revise their proposal in select areas
- > provided with clear instructions for preparing their response including outlining the areas of their original proposal that must be addressed and may include submission of an updated cost proposal, and
- > given a briefing that sets out areas that each tenderer may wish to consider in revising their proposal based on our analysis of each tenderer's original proposal.

The sections of the RFT Phase B tenderers' original proposals, as revised through the BAFO process, are re-evaluated and re-rated according to the evaluation process defined in our tender Evaluation Plan, which includes 'value for money' as a key component of the evaluation process.⁶

O'Connor Marsden & Associates, in their role as external probity adviser, reviewed all requests in the BAFO process before they were provided to the RFT Phase B tenderers.

On 1 September 2020, we received proposals from both tenderers. On 10 September 2020, the Tender Evaluation Panel met to identify a preferred tenderer. Similar to the RFT Phase B evaluation process, representatives from external organisations were invited to attend as observers with O'Connor Marsden & Associates acting as probity advisors to ensure the integrity of the process. Bidder 2 was identified as the preferred bidder in this meeting because:

- > the two bids involved similar overall costs once adjustments for risks and exclusions have been made, but
- > Bidder 2 had a higher overall score for non-price factors, particularly from a commercial risk perspective – as shown in Table 3.1. Bidder 2 was ranked equal or ahead of Bidder 1 for all non-price categories evaluated.

Furthermore, the Tender Evaluation Panel noted that TransGrid is an inexperienced buyer and needs to manage risk with an experienced contractor willing to take on more risks.

⁶ TransGrid's tender Evaluation Plan has been submitted to the AER as part of the Contingent Project Application process.

Table 3.1: Comparative evaluation of the two BAFO proposals

| Criteria | Weight | Bidder 1 | Bidder 2 |
|--|--------|----------|----------|
| 1. Project solution | 30% | 7 | 7 |
| 2. Project delivery | 30% | 8 | 8 |
| 3. Environmental, property, engagement and social sustainability | 15% | 6.5 | 8.5 |
| 4. Commercial risk | 10% | 5 | 8 |
| 5. Commercial certainty | 15% | 8 | 8 |
| Total weighted score | 100% | 7.175 | 7.775 |

On 18 September 2020, the Tender Evaluation Panel finalised the Tender Evaluation Report, including to recommend the preferred tenderer for approval by our Board. On the same date, O'Connor Marsden & Associates provided a probity report covering the BAFO process and identification of the preferred bidder.

On 30 September 2020, we executed a Commitment Deed with the preferred tenderer to proceed with the construction contract, subject to our Board making a positive Final Investment Decision (FID) on 15 December 2020. Achieving this timing depends on the AER's publication of its Final Decision on our PEC Application and an acceptable resolution of the matters related to the financeability of the Project by 11 December 2020.

3.3 PEC timeline

The key project milestones are:

- > 30 September 2020 – Execution of Commitment Deed
- > 1 October 2020 – Commence detailed design, place orders for long lead items and commence other early works not requiring planning approval
- > 4 November 2020 – Public exhibition of the environmental impact statement (EIS) phase-one (Western)
- > 15 December 2020 – Target FID and execution of the EPC Deed
- > May 2021 – Public exhibition of EIS phase-two
- > June 2021 – State and Federal Environmental Planning Approval of EIS phase-one
- > November 2021 – State and Federal Environmental Planning Approval of EIS phase-two
- > 1 September 2021 – EIS phase-one site possession transferred to the contractor
- > 1 February 2022 – EIS phase-two site possession transferred to the contractor
- > December 2022 – First power to South Australia
- > December 2023 – Practical completion (remaining portions)
- > June 2024 – Final Completion.

4. Changes in our capex forecast

This section explains the key differences between:

- > our RFT Phase A capex forecast (proposals received on 11 November 2019), and
- > our BAFO capex forecast (proposals received on 1 September 2020).

It also explains the changes in our capex forecast since the publication of the RIT-T PACR.

4.1 Our RFT Phase A capex forecast

Our RFT Phase A capex forecast of \$2,271 million (\$Real 2017-18, excluding equity raising costs) comprises:

- > \$1,826.8 million (\$Real 2017-18) for tendered works. This capex reflects:
 - the average tender prices of the three short-listed tenders that we received on 11 November 2019 for substations and transmission lines
 - quotations from suppliers for the large specialist equipment (LSE), and
 - other construction costs not included in the RFT Phase A tender proposals.
- > \$122.1 million (\$Real 2017-18) for project risk relating to environmental liabilities. This cost has been determined in accordance with AER’s risk cost methodology, which defines project risk costs as including the cost of mitigating risks (mitigation costs) and the costs associated with bearing residual risks after mitigation (contingency costs), and
- > \$322.2 million (\$Real 2017-18) for other costs, including property and easements, corporate and network overheads (i.e. indirect costs), environmental offsets and real input escalators.

Table 4.1: RFT Phase A capex forecast by category (\$M, Real 2017-18)

| Type | Item | RFT-A capex forecast | Basis |
|----------------|------------------------|----------------------|---|
| Tendered capex | Transmission line | 1,258.9 | Market pricing based on responses provided by tenderers and top down estimates for other construction costs |
| | Substation | 433.0 | |
| | Secondary systems | 11.9 | |
| | Communication systems | 2.0 | |
| | Synchronous condensers | 121.1 | Quotes from suppliers of large specialist equipment |
| Property capex | Easements | 93.7 | Independent expert report from JLL |
| | Land | 3.3 | Independent expert report from JLL |
| | Construction related | 10.2 | Independent expert report from JLL |
| | Fees | 2.3 | Based on historic costs |

| Type | Item | RFT-A capex forecast | Basis |
|---|---|----------------------|--|
| | Environmental offsets | 74.7 | Independent expert report from WSP |
| Indirect capex | Indirect costs incurred to March 2020 | 17.1 | From Ellipse, our ERP system |
| | Project development | 41.3 | Bottom-up-build approach. Incremental labour costs (i.e. FTEs are based on standard labour rates) |
| | Works delivery | 20.2 | |
| | Land and environment | 15.9 | |
| | Stakeholder and Community engagement | 8.5 | Our internal experience and historical costs for these activities and on-costs provided by consultant |
| | Insurance | 6.9 | ██████████ |
| | Procurement bidders' payments and data room | 12.5 | Based on industry practices |
| Escalation | Real input cost escalation | 15.5 | Forecast real labour cost escalators allowed by the AER in its 2018-23 Revenue Determination for TransGrid |
| Risk events | Risk cost | 122.1 | Based on information provided in consultants' reports (WSP) |
| Total (excluding equity raising costs) | | 2,271.0 | |

4.2 Our revisions to the capex forecast

Our BAFO capex forecast is \$1,894.6 million (\$Real, 2017-18, excluding equity raising costs), which is around 17 per cent lower than our RFT Phase A capex forecast of \$2,271.0 million (\$Real, 2017-18, excluding equity raising costs). Our BAFO capex forecast comprises:

- > \$1,468.6 million (\$Real 2017-18) for tendered works. This reflects:
 - the preferred tenderer's proposal received on 1 September 2020 for substations and transmission lines, including access tracks and large specialist equipment, and
 - other construction costs not included in the tendered prices.
- > \$38.2 million (\$Real 2017-18) for project risk costs relating to environmental liabilities. This cost has reduced by \$83.9 million, or 69 per cent, because we have:
 - reduced the route length on which the risk cost is based from 702 km to 692 km⁷,
 - obtained more accurate information on the number of credit liabilities per hectare (per ha.) because we have undertaken site investigations, and

⁷ We have based environmental liabilities on the shortest route length proposed by bidders in the RFT Phase B process. The route length in the final specification is only slightly more at 694 km.

- reduced the width of the easement area requiring clearance from 80 metres to 60 metres.

We have retained the same methodology for calculating these costs.

- > \$387.8 million (\$Real 2017-18) for other costs, including property and easements, corporate and network overheads (i.e. indirect costs), environmental offsets and real input escalators. Overall, these costs have increased by around \$66 million or 20 per cent. This reflects increases in some costs which are offset by the reduction in real labour cost escalators. In particular:
 - property and easement acquisition costs have increased by around \$12 million or 11 per cent due to updated report from JLL that now reflect the route via Dinawan as well as the outcomes from negotiations with land holders on easement and land acquisition
 - environmental offset costs have increased by around \$53 million or 70 per cent due to site investigations which have confirmed an increase in credit liability and land required under the Biodiversity Stewardship Agreement (BSA) to offset the credit liability. This is based on updated expert reports from WSP
 - indirect costs have increased by \$13 million or 11 per cent due to the inclusion of additional costs for IT software, legal advice and EIS work. These costs have been refined, based on more up-to-date information, since we submitted our RFT Phase A capex forecast to the AER on 29 June 2020, and
 - a reduction of around \$12 million or 79 per cent in real labour escalation costs. We have recalculated these costs based on tenderers' responses, which indicate that some labour cost escalation is now being captured within their prices⁸.

Since the submission of our Capex Methodology - RFT Phase A, the actual inflation figure for 2020 has been published by the Australian Bureau of Statistics. Where costs were estimated in, or otherwise assumed to be provided in a dollar basis other than 2017-18 dollars, these costs were deflated to 2017-18 dollars to align with the PTRM requirements. Estimated inflation for the year to June 2020 was used in our RFT Phase A capex forecast. Our BAFO capex forecast uses the actual inflation figure for 2020, which is lower than the estimated 2020 inflation reflected in our RFT Phase A capex forecast. Reducing the 2020 inflation used to deflate costs has led to an increase in the 2017-18 value.

Table 4.2 compares our RFT Phase A and BAFO capex forecasts.

⁸ Tender responses are provided in nominal dollars, including any real labour cost escalation and inflation. We convert these nominal dollar amounts back to Real 2017-18, but do not adjust for real labour cost escalation. As such, we no longer added real labour cost escalation on the tendered works costs.

Table 4.2: Comparison of RFT Phase A and BAFO capex forecasts by category (\$M, Real 2017-18)

| Type | Item | RFT-A capex forecast | BAFO capex forecast | Difference: RFT-A & BAFO (%) |
|---|---|----------------------|---------------------|------------------------------|
| 1. Tendered works | Substations and transmission lines, including access tracks | 1,315.2 | 1,270.2 | (3.4) |
| | Large specialist equipment | 216.3 | 140.2 | (35.2) |
| | Other construction costs | 295.3 | 58.2 | (80.3) |
| 2. Property capex | Property and easement acquisition and costs | 109.5 | 121.5 | 10.9 |
| | Environmental 'offset' costs | 74.7 | 127.4 | 70.4 |
| 3. Indirect capex | Actual costs | 17.1 | 27.8 | 62.4 |
| | Forecast costs | 105.3 | 108.0 | 2.5 |
| 4. Risk events | Environmental offset risk cost | 122.1 | 38.2 | (68.7) |
| 5. Real input escalators | Real labour cost escalation | 15.5 | 3.2 | (79.4) |
| Total (excluding equity raising costs) | | 2,271.0 | 1,894.6 | (17) |

4.3 Changes in our capex forecast since the publication of the RIT-T PACR

The RIT-T PACR for PEC was published by ElectraNet on 13 February 2019. Since then work to firm up the project scope and specification, technical details and preferred design attributes has continued.

Table 4.3 shows the change in our capex forecast since the initial RIT-T PACR cost estimate.

Table 4.3: Comparison PACR, RFT Phase A and BAFO capex forecasts (\$M, Real 2017-18)

| Type | Item | Forecast for PACR | RFT-A capex forecast | BAFO capex forecast |
|-------------------|---|-------------------|----------------------|---------------------|
| 1. Tendered works | Substations and transmission lines, including access tracks | 816.1 | 1,315.2 | 1,270.2 |
| | Large specialist equipment | 153.0 | 216.3 | 140.2 |
| | Other construction costs | - | 295.3 | 58.2 |
| 2. Property capex | Property and easement acquisition and costs | 24.3 | 109.5 | 121.5 |
| | Environmental 'offset' costs | - | 74.7 | 127.4 |
| 3. Indirect capex | Actual costs | 133.8 | 17.1 | 27.8 |

| Type | Item | Forecast for PACR | RFT-A capex forecast | BAFO capex forecast |
|---|--------------------------------|-------------------|----------------------|---------------------|
| | Forecast costs | - | 105.3 | 108.0 |
| 4. Risk events | Environmental offset risk cost | 22.9 | 122.1 | 38.2 |
| 5. Real input escalators | Real labour cost escalation | - | 15.5 | 3.2 |
| Total (excluding equity raising costs) | | 1,150.1 | 2,271.0 | 1,894.6 |

Our Capex Methodology - RFT Phase A explains the key drivers of the difference between our initial PACR cost estimate of \$1.15 billion and the RFT Phase A capex forecast of \$2.27 billion, which are shown in Figure 4-1 below. These changes relate to the Project specification and costings as well as the risks and other construction costs arising from greenfield nature of the Project.

Figure 4-1: Key changes between PACR capex forecast and RFT Phase A capex forecast for PEC (\$M, Real 2017-18)⁹

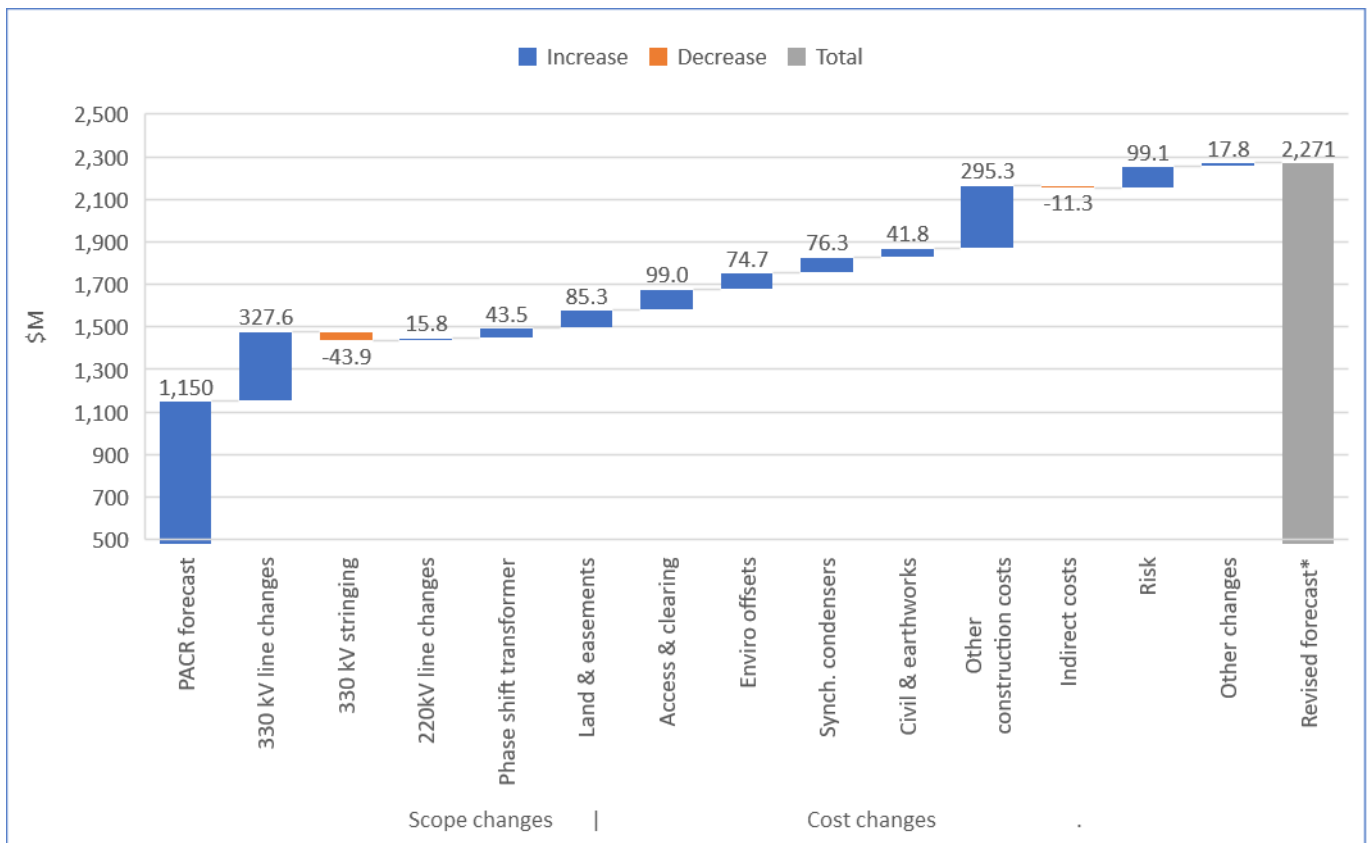


Figure 4-1 shows that the single largest increase in forecast capex for PEC is driven by changes to the standard 330 kV tower design to comply with the revised Australian Standard AS7000 and the inclusion of risk and other construction costs. These are discussed in detail in section 3 of our Capex Methodology - RFT Phase A.

⁹ This excludes equity raising costs.

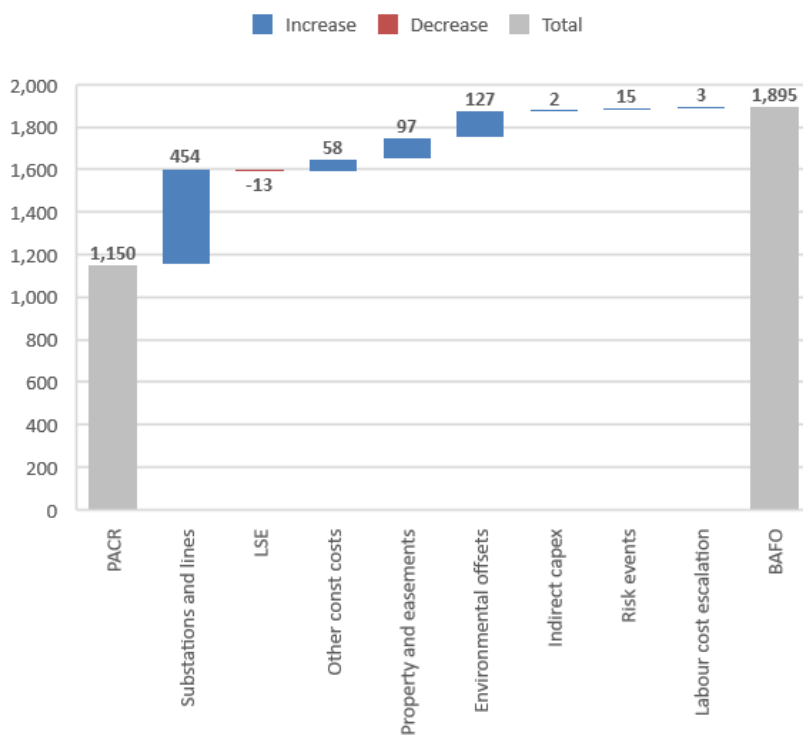
Further refinements have been reflected in the BAFO capex forecast for tendered works, resulting in an overall cost reduction of around 17 per cent. Figure 4-2 shows the key changes that have led to the reduction in our BAFO costs based on Bidder 2's proposal (the preferred bidder).

The key changes for the BAFO preferred bidder (i.e. Bidder 2) relate to:

- > transmission lines – Bidder 2 has proposed a reduction in the route length and identified more efficient construction options relating to the use of guyed towers and foundations to CIGRE design
- > large specialist equipment – Bidder 2 has identified an alternative manufacturer with significant cost savings for this equipment, and
- > synchronous condensers – Bidder 2 has identified an alternate manufacturer with significant cost savings for this equipment.

The key differences between the BAFO capex forecast and RIT-T PACR cost estimate are shown in Figure 4-2.

Figure 4-2: Key changes between PACR and BAFO capex forecast for PEC (\$M, Real 2017-18)



5. The development of our BAFO capex forecast

This section explains how we have developed our BAFO capex forecast.

5.1 Tendered works

Section 6 of our Capex Methodology - RFT Phase A has been redacted and replaced by section 5.1 of this document, which explains and justifies the methodology we have used to derive our BAFO capex forecast for tendered works, which is \$1,468.6 million (\$Real 2017-18, excluding equity raising costs).

This section explains and justifies the methodology used to derive BAFO capex for tendered works for PEC. The tendered capex forecast relates to the following regulatory asset classes:

- > transmission lines
- > substation
- > secondary systems
- > communication systems
- > synchronous condensers.

Our BAFO capex forecast for tendered works comprises more than 77 per cent of the total capex forecast for PEC. Tendered prices comprise 74 per cent of our total capex forecast. We have also identified costs that we expect to incur in the construction of PEC, but that are not currently included in the tender prices received to date.

The BAFO responses reflect the revised route via Dinawan. The original route identified in the RIT-T used the existing substation at Darlington Point to locate reactive control equipment. However, this route traverses land that is under intensive land use and irrigation. Our internal assessment on land use and line route options indicated that the costs of obtaining suitable easements and access to a line route is high and there is a high risk that negotiations with land owners may not be successful and require instances of compulsory acquisition.¹⁰

We have identified an alternative southern route via Dinawan. We consider that adopting the southern route is an appropriate risk mitigation measure to minimise the risk of compulsory acquisition of land. We also expect that the southern route will lower the overall project cost because:

- > the two routes have a similar level of base capex, but
- > the southern route lowers the risk of delay, and so has lower risk costs, which is reflected in tendered prices.

5.1.1 Approach to determining BAFO capex forecast for tendered works

The approach to forecasting our BAFO capex forecast is set out in Figure 5-1. It is the same as the approach we used to determine our RFT Phase A capex forecast tendered works.

¹⁰ TransGrid, Specification and Scope Description, 14 September 2020, p 10-11.

Figure 5-1: Forecasting approach – tendered capex

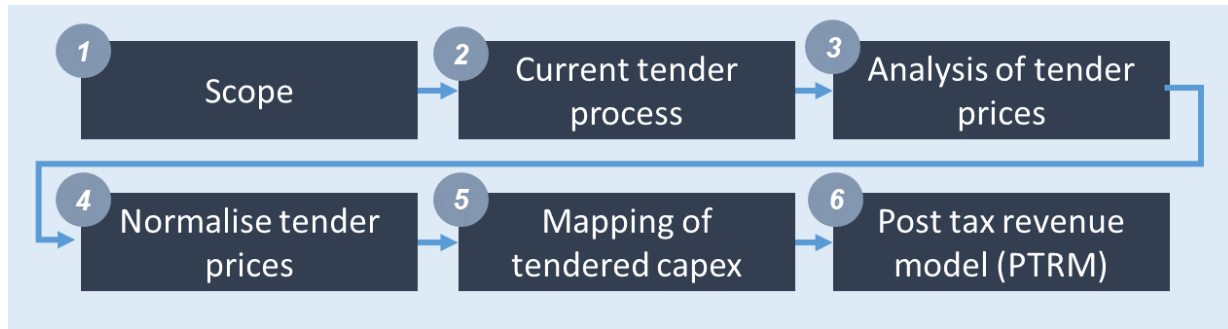


Figure 5-1 shows that there are six steps in the forecasting methodology for tendered works:

- (i) define the scope of the tendered capex
- (ii) seek external pricing through the current tender process (we have used BAFO outcomes)
- (iii) analyse tender responses
- (iv) adjust tender responses to ensure a like-for-like comparison and add other construction costs
- (v) map tendered capex to asset categories, and
- (vi) input costs into the PTRM.

Step 1 is described in our Revised Specification and Scope Description document, which is provided as Attachment A.4 of our Application. Step 2 is described in section 3, which explains our procurement approach for tendered works. Steps three to five are described below.

Analyse tender proposals (step three)

As explained in section 3 above, on 1 September 2020 we received BAFO proposals from two tenderers. Our analysis of the two BAFO proposals revealed key differences between the proposals relating to:

- > route selection, within the broad alignment that we specified
- > design of support structures and foundations
- > layout of substations, within our broad specification
- > provision and installation of large specialist equipment, and
- > proposed construction options to improve efficiency and reduce costs.

Importantly, the concept design developed by the two BAFO tenderers flows across asset classes, trading off increased costs in one area to gain savings in another. Trade-off examples include route alignment to avoid adjacent line outages, and optimising line entries to substations at a higher cost in order to gain a more efficient substation layout. Observing tenderers making these trade-offs to minimise the total project cost validates our decision to select a single tenderer to provide all tendered works.

Adjustments to tender prices (step four)

In order to compare the two BAFO proposals on a consistent basis, we made adjustments to them so that they broadly align with the core scope assumptions and therefore represent the full costs of constructing PEC. These adjustments relate to:

- > other construction costs that we expect to incur in the construction of PEC, but that are not included in the tender prices, and
- > other construction related matters including project commissioning, testing and contract support.

These adjustments are explained in section > below.

On 10 September 2020, based on the adjusted prices the Tender Evaluation Panel identified the preferred tenderer.

Our BAFO capex forecast for tendered work reflects the preferred tenderer's proposal (i.e. Bidder 2's bid price).

Mapping of tendered capex (step five)

Our BAFO forecast capex for tendered works comprises a mix of labour and non-labour costs. We therefore mapped the capex forecast into labour and non-labour costs by asset classes and by year of expenditure. The mapping process entailed:

- (i) segregating labour costs
- (ii) mapping labour costs to the appropriate regulatory asset classes
- (iii) developing a total capex profile (i.e. total capex by year)
- (iv) developing an expenditure profile for labour cost, and
- (v) developing an expenditure profile for non-labour costs.

5.1.2 BAFO proposals

Table 5.1 sets out the BAFO proposals for tendered works and the other construction costs that relate to the tendered works. These other construction costs vary between the two BAFO tenderers and are discussed in the next section.

The BAFO proposals, and other construction and related costs, were provided in nominal dollars, including any labour escalation. We therefore deflated these costs to Real 2017-18 dollars as shown in Table 5.1 below.

Table 5.1: BAFO capex forecast for tendered works (\$M, Real 2017-18)

| Description | BAFO Bidder 1 | BAFO Bidder 2 (Preferred tenderer) |
|---|----------------|---------------------------------------|
| Tender costs - Substations and transmission lines, including access tracks and large specialist equipment | ██████ | 1,410.4 |
| Other construction costs | ██████ | 58.2 |
| Total capex | 1,481.9 | 1,468.6 |

The tender costs in the two BAFO proposals were on a consistent basis and did not require normalisation.

As mentioned above, the Tender Evaluation Panel considered the difference in price of the two bids to be small, and so non-price factors were critical to determining the preferred tenderer. Table 5.1 shows that there was only a small difference of around \$13 million or less than one percent between Bidder 1 and Bidder 2's proposals for tendered works capex.

We have also identified that Bidder 2's BAFO proposal to use guyed towers will result in additional maintenance costs when compared to Bidder 1's BAFO proposal. We estimate this to be \$1.4 million per

year, or around \$34.4 million in present value over the asset life of PEC¹¹. This increases the costs of Bidder 2's BAFO proposal to around \$1,503 million, which is \$21.1 million higher than Bidder 1's BAFO proposal of \$1,481.9 million. We considers the difference of \$21.1 million to be small as it represents less than two per cent of tendered works capex.

As noted above:

- > On 10 September 2020, the Tender Evaluation Panel identified the preferred tenderer (Bidder 2) on the basis of non-price factors (given the small difference in price between bidders) and
- > Our BAFO capex forecast for tendered work reflects Bidder 2's proposal.

5.1.3 Other construction costs

To determine our BAFO capex forecast for tendered works, we added other construction and related costs to the bidders' proposals. These are costs that we expect to incur in the construction of PEC, but are not included in the bidders' proposals. This was necessary in order to compare the BAFO proposals on a consistent basis, and so that they aligned with the core scope assumptions and represented the full cost of constructing the Project.

The other construction and related costs set out in our RFT Phase A capex forecast and their current status are set out in Table 5.2. As we foreshadowed in our Capex Methodology - RFT Phase A, many of these costs have now been incorporated into the bidders' BAFO proposals, including:

- > scope development
- > remote area operation and logistics
- > adverse geotechnical conditions
- > commissioning and interface risks, and
- > international labour mobilisation and training.

The BAFO proposals do not fully incorporate the following costs, which we therefore added to their bid price to determine the RFT Phase B capex forecast for tendered works:

- > tower spotting and micro-alignment
- > ecology, indigenous and non-indigenous cultural heritage
- > contaminated soils, and
- > land access delays and disputes.

¹¹ The present value of the incremental maintenance costs has been estimated using a discount rate of 2.23 per cent over an assumed 40 year life of the asset. The 2.23 per cent discount rate is the lower bound rate used by the AER in its Final Decision for Directlink (AER, Directlink 2020-25 – Final Decision – Transmission post tax revenue model, June 2020). The incremental maintenance is assumed to commence from 2024-25 onwards, the first full year PEC is in operation.

Table 5.2: Status of the other construction costs

| RFT-A adjustments | Incorporated in RFT BAFO proposal | Comment |
|--|-----------------------------------|--|
| Scope development | Yes | |
| Remote area operation and logistics | Yes | |
| Adverse geotechnical conditions | Yes | |
| Tower spotting and micro-alignment | Partially incorporated | Partly resolved – some costs remain with us |
| Ecology, Indigenous and non-indigenous cultural heritage | Partially incorporated | Partly resolved – tower relocation due to artefacts not incorporated by Bidder 1 |
| Contaminated soils | Partially incorporated | Partly resolved – ground water contamination not incorporated by Bidder 1 |
| Land access delays and disputes | Partially incorporated | Partly resolved – delay to track possession not incorporated by Bidder 2 |
| Commissioning and interface risks | Yes | |
| International labour mobilisation and training | Yes | |

Since our Capex Methodology - RFT Phase A, we have identified additional construction costs that we can expect to incur in the delivery of PEC. These are set out in Table 5.3 for the preferred bidder (Bidder 2) only and include those other construction costs not incorporated in Bidder 2's BAFO proposal as set out in Table 5.2 above. A full description of these costs is set out below the table.

Table 5.3: Bidder 2 - Other construction costs (\$M, Real 2017-18)

| Other construction costs | Description | Adjustment |
|------------------------------------|---|------------|
| Baseline planning conditions | Cost of addressing unanticipated planning conditions | 0.9 |
| Track possessions | Delays in gaining possession of track alignments and hence access to site | 0.5 |
| Micro-siting alignment issues | Resolving issues that arise during construction relating to the final location of towers | 1.5 |
| Commissioning costs | TransGrid costs to undertake commissioning activities in accordance with the preferred bidders commissioning schedule | 11.9 |
| Safety & Quality Assurance Program | Independent safety and quality assurance required to meet Board and stakeholder expectations for the execution of the project works | 4.7 |
| EIS approval delay | The contractor has provided pricing based on the minimum State and Federal Environmental Impact Statement (EIS) approvals | 11.9 |

| Other construction costs | Description | Adjustment |
|--|--|-------------|
| | timeframes, however based on our experience with other large infrastructure projects, we have estimated that the most likely outcome is a delay of 2 months | |
| Unforeseen environmental approval requirements | The BAFO tender price assumes a set of baseline environmental approval conditions based on advice from our environmental advisors WSP. We are responsible for the time and cost of any approval conditions that are more onerous than the baseline | 8.1 |
| COVID-19 | The BAFO tender price assumes current baseline of COVID-19 restrictions and a continuation of international travel quarantine restrictions until 31 December 2021. We are responsible for the consequence of incremental Government action in Australia or in nominated locations for LSE manufacture. | 8.0 |
| Extreme Weather | The BAFO tender price does not include an allowance for extreme weather events, principally 1-in-100 year flood event | 10.7 |
| Total | | 58.2 |

Additionally, Bidder 2's BAFO proposal includes the use of guyed towers in lieu of many self-supporting towers, thus lowering their bid price. This proposal, however, increases our maintenance costs as shown in Table 5.4.

Table 5.4: Other opex costs not included in tender prices (\$M, nominal)

| Adjustment | Description | Bidder 1 | Bidder 2 |
|--------------------------|---|----------|----------|
| Guyed Towers maintenance | Annualised cost of additional maintenance required for guyed tower option | | 1.4 |

Given that the additional opex for Guyed Towers maintenance will be incurred in the next regulatory period we have not included this expenditure in either our forecast capex or opex for PEC for the 2018-23 period.

Baseline planning conditions

Forecast capex for baseline planning condition is \$0.9 million (\$Real 2017-18) and relates to addressing unanticipated planning conditions. Bidder 2 did not include an allowance for this in its tender price and therefore we have added a small allowance to address this issue.

Track possessions

Forecast capex for track possession is \$0.5 million (\$Real 2017-18) and relates to delays in gaining access to construction sites due to delays in possession of track alignments. Bidder 2 did not include an allowance for this in its tender price and therefore we have added a small allowance to address this issue.

Micro-siting alignment issues

Forecast capex for micro-siting alignment is \$1.5 million (\$Real 2017-18) and relates to micro-alignment issues that are expected to arise in finalising the tower locations. In a project of the size, complexity and uniqueness of PEC, it is expected that some micro-alignment issues will eventuate in determining the final location of towers. Bidder 2 did not include an allowance for this in its tender price and therefore we have added a small allowance to address this issue.

Commissioning costs

Forecast capex for commissioning costs is \$11.9 million (\$Real 2017-18) and relates to costs that we will incur in commissioning PEC as part of the network. This process will be led by the System Integration Steering Committee (SISC) including AEMO, TransGrid, ElectraNet and AusNet.

The timing and requirements for commissioning are controlled by the SISC and principally AEMO and are based on electricity market conditions being satisfactory to undertake commissioning tests. Due to uncertainty about scope and timing of commissioning, Bidder 2 was not willing to provide a fixed price for these services.

Commissioning includes services to safely energise the line and equipment, then undertake a series of tests to ensure that the line and equipment performs as expected and that there are no adverse impacts on the wider electricity network.

The forecast is based on advice from AEMO and the SISC, as well as our experience of commissioning other new transmission line and substation assets and excludes out-of-market generation costs.

Safety & Quality Assurance Program

Forecast capex for Safety and Quality Assurance Programs is \$4.7 million (\$Real 2017-18) and relates to independent safety and quality assurance that will be required to meet our Board and stakeholders' expectations for the execution of the project works. This is a consequence of the scale and remote location of the construction works.

We have identified that it will be more cost effective, and provide additional required confidence in the assets, to introduce independent safety and quality assurance to ensure compliance with internal policies, controls and processes. These costs have been estimated based on formal feedback from the market on the likely costs for the scope of work required.

EIS approval delay

Forecast capex for EIS approval delay is \$11.9 million (\$Real 2017-18). PEC has been identified as a priority project and is expected to be fast tracked in the approval process. However, there remains a risk that State and Federal Environmental Impact Statement (EIS) approvals could take longer than expected, particularly given the scale of PEC and the greenfield nature of the project resulting in delay costs from the successful tenderer. These costs will be impacted by the condition of the site.

Bidder 2 has provided pricing based on the minimum EIS approvals timeframes, however based on our experience with other large infrastructure projects, we have estimated that the most likely outcome is a delay of 2 months.

We have estimated this delay based on the additional monthly cost for delays (up to six months) in the BAFO proposals. These costs have been market tested and are therefore prudent and efficient.

Unforeseen environmental approval requirements

Forecast capex for unforeseen environmental approval requirements is \$8.1 million (\$Real 2017-18). Bidder 2's proposal assumes a set of baseline environmental approval conditions based on advice from WSP, our environmental advisors. We are responsible for the time and cost of any approval conditions that are more onerous than the baseline. These costs are most likely to be incurred due to reduced productivity from additional mitigation measures or restrictions on work methods and times. These costs will be impacted by the condition of the site.

The baseline approval conditions were based on an assessment of the reasonable requirements that are likely to be imposed, with the understanding that there were likely to be a limited number of areas where more onerous requirements are imposed. We have assessed that including a comprehensive set of baseline approval conditions that covered every possibility was unlikely to result in efficient pricing from the tenderer, as the tenderer would be pricing a worst case scenario across the whole project.

We have estimated these costs based on the most likely outcome of a 10 per cent reduction in productivity for 25 per cent of the workforce. The base labour costs were sourced from the BAFO proposals and then adjusted to reflect the most likely reduction in productivity. These costs have been market tested and are therefore prudent and efficient.

COVID-19

Forecast capex for COVID-19 is \$8.0 million (\$Real 2017-18). Bidder 2's proposal assumes current baseline of COVID-19 restrictions and a continuation of international travel quarantine restrictions until 31 December 2021. However, we are responsible for the consequence of incremental Government action in Australia or in nominated locations for LSE manufacture. We expect some delay and have estimated the cost based on a most likely outcome of a 5 day delay to LSE supply chain. This would be realised either through delays in manufacturing due to restrictions, or in the delivery of LSE to site as shipping and land freight are affected by COVID-19 related restrictions.

Bidder 2 has provided daily rates for delay to different components of the project, and we have selected the rate for the first separable portion that requires LSE. These costs have been market tested and are therefore prudent and efficient.

We welcome discussions with the AER if a pass through is a more appropriate mechanism for assessing and recovering the costs arising from COVID-19. However, this would require a change to our 2018-23 determination, which currently does not include a pass through event that would allow us to recover these costs. The NER also does not currently include a pass through event that would allow us to recover these costs.

Extreme Weather

Forecast capex for extreme weather is \$10.7 million (\$Real 2017-18). Extreme Weather events, principally 1-in-100 year flood events will significantly affect the works. Due to the extreme length/size of the project, the probability of an event occurring across the project is increased. We have included in our cost an estimate of the most likely impact on the project of a delay for one of our 9 separable portions by 6 weeks (for example an extreme flood, which in many of the regions PEC passes through would render roads inaccessible for an extended period of time).

This is calculated from the daily delay rate (provided by Bidder 2), multiplied by 42 days (6 weeks), then multiplied by 9/100 (as there is a 1-in-100 year probability for each separable portion, and 9 separable

portions). This provides the most likely case outcome. These costs have been market tested and are therefore prudent and efficient.

5.1.4 Forecast model

The forecast expenditure for tender capex is set out in Table 5.5.

Table 5.5: Forecast expenditure for tendered works capex (\$M, Real 2017-18)

| Item | BAFO forecast capex |
|------------------------|---------------------|
| Transmission line | 1,016.8 |
| Substation | 300.6 |
| Secondary systems | 16.4 |
| Communication systems | 2.6 |
| Synchronous condensers | 132.1 |
| Total | 1,468.6 |

5.2 Property and easement capex

Our forecast capex for property and easement comprises five key categories:

1. easement costs
2. land costs
3. construction related costs
4. fees, and
5. environmental offset costs.

Our BAFO capex forecast for property and easements is \$248.8 million (\$Real, 2017-18). This is \$64.6 million or 35 per cent higher than our RFT Phase A capex forecast¹² of \$184.3 million (\$Real 2017-18), which was presented in section 7 of our Capex Methodology - RFT Phase A.

We have used the same methodology to forecast our BAFO capex forecast for property and easements as we used to forecast our RFT Phase A capex, which involved:

1. a desktop study by Jones Lang LaSalle (JLL), for the estimated costs of acquiring easements and land as well as the construction related costs and fees. JLL's assessment is undertaken in accordance with the Land Acquisition (Just Terms Compensation) Act 1991 (NSW), and
2. an expert report from WSP for the environmental offset costs.

Since 29 June 2020, we have received updated reports from both JLL and WSP. These reports are provided as attachments to our Application and are titled:

¹² The property and easement capex forecast have not been derived from the tender process, however, we refer to the property and easement capex forecast set out in our Capex Methodology - RFT Phase A as the RFT Phase A capex forecast for simplicity purposes.

- > JLL - "Land & Easement Acquisition Forecast Costs Project EnergyConnect, 25 August 2020" (JLL updated report), and
- > WSP - Revised estimate of EnergyConnect Biodiversity Offset Liability and Update to Strategy – 9 September 2020 (WSP updated report).

Both JLL and WSP updated reports were conservatively based on the shortest route length of 692km proposed by the tenderers in the RFT Phase B process. The route length specified by the preferred bidder (Bidder 2) in the RFT BAFO proposal is slightly more at 694 km.

The key drivers of the increase in our capex forecast between RFT Phase A and BAFO are:

- > an \$11.4 million (\$Real 2017-18) increase in the easement acquisition, commercial negotiating and unforeseen and unanticipated property costs, as determined by JLL's updated desktop study, and
- > \$52.6 million (\$Real 2017-18) increase in our environmental offset costs, based on WSP's updated expert report.

JLL's updated report has revised its cost estimates to reflect:

- > the new PEC route via Dinawan
- > the outcomes of recent landholder negotiations
- > on-site investigations, and
- > the reduction in route length based on the shorter of the two route lengths proposed by the two bidders in RFT Phase B.

It also has regard for, amongst other things, further community consultation, changes to land use on affected properties, landowner engagement and market conditions.

WSP's updated report reflects:

- > the new PEC route via Dinawan
- > the outcomes of recent landholder negotiations
- > adjustment to credit liabilities based on on-site investigations
- > the reduction in route length based on the shorter of the two route lengths proposed by the two bidders in RFT Phase B
- > TransGrid easement maintenance regime, and
- > a reduction in the width of the easement requiring clearance from 80 metres to 60 metres.

Sections 5.2.1 to 5.2.5 explain the changes between our RFT Phase A and BAFO capex forecasts for property and easement by subcategory and the drivers of the changes.

5.2.1 Easement costs

Our BAFO capex forecast for easements is \$105.1 million. This is \$11.4 million (Real 2017-18) higher than our RFT Phase A capex forecast of \$93.7 million. We have retained the same methodology for calculating forecast capex for easements, which is:

- > adopt cost estimates from JLL's desk top study for easement acquisition costs, commercial negotiating costs, unforeseen and unanticipated property costs, access easement and professional fees compensation to landholders, and

- > rely on our internal cost estimates for options fee (to obtain exclusive land negotiations with landholders) and property and easement surveys.

The increase in RFT Phase A capex forecast is due to:

- > \$11.2 million increase in easement acquisition, commercial negotiating and unforeseen and unanticipated property costs based on the updated JLL report, which reflects:
 - current landholder negotiations, and
 - reduction in route length based on the shorter of the two route lengths proposed by the two bidders in RFT Phase B,
- > \$0.1 million increase in access easement and professional fees compensation to landholders based on 2020 inflation adjustment (this is explained in section 4.2).

Table 5.6 compares our RFT Phase A capex forecast and our BAFO capex forecast for easements.

Table 5.6: Forecast expenditure for easements (\$M, Real 2017-18)

| Item | RFT-A capex forecast | BAFO capex forecast | Difference | Basis for BAFO capex | Comment |
|--|----------------------|---------------------|-------------|---------------------------|--|
| Easement acquisition cost | 52.4 | 59.8 | 7.4 | JLL updated report | Change due to current acquisition negotiations and PEC route |
| Commercial negotiating costs | 26.2 | 29.9 | 3.7 | JLL updated report | Change due to current acquisition negotiations and PEC route |
| Unforeseen and unanticipated property costs | 3.4 | 3.4 | 0.0 | JLL updated report | No material change due to current PEC route |
| Access easement | 2.0 | 2.0 | 0.1 | 2020 inflation adjustment | No material change |
| Options fee (to obtain exclusive land negotiations with landholders) | 3.9 | 3.9 | 0.0 | Our internal estimate | No change |
| Professional fees compensation to landholders | 4.8 | 4.9 | 0.1 | 2020 inflation adjustment | No material change |
| Property and easement surveys | 1.0 | 1.0 | 0.0 | Our internal estimate | No change |
| Total | 93.7 | 105.1 | 11.4 | | |

5.2.2 Land costs

Our BAFO capex forecast for land is \$3.1 million. This is a \$0.2 million (\$Real 2017-18) reduction compared to our RFT Phase A capex forecast of \$3.3 million. We have retained the same methodology for calculating forecast capex for land, which is to adopt cost estimates from JLL’s desk top study for acquiring land for the Buronga substation extension and for the switching station at Dinawan.

The reduction in our BAFO capex forecast is due to refined cost estimates in JLL’s report, which reflect better information on landowner negotiations.

Table 5.7 compares our RFT Phase A capex forecast and our BAFO capex forecast for land.

Table 5.7: Forecast capex for land (\$M, Real 2017-18)

| Item | RFT-A capex forecast | BAFO capex forecast | Difference | Basis for BAFO capex | Comment |
|------------------------------------|----------------------|---------------------|--------------|----------------------|--|
| Land to extend Buronga substation | 0.4 | 0.3 | (0.1) | JLL updated report | Change due to current acquisition negotiations |
| Land for Dinawan switching station | 3.0 | 2.9 | (0.1) | JLL updated report | Change due to current acquisition negotiations |
| Total | 3.3 | 3.1 | (0.2) | | |

5.2.3 Construction related costs

Our BAFO capex forecast for construction related costs is \$10.8 million. This is \$0.6 million (\$Real 2017-18) higher than our RFT Phase A capex forecast of \$10.2 million. We have retained the same methodology for calculating forecast capex for construction related costs, which is as follows:

- > license fees - this is calculated as 200 landowners multiplied by the \$20,000 (\$19,500 in \$Real 2017-18) cost per license based on our previous experience
- > laydown/staging – this is based on JLL’s report estimate of the costs of \$0.6 to \$1.2 million; and
- > damage/disturbance claims post construction - we have assumed to be 10 per cent of easement acquisition costs discussed above.

The increase in our BAFO forecast is due to increase in damage/disturbance claims post construction based on the easement acquisition cost set out in the updated JLL report.

Table 5.8 compares our RFT Phase A capex forecast and our BAFO capex forecast for construction related costs.

Table 5.8: Forecast expenditure for construction related costs (\$M, Real 2017-18)

| Item | RFT-A capex forecast | BAFO capex forecast | Difference | Basis for BAFO capex | Comment |
|---|----------------------|---------------------|------------|--|----------------------------------|
| Construction licence cost | 3.9 | 3.9 | 0.0 | | No change |
| Laydown/staging area cost | 0.9 | 0.9 | 0.0 | | No change |
| Damage/disturbance claims post construction | 5.4 | 6.0 | 0.6 | Calculated based on 10 per cent of easement acquisition cost | Change due to updated JLL report |
| Total | 10.2 | 10.8 | 0.6 | | |

5.2.4 Fees costs

Our BAFO capex forecast for fees is \$2.4 million. This is \$0.2 million (\$Real 2017-18) higher than our RFT Phase A capex forecast of \$2.3 million. We have retained the same methodology for calculating forecast capex for fees. Our BAFO capex forecast is based on:

- > \$1.5 million for aboriginal cultural heritage fees
- > \$0.5 million relating to NSW government land registration fees
- > \$0.3 million to cover stamp duty, and
- > \$0.1 million relating to Valuer Generals fees

The increase in our BAFO capex forecast is due to an increase in stamp duty fees based on the land acquisition costs for Buronga substation, Dinawan switching station and environmental offset set out in the updated JLL report. The land cost for the environmental offset has only been included in the environmental offset costs in section 5.2.5 to avoid double counting.

Table 5.9 compares our RFT Phase A capex forecast and our BAFO capex forecast for fees.

Table 5.9: Forecast expenditure for fees (\$M, Real 2017-18)

| Item | RFT-A capex forecast | BAFO capex forecast | Difference | Basis for BAFO capex | Comment |
|---------------------------------------|----------------------|---------------------|------------|--|----------------------------------|
| Aboriginal cultural heritage fees | 1.5 | 1.5 | 0.0 | | No change |
| NSW government land registration fees | 0.5 | 0.5 | 0.0 | | No change |
| Stamp duty | 0.1 | 0.3 | 0.2 | Calculated based on 5 per cent of land acquisition costs | Change due to updated JLL report |
| Valuer Generals Fees | 0.1 | 0.1 | 0.0 | | No change |
| Total | 2.3 | 2.4 | 0.2 | | |

5.2.5 Environmental offset costs

Our environmental offset obligations

This sub section summarises our environmental offset obligations arising from the impact on land due to constructing PEC, under:

- > NSW Biodiversity Conservation Act 2016, and
- > the Commonwealth Environment Protection and Biodiversity Conservation Act 1999

Further explanation on this is provided in our Capex Methodology - RFT Phase A.

Under these Acts, we are required to establish an 'offset' area of land to be protected. The protection prevents development of the land in perpetuity, thereby protecting the vegetation and/or animal species. The

area of land that needs to be protected is determined using a credit system. Under this approach projects which disturb a larger area of land generate more credits, which the developer is required to offset by protecting larger areas of land.

The area of land required to be protected must also contain the same species of flora and fauna as the impacted land. The credit system therefore ensures that more is preserved than disturbed by the development, factoring the current condition of the land.

The number of offset credits that PEC will generate will depend on the size of land it will disturb. This will depend on the clearing scenario for PEC, which could involve:

- > a full clearing scenario, where we will be required to undertake complete vegetation clearing for the entire easement width and maintain this in perpetuity, or
- > a limited clearing scenario, where we are required to undertake partial vegetation clearing, and so the land disturbed, and thereby credit liability, will be substantially lower.

There are two methods to offset the biodiversity impact of a project, namely:

- > payment into a biodiversity conservation trust (BCT), where we would pay a dollar amount per credit, or
- > establishing biodiversity stewardship agreements (BSA), which would involve us identifying and protecting suitable areas of land.

Our environmental offset BAFO capex forecast

Our BAFO capex forecast for environmental offsets is \$127.4 million (\$Real, 2017-18). This is \$52.6 million (\$Real 2017-18) higher than our RFT Phase A capex forecast of \$74.7 million and comprises:

- > \$113.1 million for biodiversity offset, and
- > \$14.3 million for species offsets (i.e. to offset the impact to breeding habitat for threatened species).

We have retained the same methodology for calculating our BAFO capex forecast as we used to determine our RFT Phase A capex forecast. This involved relying on expert advice from WSP. We adopted the cost estimated in the updated WSP report which:

- > increased biodiversity offset costs by \$50.8 million (\$ Real 2017-18)
- > increased species offset costs by \$1.8 million (\$ Real 2017-18).

The reasons for these increases are set out in WSP's report which is provided as an attachment to this Application and are summarised below:

Biodiversity offset

WSP has calculated the biodiversity offsets based on the limited clearing scenario, where there is only partial clearing of vegetation, and a combination of payment into the BCT and establishing BSAs.

WSP determined an increase in biodiversity offset based on:

- > a significant increase in the land area required under the BSA to offset credit liability. Site investigations and current land negotiations of potential BSA sites have revealed that a larger land area is required to meet the credit liability. This larger land area increases land acquisition and management costs associated with the BSA.

- > an overall increase in credit liability due to higher credit liability based on site investigations of the western section of the route, and increased maintenance (i.e. trimming of any vegetation above 2m height) credit liability based on TransGrid easement maintenance advice.

While WSP identified a number of factors that would reduce the credit liabilities, these were more than offset by the increases in credit liabilities outlined above.

Species offset

WSP made a corresponding proportional adjustment to species offset costs based on the increase to biodiversity offset costs.

Table 5.10 compares our RFT Phase A capex forecast and our BAFO capex forecast for environmental offset costs.

Table 5.10: Forecast expenditure for environmental offset (\$M, Real 2017-18)

| Item | RFT-A capex forecast | BAFO capex forecast | Difference | Basis for BAFO capex | Comment |
|---------------------|----------------------|---------------------|-------------|----------------------|---|
| Biodiversity offset | 62.3 | 113.1 | 50.8 | WSP updated report | Change due to site investigations, maintenance regime and current land acquisition negotiations for BSA |
| Species offset | 12.5 | 14.3 | 1.8 | WSP updated report | |
| Total | 74.7 | 127.4 | 52.6 | | |

5.2.6 Forecast model

Our BAFO capex forecast for property and easement is \$248.8 million. This is \$64.6 million (\$Real 2017-18) higher than our RFT Phase A capex forecast of \$184.3 million.

Table 5.11 summarises the RFT Phase A and BAFO capex forecasts for property and easement.

Table 5.11: Forecast expenditure for property and easements (\$M, Real 2017-18)

| Item | RFT-A capex forecast | BAFO capex forecast | Difference | Comment |
|-----------------------|----------------------|---------------------|-------------|--------------------------------|
| Easements | 93.7 | 105.1 | 11.4 | Based on JLL report |
| Land | 3.3 | 3.1 | (0.2) | Based on JLL report |
| Construction related | 10.2 | 10.8 | 0.6 | Calculated based on JLL report |
| Fees | 2.3 | 2.4 | 0.2 | Calculated based on JLL report |
| Environmental offsets | 74.7 | 127.4 | 52.6 | Based on WSP report |
| Total | 184.3 | 248.8 | 64.6 | |

5.3 Indirect capex

Our BAFO forecast of indirect capex is \$135.8 million. This is \$13.4 million (\$Real 2017-18) higher than our RFT Phase A capex forecast¹³ of \$122.4 million (\$Real 2017-18), which is explained in section 8 of our Capex Methodology - RFT Phase A.

Our RFT Phase A capex forecast for indirect costs comprised:

- > actual costs up to 31 March 2020. These costs were derived from Ellipse, our ERP system
- > project development, works delivery, land and environment costs were developed using a bottom-up approach
- > stakeholder and community engagement costs were based on our internal experience and historical costs for these activities and on-costs provided by consultant
- > [REDACTED]
- > procurement bidder payments and data room costs were based on industry practices.

We have retained the same methodology for calculating our BAFO indirect capex forecast as we used for our RFT Phase A capex forecast, however, we have made the following changes:

- > updated for actual incurred costs to 31 July 2020
- > included consequential re-profiling of costs after 31 July 2020, and
- > included some updated cost estimates.

These changes are discussed below.

5.3.1 Actual costs to 31 July 2020

Our RFT Phase A capex forecast included actual costs to 31 March 2020. We have now updated actuals to 31 July 2020. We have also re-profiled our forecasts from that date accordingly, as shown in Table 5.12.

We have incurred less capex in the period March to July 2020 than we forecast when we prepared our RFT-A capex forecast. We have reflected this difference into our forecast for the following year (2020-21), as we still expect to incur this capex. This re-profiling does not change the total indirect capex forecast for PEC.

¹³ The indirect capex forecast have not been derived from the tender process, however, we refer to the indirect capex forecast set out in our Capex Methodology - RFT Phase A as the RFT Phase A capex forecast for simplicity purposes.

Table 5.12: Update of indirect capex for actuals incurred (\$M, Real 2017-18)

| Item | Adjustment | Comment |
|---|------------|---|
| Remove forecast costs Apr 20 – Jul 20 | (18.0) | |
| Add actuals costs Apr 20 – Jul 20 | 10.6 | Includes \$2.5M of miscellaneous costs not forecast |
| Re-phase forecast for significant timing differences: | | |
| - Resource and related costs | 1.9 | |
| - Community Engagement - KJA and design costs | 2.3 | |
| - Land & Environment | 4.6 | |
| - Insurance | 0.6 | |
| - Bidder Payments | 0.5 | |
| Total adjustment | 2.5 | |

The total adjustment is \$2.5 million higher than forecast. This is due to:

- > miscellaneous costs in the actuals that were not previously forecast. These costs were incurred during the period but were not included in the original forecast for those months. There is a wide variety of costs incurred during this period attributed to PEC including costs of travel, publications, memberships, equipment installation, room hire, legal fees, easements, geotechnical consulting, other consulting costs, outsourced labour.
- > re-profiling resources, that has some small incidental impacts on recruitment, training, travel, and office support costs etc that are calculated automatically in the model based on assumptions that do not necessarily align exactly with the actuals. In other words, the actuals added do not exactly match (in dollar terms) the forecasts removed / deferred.

5.3.2 Revised costs

We have reviewed our indirect costs and revised the following costs for more recently available information:

- > IT software licence
- > insurance
- > legal advice
- > land & environment, and
- > using actual rather than forecast inflation for 2020.

We have identified \$10.9 million additional costs based on more recently available information from external providers. This is as explained in Table 5.13.

Table 5.13: Revisions to indirect capex (\$M, Real 2017-18)

| Item | Adjustment | Basis of cost increase |
|----------------------------|-------------|---|
| Consulting costs | 0.3 | Revised quote for delivery readiness activities |
| Software services | 1.0 | |
| Legal costs | 3.4 | Revised quote for legal costs associated with contract |
| Land & Environment | 3.3 | Increase in EIS, associated consultants' costs and legal fees |
| Insurance | 1.7 | |
| Application of updated CPI | 1.2 | 2020 inflation updated |
| Total Adjustment | 10.9 | |

5.3.3 Forecast model

Our BAFO forecast of indirect capex is \$135.8 million. This is \$13.4 million (\$Real 2017-18) higher than our RFT Phase A capex forecast¹⁴ of \$122.4 million (\$Real 2017-18),

The forecast expenditure for indirect capex is set out in Table 5.14.

Table 5.14: Forecast expenditure for indirect capex (\$M, Real 2017-18)

| Item | RFT-A capex forecast | BAFO capex forecast | Difference | Comment |
|--|----------------------|---------------------|------------|---|
| Actual costs incurred | 17.1 | 27.8 | 10.7 | Initially January 2019 to March 2020, now to July 2020 |
| Forecast costs: | | | - | |
| - Project development | 41.3 | 40.6 | (0.7) | Revised and reforecast to exclude actual costs incurred |
| - Works delivery | 20.2 | 19.9 | (0.3) | Revised |
| - Land and environment | 15.9 | 18.4 | 2.5 | Revised and reforecast to exclude actual costs incurred |
| - Stakeholder and Community engagement | 8.5 | 8.2 | (0.3) | Revised and reforecast to exclude actual costs incurred |
| - Insurance | 6.9 | 8.6 | 1.7 | Revised |

¹⁴ The indirect capex forecast has not been derived from the tender process, however, we refer to the indirect capex forecast set out in our Capex Methodology - RFT Phase A as the RFT Phase A capex forecast for simplicity purposes.

| Item | RFT-A capex forecast | BAFO capex forecast | Difference | Comment |
|--|----------------------|---------------------|-------------|---|
| - Procurement bidders payments and data room | 12.5 | 12.3 | (0.2) | Reforecast to exclude actual costs incurred |
| Total cost | 122.4 | 135.8 | 13.4 | Excludes taxes, except for Payroll tax which has been included within labour on-costs |

5.4 Risk events

Our BAFO forecast for risk events is \$38.2 million. This is \$83.9 million (\$Real 2017-18) lower than our RFT Phase A¹⁵ capex forecast of \$122.1 million (\$Real 2017-18), which is explained in section 9 of our Capex Methodology - RFT Phase A.

We have only included in our forecast capex, risk that:

- > are not business as usual risks
- > are not within our control
- > cannot be covered by contract terms or insurance¹⁶, and
- > are not covered by pass-through provisions in the National Electricity Rules.

Only one risk met these criteria; **Environmental offset risks**, which is the risk that the NSW Department of Planning, Industry and Environment (DPIE) does not approve the limited clearing approach that, as discussed in section 5.2.5, underpins our BAFO capex forecast for environmental offsets.

Discussions with DPIE will occur in the later stages of the project, once there is more clarity on the project's impact on biodiversity and species. There is a risk that DPIE will require us to purchase more offsets than under the limited clearing approach, which would increase the costs of completing PEC.

Our RFT Phase A capex forecast of \$122.1 million (\$ Real 2017-18) for environmental offset risks was determined based on information provided by WSP, an independent expert.

We have retained the same methodology for calculating our BAFO capex forecast as we used to determine our RFT Phase A capex forecast. However, as noted above, WSP has provided an updated report (updated WSP report). This is reflected in our BAFO capex forecast.

WSP's updated report reflects the new PEC route via Dinawan, the current process of acquisition negotiations and on-site investigations. The estimates in WSP's updated report have been revised to reflect more accurate and up to-date information.

Table 5.11 compares our RFT Phase A capex forecast and our BAFO capex forecast for environmental offset risks, which was determined based on the following:

¹⁵ The property and easement capex forecast has not been derived from the tender process, however, we refer to the property and easement capex forecast set out in our Capex Methodology - RFT Phase A as the RFT Phase A capex forecast for simplicity purposes.

¹⁶ Importantly, the exchange rate and commodity price risks can be contracted away once the tendered contract is awarded. However, until that point – and absent any hedges – TransGrid is exposed to the risk that exchange rates and commodity prices move in a way that increase the costs of the project.

- > a 30 per cent likelihood that DPIE will reject our proposed approach of limited clearing and require us to undertake full clearing – this is based on WSP’s estimate that there is a 20 to 40 per cent probability that a full clearing scenario will occur; and
- > the maximum biodiversity offset costs under full clearing scenario.

Table 5.15: Environment offset risk estimate (\$M Real, 2019-20)

| Environment offset estimate | RFT-A capex forecast | BAFO capex forecast | Comment |
|--|----------------------|---------------------|---|
| Limited clearing scenario (used in base capex) | \$77.8 | \$128.9 | Changes are set out in section 5.2.5 |
| Full clearing scenario | \$501.2 | \$257.8 | Changes are described below. |
| Difference | \$423.5 | \$128.9 | Calculated as the difference between the limited and full clearing scenario offset values |
| (x) Likelihood | x 30% | x 30% | WSP estimates that there is a 60% – 80% probability that the limited clearing approach would apply to determining the offset liability, which leaves a 20% – 40% chance that the full clearing scenario will apply. We used 30% as a mid-point of that range. |
| Risk cost (\$M, Real 2019-20) | \$127.0 | \$38.7 | Calculated by multiplying the difference between the limited and full clearing scenario offset values by 30% |
| Risk cost (\$M, Real 2017-18) | \$122.1 | \$38.2 | |

The cost decrease for our BAFO environmental offset risks is due to the significant reduction in the difference in the environmental offset costs between the full and limited clearing scenarios. This is driven by the significant cost reduction for the full clearing scenario due to:

- > greater proportion of the credit liability being met by the potential BSA candidates, which is a more cost effective method to meet credit liability than the BCF method
- > significant decrease in credit liability as a result of:
 - reduction in route length based on the shorter of the two route lengths proposed by the two bidders in RFT Phase B
 - reduction in number of credit liabilities per hectare (per ha.) based on site investigations, and
 - a reduction in the width of the easement requiring clearance from 80 metres to 60 metres.

The increased maintenance credit liability set out in section 5.2.5 for the limited clearing scenario does not apply to the full clearing scenario as all vegetation are being cleared in the full clearing scenario.

5.4.1 Forecast model

Our BAFO capex forecast for project risk is \$38.2 million. This is \$83.9 million (\$Real 2017-18) lower than our RFT Phase A capex forecast of \$122.1 million.

Table 5.16 summarises the RFT Phase A and BAFO capex forecast for project risk.

Table 5.16: Forecast expenditure for Project risk events (\$M, Real 2017-18)

| Item | Forecast at June 2020 | Current forecast | Difference | Comment |
|--------------|-----------------------|------------------|------------|---------------------------|
| Project risk | 122.1 | 38.2 | (83.9) | Environmental offset risk |

6. Real input cost escalation

In our Capex Methodology - RFT Phase A, forecast capex for real input cost escalation was presented in section 10. The total forecast was \$15.5 million (\$Real 2017-18). This forecast was based on the forecast real labour cost escalators allowed by the AER in its 2018-23 Revenue Determination for TransGrid.

Forecast capex for real input cost escalation has been recalculated based on tenderer responses that indicate that some labour cost escalation is now being captured within the tender pricing. Our BAFO forecast has therefore, reduced from \$15.5 million to \$3.2 million (\$Real 2017-18).

Forecast real input cost escalation is calculated by multiplying the labour cost components of the property costs and indirect expenditure by the forecast real labour cost escalators allowed by the AER in its 2018-23 Revenue Determination.¹⁷ Consistent with that determination, no real input cost escalation was included for non-labour components of the expenditure.

The real labour input cost escalators for 2018-19 to 2022-23 are set out in Table 6.1. These are converted into a cumulative index from the 2017-18 year.

Table 6.1: Real labour input cost escalator and cumulative index

| | 2017-18 | 2018-19 | 2019-20 | 2020-21 | 2021-22 | 2022-23 |
|----------------------------------|---------|---------|---------|---------|---------|---------|
| Real labour input cost escalator | N/A | 0.81% | 0.95% | 1.21% | 1.46% | 1.46% |
| Cumulative index | 1.000 | 1.008 | 1.018 | 1.030 | 1.045 | 1.060 |

Note: Values are rounded for presentational purposes. Unrounded figures were used in the calculations.

The approach is applied in our PEC Capex Model, which is included as an attachment to this Application.

¹⁷ See, Australian Energy Regulator, May 2018, *AER - Final decision TransGrid transmission determination - Capex model - May 2018*. The labour escalators adopted by the AER are at cells H23:H27 of the 'Input_Fixed' sheet.

7. Summary of capex forecast

A summary of our capex forecast is shown in Table 7.1.

Table 7.1: Capex forecast by category (\$M, Real 2017-18)

| Type | Item | Forecast capex | Basis |
|--|--|----------------|---|
| Tendered capex | Transmission line | 1,016.8 | Market pricing based on responses provided by tenderers and top down estimates for other construction costs |
| | Substation | 300.6 | |
| | Secondary systems | 16.4 | |
| | Communication systems | 2.6 | |
| | Synchronous condensers | 132.1 | |
| Property capex | Easements | 105.1 | Independent expert report from JLL |
| | Land | 3.1 | Independent expert report from JLL |
| | Construction related | 10.8 | Independent expert report from JLL |
| | Fees | 2.4 | Based on historic costs |
| | Environmental offsets | 127.4 | Independent expert report from WSP |
| Indirect capex | Indirect costs incurred to July 2020 | 27.8 | From Ellipse, our ERP system |
| | Project development | 40.6 | Bottom-up-build approach. Incremental labour costs (i.e. FTEs are based on standard labour rates) |
| | Works delivery | 19.9 | |
| | Land and environment | 18.4 | |
| | Stakeholder and Community engagement | 8.2 | Our internal experience and historical costs for these activities and on-costs provided by consultant |
| | Insurance | 8.6 | ██████████ |
| | Procurement bidders payments and data room | 12.3 | Based on industry practices |
| Escalation | Real input cost escalation | 3.2 | Forecast real labour cost escalators allowed by the AER in its 2018-23 Revenue Determination for TransGrid |
| Risk events | Risk cost | 38.2 | Based on information provided in consultant report (WSP) |
| Total (excluding equity raising cost) | | 1,894.6 | |

8. Forecast verification and validation

To provide the AER, customers and other stakeholders with a high level of confidence that our forecast capex for PEC is prudent and efficient, we commissioned independent experts to verify and validate our forecasts.

This section explains how our actual and forecast BAFO capex for the PEC have been verified and validated by independent experts.

Our Capex Methodology - RFT Phase A explains the verification and validation of our Phase A capex forecast.

8.1 Independent assessments

GHD – Independent engineering capex assessment

We engaged GHD to undertake an independent engineering verification and assessment of our BAFO capex forecast. GHD's assessment:

- > verified that the scope of the PEC, including the adoption of the southern alternative route is reasonable and realistic to meet the investment needs,
- > developed comparative estimates, or estimated costs using historical project costs, information available to it and its engineering judgement. A comparative estimate was developed for each of the forecast capex categories
- > considered our capex forecast to be reasonable if it was within ± 20 per cent of its comparative estimate. For forecast capex categories that were not within ± 20 per cent, GHD then undertook a further review to explore if there were any known project specific reasons that resulted in this variation.

Overall, GHD concluded that our forecast capex for PEC is within a reasonable margin of GHD's comparative estimate. GHD's independent review therefore supports the consistency of our forecast capex with that which would be incurred by a prudent and efficient business.

GHD's report is provided as Attachment A.9A of our Application.

Houston Kemp – Independent economic assessment

We engaged HoustonKemp to assess the consistency of our proposed capex for PEC with the NER requirements. HoustonKemp relied on GHD's engineering assessment in undertaking its economic assessment.

Houston Kemp concluded that the project scope reflects the approach a prudent TNSP would adopt and the project timing and schedule has been market tested

Houston Kemp concluded the following costs to be reasonable and appropriate:

- > tendered works for transmission lines, substations and large specialist equipment, which have been market tested and verified by GHD as reasonable;
- > the majority of property and easement acquisition costs, which are based on a report by independent experts, JLL;
- > environmental offset costs, which:

- are based on a report by independent experts, WSP; and
 - considered by GHD to have been estimated using a sound approach, albeit noting that it may be conservatively high; and
- > corporate and network costs, which have been verified by GHD to be reasonable.

HoustonKemp noted that the above costs represent \$1625.7 million out of the \$1,905.6 million of TransGrid's higher RFT Phase B capex forecast for PEC (or around 85 per cent) and \$1701.4 million out of \$1,867.7 million of TransGrid's lower RFT Phase B capex forecast for PEC (or around 91 per cent).

HoustonKemp were unable to conclude whether the following cost estimates are reasonable or appropriate:

- > the 20 km allowance for route alignment on the Dinawan to Wagga Wagga line
- > 'other construction costs';
- > biodiversity offset risk costs; and
- > the proportion of property and easement costs estimated internally by TransGrid.

However, HoustonKemp did note that each of these categories represent costs which TransGrid can reasonably be expected to incur, and so an allowance within the capex forecast in the CPA is reasonable.

Given this, HoustonKemp expects that a higher proportion of the capex forecast will be prudent and efficient since it will most likely:

- > be within a reasonable range of GHD's comparative estimate;
- > reflect a more refined scope and pricing, including for 'other construction costs', and so will be closer to the expected cost of completing PEC; and
- > reflect a competitive tender process, where price is a key factor to selecting the preferred tenderer.

HoustonKemp's report is provided as Attachment A.10 of our Application.

8.2 Deliverability

Deliverability was validated through market testing. The procurement process for Tendered Works, included that Tenderers should consider:

- > corporate capability
- > key risks and opportunities
- > resourcing strategy and management, and
- > financial capacity and contractual structure.

Applicants were also instructed that they should provide a list of opportunities to improve value for money.

Bidders addressed these requirements in their response to the RFT Phase B process. Improvements offered in bidders responses included:

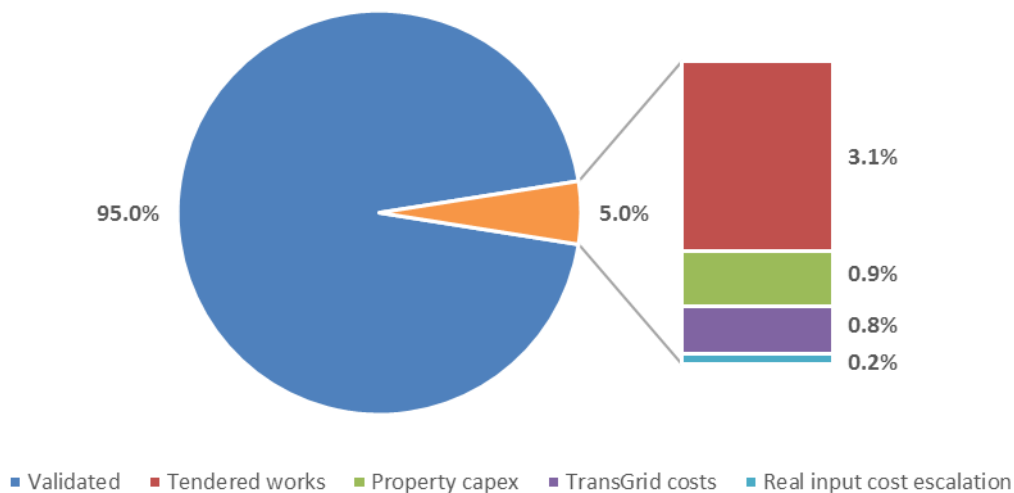
- > options to use different tower structures and foundation designs to that proposed in our concept design
- > alterations to the route to avoid the need to modify adjacent electrical lines, and
- > alterations to the route to minimise the route length.

These improvements are reflected in bidders' responses to the RFT BAFO. We assessed that each of the short-listed bidders were capable of delivering the Tendered works in RFT Phase A of the procurement process.

8.3 Accuracy of forecast expenditure

Figure 8-1 show that 95 percent of the forecast capex (excluding risk costs and equity raising cost) are based on manufacturers' quotes, consultants' reports and market testing. This high portion of external validation supports that the forecast capex is appropriate for PEC.

Figure 8-1: Portion of capex forecast validated by consultants and market testing



Appendix A Supporting documents

Bidder one Price Returnable Schedule

Bidder two Price Returnable Schedule

JLL Land & Easement Acquisition Forecast Costs for Project EnergyConnect, 25 August 2020

O'Connor Marsden & Associates report – Probity Advisor's Report: Project Energy Connect Procurement Approach – Request for Tender Phase B, September 2020

WSP Memo for Revised estimate of EnergyConnect Biodiversity Offset Liability and Update to Strategy, 9 September 2020, PS113770-ECO-MEM-010 Rev C

Attachment 7: Corporate and network overhead forecast for Project EnergyConnect

GHD, PEC - Scope Independent Verification and Assessment, September 2020

HoustonKemp, Consistency of TransGrid's proposed capital expenditure for Project Energy Connect with the NER requirements, September 2020