



TransGrid

Corporate and network overhead forecast for QNI Minor Upgrade Project

Contingent Project Application for QNI
17 January 2020

Contents

Glossary	iv
1. Purpose, structure and scope of this document	1
1.1 Purpose of this document.....	1
1.2 Structure of this document.....	1
1.3 Scope of this document	1
2. Historical Indirect Capex	3
3. Summary of Indirect Capex for the QNI Project.....	4
4. Works Delivery Capex.....	5
4.1 Summary.....	5
4.2 Labour	6
4.3 Labour related capex	7
4.4 Non-labour capex	9
5. Project Development Capex.....	10
5.1 Summary.....	10
5.2 Labour	11
5.3 Labour related capex	12
5.4 Project Development - Non-Labour capex	15
6. Other Indirect Capex	18
6.1 Forecast capex for Land and Environment	18
6.2 Forecast capex for Stakeholder and Community Engagement	19
6.3 Forecast capex for insurance during construction	21
6.4 Forecast capex for Bidder Payments	22
7. Key Assumptions	24
7.1 Cost Allocation.....	24
7.2 Labour	25
7.3 External Advice – Consulting Fees and Other Services	29
7.4 IT	29
8. Reference Material.....	30
Appendix A.....	31

List of Tables

Table 2-1 - Historical indirect capex from 1 July 2018 to 30 November 2019 (\$M, Real 2017-18)	3
Table 3-1 - Summary indirect capex by category (\$M, Real 2017-18)	4
Table 3-2 - Summary total capex – actuals and forecast (\$M, Real 2017-18)	4
Table 4-1 - Summary of forecast capex for Works Delivery (\$M, Real 2017-18)	5
Table 4-2 - Sustenance allowance rates applicable at 30 June 2018	7
Table 4-3 – Works Delivery - Travel Cost	8
Table 4-4 - Works Delivery - IT Costs	8
Table 4-5 - Works Delivery - Equipment and hire costs	9
Table 5-1 - Project Development Cost Estimate Summary (\$M, Real 2017-18)	10
Table 5-2 - Project Development - Resource requirements (\$M, Real 2017-18)	11
Table 5-3 - Project Development – Property costs	13
Table 5-4 - Project Development – IT costs	13
Table 5-5 - Project Development – Travel costs	14
Table 5-6 - Project Development – Consulting fee costs	15
Table 5-7 - Project Development - Summary of Consulting Cost Estimate	16
Table 5-8- Project Development - Summary of consulting cost estimate – Design and Equipment engineering	16
Table 6-1 - Land and Environment - Summary incremental costs (\$M, Real 2017-18)	18
Table 6-2 - Forecast capex for stakeholder and community engagement, June 2018 (\$M, Real 2017-18)	19
Table 6-3 - Stakeholder and Community Engagement – Community improvement costs	20
Table 6-4 - Design and communication costs	20
Table 6-5 - Forecast capex for insurance during construction	22
Table 6-6 - Forecast capex for bidder payments	23
Table 7-1 - Allocation rates between Major Projects	24
Table 7-2 - Labour on-cost rates	27
Table 7-3 - Travel and expenses methodology and assumptions	28

Glossary

Term	Description
AER	Australian Energy Regulator
CAM	Cost Allocation Methodology
CPA	Contingent Project Application
CPP	Community Partnerships Program
CSEP	Community and Stakeholder Engagement Plan
ERP	Enterprise Resource Planning
NER	National Energy Rules
PAI	Principal Arranged Insurance
PEC	Project EnergyConnect
PSSR	Power System Safety Rules
QNI	Queensland New South Wales Interconnector
SOW	Statement of Work
TNSP	Transmission Network Service Provider
TL	Transmission Lines
VNI	Victorian Interconnector
WDA	Works Delivery Advice

1. Purpose, structure and scope of this document

1.1 Purpose of this document

This document explains and justifies our 'Corporate and Network Overhead' capital expenditure (capex)¹ for the Queensland New South Wales Interconnector (QNI) Minor Upgrade Project (QNI Project) for the 2018-19 to 2022-23 (2018-23) regulatory period. The commissioning date for the QNI Project is September 2021, therefore the majority of indirect capex will be incurred in 2019-20 to 2021-22.

We refer to 'Corporate and Network Overhead' capex as 'indirect capex' in this document. This capex is incremental to the capex approved by the Australian Energy Regulator (AER) in its 2018-23 Revenue Determination. This is because it relates to activities that are additional to our normal business activities.

This document supports our Contingent Project Application (Application) for the QNI Project and should be read in conjunction with the Application, in particular our Capex Forecasting Methodology.

All nominal and 2018-19 values in this document have been converted into real 2017-18 dollars, consistent with the 2018-23 Revenue Determination². This document references other supporting document for further detail.

1.2 Structure of this document

This document is structured as follows:

- > Section 2 overviews our historical indirect capex for the QNI Project
- > Section 3 summarises our forecast indirect capex for the QNI Project
- > Section 4 explains and justifies our forecasting methodology for works delivery indirect capex
- > Section 5 explains and justifies our forecasting methodology for project development indirect capex
- > Section 6 explains and justifies our forecasting methodology for other indirect capex
- > Section 7 provides a summary of the key assumptions underpinning our forecast indirect capex, and
- > Section 8 lists supporting documents that provide additional information on our indirect capex.

Appendix A provides details on the expected incremental labour roles required for the QNI Project.

1.3 Scope of this document

The scope of this document is limited to the indirect capex forecast for the QNI Project. Real labour escalation is not included as part of this report. Real labour escalation is undertaken in the Capex Forecast Model, as explained in the Capex Forecasting Methodology.

¹ Non-network costs include property and IT costs, whilst network overhead costs include project management costs and corporate overheads include legal and regulatory costs.

² The financial values exclude *both* inflation and any real input cost escalation (e.g. labour) from 30 June 2018 onwards. Although many of the unit rates used have been applied from 1 July 2019 onwards, these have been deflated by a year of actual inflation (from 30 June 2019 to 30 June 2018) and, where appropriate, de-escalated by a year of real labour cost escalation (using the rate allowed by the AER in its determination for the 2018-23 regulatory control period for the year to 30 June 2019).

We have forecast indirect capex for the QNI Project from 1 December 2019 for the duration of the project, which will be commissioned in September 2021.

Forecast expenditure has been identified as either capex or opex in a manner consistent with relevant accounting standards including AASB 116. For the QNI Project, all indirect costs have been treated as capex as they are directly linked to the QNI capital project.

All property, plant and equipment, and actual capitalised costs are capitalised in accordance with the aforementioned standards, as they were directly linked to the QNI capital project. These costs are audited annually for compliance with these standards and our capitalisation policy.³

The approach employed in this document is consistent with the approach we have employed in other Project costs which has been externally verified. The independent expert report from HoustonKemp, provided as an Attachment to our Application, explains that incremental capex forecast for the QNI Project meets the National Electricity Rules' (NER) requirements.

³ Expenditure Capitalisation Procedure, TransGrid, 2018.

2. Historical Indirect Capex

Historical indirect capex of \$3.27 million has been incurred between 1 July 2018 to 30 November 2019 to progress the QNI Project, as shown in Table 2-1 -.

Historical capex is based on transactions recorded in Ellipse, which is our enterprise resource planning (ERP) system. We have allocated and attributed historical capex to the QNI Project in accordance with our cost allocation methodology (CAM)⁴. We have also treated historical capex in accordance with our capitalisation policy.

Table 2-1 - Historical indirect capex from 1 July 2018 to 30 November 2019 (\$M, Real 2017-18)

Capex category	2018-19	2019-20 (30/6/19 to 30/11/19)	Total capex
Labour	0.57	0.87	1.44
Labour-Related	0.02	0.03	0.05
Comprising:			
Travel and sustenance	0.02	0.03	0.05
Non-Labour	0.83	0.95	1.78
Comprising:			
Legal	-	0.05	0.05
Consulting	0.44	0.06	0.50
Engineering	0.28	0.53	0.82
Network/Property	0.07	0.22	0.29
Other	0.03	0.09	0.12
Total	1.42	1.86	3.27

⁴ TransGrid Cost Allocation Methodology, TransGrid, 2016.

3. Summary of Indirect Capex for the QNI Project

Total forecast indirect capex for the QNI Project is \$25.43 million. There are three key categories of forecast indirect capex. Table 3-1 - shows that:

- > Works delivery comprises \$17.91 million or around 70 per cent of the total forecast indirect capex
- > Project development comprises \$5.97 million or around 23 per cent of the total forecast indirect capex, and
- > Other indirect capex comprises \$1.55 million or around 6 per cent of the total forecast indirect capex.

This capex is incremental to our business as usual capex. The commissioning date for the QNI Project is September 2021, therefore the majority of indirect capex will be incurred in 2019-20 to 2021-22.

Table 3-1 - Summary indirect capex by category (\$M, Real 2017-18)

Capex category	2019-20 (1/12/19 to 30/6/20)	2020-21	2021-22	2022-23	Total capex	% of total capex
Works Delivery	4.75	11.38	1.78	-	17.91	70%
Project Development	3.40	2.01	0.55	-	5.97	23%
Other indirect capex	0.79	0.56	0.20	-	1.55	6%
Total	8.94	13.95	2.53	-	25.43	100%

The total indirect capex of \$28.70 for the 2018-23 regulatory period is detailed in Table 3-2.

Table 3-2 - Summary total capex – actuals and forecast (\$M, Real 2017-18)

Capex category	2018-19	2019-20	2020-21	2021-22	2022-23	Total
Actuals	1.42	1.86	-	-	-	3.27
Forecast	-	8.94	13.95	2.53	-	25.43
Total	1.42	10.80	13.95	2.53	-	28.70

4. Works Delivery Capex

This section explains and justifies our forecasting methodology for works delivery capex for the QNI Project (i.e. capex associated the construction of QNI). We have forecast works delivery capex based on the additional Project Delivery labour (i.e. Full Time Equivalents (FTEs)) and our standard labour rates. Works Delivery FTE's are required to:

- > Undertake project and contract management and project controls functions in accordance with our project management delivery model
- > Undertake the role of Principal Contractor for all brownfield substation construction activities
- > Undertake civil, electrical, environmental and safety inspections to ensure that work, completed by the contractors, satisfies contractual requirements
- > Coordinate high voltage equipment outages, for all brownfield substation and transmission line construction activities, to provide safe areas for contractor construction activities
- > Provide power system safety rules (PSSR) qualified staff that provide safe access areas (i.e. electrical and mechanical isolations) for contractors on brownfield locations
- > Provide qualified oversight of contractors for pre-commissioning checks and in-service commissioning activities of new equipment, and
- > Provide qualified staff to manage interfaces between exiting equipment and systems with the new equipment and systems.

The table below shows that our total forecast works delivery indirect capex is \$17.91 million.

4.1 Summary

Table 4-1 - Summary of forecast capex for Works Delivery (\$M, Real 2017-18)

Category	Total capex	Report Reference
Labour	16.02	4.2
Labour related costs	1.85	
Comprising:		
Sustenance	0.87	4.3.1
Training	0.04	4.3.2
Travel	0.26	4.3.4
Recruitment	0.63	4.3.3
IT Hardware	0.06	4.3.6
Non-Labour costs		
Comprising:	0.04	4.4.1
Equipment and hire		

Category	Total capex	Report Reference
Total Works Delivery	17.91	

4.2 Labour

The QNI Project Works Delivery Advice (WDA)⁵ underpins the works delivery capex forecast. This identifies that an additional 24.7 FTEs will be required to deliver the QNI Project. These FTEs are incremental to our business as usual operations.⁶

The QNI Scope of Works⁷ identified the additional 24.7 FTEs⁸ across the following resources types:

- > Project Management – 5.5 incremental FTEs
- > Substation Works Delivery – 12.2 incremental FTEs
- > Transmission lines 88,83 and 84 Works Delivery – 7.1 incremental FTEs

These FTEs will be required across Armidale, Tamworth, Dumaresq, Liddell and Muswellbrook substation site locations as well as the locations for Transmission lines 88,83 and 84 identified in the detailed scope of works and design. The number of incremental FTEs required for the QNI Project is based on current practices, the complexity and timeframes of the project plus relevant legislative requirements.

The commencement of FTEs is phased over the duration of the project as per the project schedule⁹. Further details on required labour resources, their start dates and their expected work location is provided in Appendix A.

4.2.1 Labour rates

Standard labour rates, effective 30 June 2018¹⁰, have been applied to calculate the works delivery capex forecast for the QNI Project. These rates were used to calculate the capex forecast for the 2018-23 regulatory period. These rates are detailed in section 7.2.1 of this document and reflect reasonable market conditions and constraints within NSW.

Overtime payments have been calculated for each FTE type. This capex contributes to around 43 per cent of the total works delivery indirect capex forecast. This approach is consistent with good industry practice.

Real labour escalation is not included as part of this report. Real labour escalation is undertaken in the Capex Forecast Model, as explained in the Capex Forecasting Methodology.

⁵ WDA – Refers to Works Delivery Advice – P0016469 – Queensland and New South Wales Interconnector (QNI) Substations & TL Upgrading Works Delivery Advice, 2019.

⁶ The total number of incremental FTEs has been calculated as an annualised average of the incremental FTEs over the duration of the QNI project.

⁷ P0016469 – Queensland and New South Wales Interconnector (QNI) Substations & TL Upgrading Works Delivery Advice, 2019 – Sections 2.1. and 2.2. provides the detailed scoping and design of the Works.

⁸ The variation between the total incremental FTEs and the breakdown across resources types is a result of rounding. For further details, refer to supporting QNI spreadsheets in section 8.

⁹ All scheduling and resource forecasting for QNI has been undertaken utilising TransGrid's established systems and tools through PPM. The PPM tool is utilised for all of TransGrid's prescribed capital projects and regulatory submissions.

¹⁰ 30 June 2018 labour rates have been calculated using standard rates as at 30 June 2019 which have been adjusted to 2017-18 rates through removing labour escalation and CPI.

4.3 Labour related capex

4.3.1 Sustenance Allowances

We have forecast a total sustenance allowance of \$867,248 for works delivery staff. This relates to work related travel expenses such as food and accommodation. The forecast sustenance allowance is in line with the Australian Tax Office (ATO) Reasonable Allowance amounts based on a salary of \$108,810 and below.

Sustenance allowances are provided under the following conditions under our Enterprise Agreement:

- > Overnight absences from home - when employees are transferred to a temporary headquarters and the temporary transfer requires them to be absent from their usual place of residence overnight, we must provide them with accommodation wherever practicable at our expense. For each night's absence, employees must be paid an allowance of:
 - \$15.80 when interstate, or
 - \$12.70 when intrastate
- > Where accommodation is not provided, employees may arrange their own accommodation in which case we will pay for the following allowances:
 - Capital Cities – ATO reasonable allowance amounts tabled below based on a salary of \$108,810.
 - Other than Capital Cities – Relevant ATO reasonable allowance amount for High Cost Country Centre, Tier 2 Country Centre or Other Country Centre as per ATO Ruling.¹¹

Table 4-2 - Sustenance allowance rates applicable at 30 June 2018

Location	Overnight Breakfast	Overnight Lunch	Overnight Dinner	Overnight All meals
City	25.90	29.15	49.65	104.70
Country	23.20	26.50	45.70	95.40

All sustenance expenses are claimed through timesheets, with the provision of tax receipts and require formal approval by a line manager.

The sustenance allowance set out in Table 4-2 applies only to Works Delivery staff. A different travel allowance is applicable for Project Development, Land and Environment and Stakeholder Engagement staff, in accordance with the allowances per salary band of \$124,481 to \$221,550 within the ATO Guidelines and travel requirements for these teams. This is discussed in section 7.2.8.

4.3.2 Training

We have included an allowance for training of new Works Delivery FTEs at the standard rate of \$1,500 per person, per annum in line with the methodology set out in section 7.2.2. The total forecast capex for training of Works Delivery staff is \$36,499.

4.3.3 Recruitment

We have included an allowance for recruitment costs of Works Delivery FTEs based on the methodology set out in section 7.2.3. The total forecast capex for recruitment of Works Delivery FTEs is \$628,510. This is based on historical experience and current market conditions.

¹¹ ATO, TD 2019,11.

4.3.4 Travel for Works Delivery

In addition to the sustenance allowance, a forecast capex of \$256,514 for flights for Works Delivery staff has been included. This is set out in 4.3.5.

The assumptions underpinning each role, including frequency of travel and location, can be found within the P0016469 – Queensland and New South Wales Interconnector (QNI) Substations and Transmission Upgrading Works Delivery Advice, 2019.¹²

4.3.5 Works Delivery Travel Expenses

Table 4-3 – Works Delivery - Travel Cost

Category	Travel
Capex category	Works Delivery / Labour related Costs
Nature of capex	> All flights for Works Delivery Staff Travel as detailed within 7.2.8
Forecast capex (\$, Real 2018-2019)	\$260,600
Forecast capex (Real 2017-18)	\$256,514
Assumptions and methodology	> Forecast capex for flights has been determined in line with the schedule within the P0016469 – Queensland and New South Wales Interconnector (QNI) Substations & TL Upgrading Works Delivery Advice, 2019 ¹³

4.3.6 Works Delivery IT capex

Table 4-4 - Works Delivery - IT Costs

Category	Travel
Capex category	Works Delivery / Labour related Costs
Nature of capex	IT hardware costs for Works Delivery staff: <ul style="list-style-type: none">> IT Hardware bundle includes:> Laptop (Standard issue)> Single monitor> Lock> Keyboard> Mouse> Backpack> Standard issue mobile phone Total cost per standard IT Bundle - \$2,650

¹² P00016469 – Queensland and New South Wales Interconnector (QNI) Substations & TL Upgrading Works Delivery Advice, TransGrid 2019 – Prepared by TransGrid Works Delivery team, detailing role assumptions for each FTE including overtime, flights and sustenance allowances.

¹³ The document provides detailed scoping, basis of assumptions and labour schedule for the QNI substation and upgrading works. Section 4.1 details the assumptions regarding travel required per FTE for the duration of the QNI project.

Category	Travel
Forecast capex (\$, Real 2018-2019)	\$65,509
Forecast capex (Real 2017-18)	\$64,482
Assumptions and methodology	<ul style="list-style-type: none"> > Total IT hardware cost is based on actual costs of IT hardware at current rates > Total IT Cost was determined through establishing a set IT hardware bundle required for Works Delivery FTEs (total calculated based on number of FTEs requiring hardware phased across the lifetime of the project) > Excludes IT support costs

4.4 Non-labour capex

4.4.1 Works Delivery Equipment and hire costs

Table 4-5 - Works Delivery - Equipment and hire costs

Category	Travel
Capex category	Works Delivery / Non-Labour Costs
Nature of capex	Costs Include: <ul style="list-style-type: none"> > Elevating Work Platform hire > Mobile plant hire > Cabling
Forecast capex (\$, Real 2018-2019)	\$37,700
Forecast capex (Real 2017-18)	\$37,109
Assumptions and methodology	<ul style="list-style-type: none"> > Forecast capex is based on current available market rates and recent historical data

4.4.2 Other assumptions

We have not included any additional non-labour costs (e.g. property) in the works delivery capex for the QNI Project. No additional office space is required for the new FTE's, who will largely operate on the QNI Project site.

5. Project Development Capex

This section explains and justifies our forecasting methodology for project development capex for the QNI Project. Project development capex relates to the set up and ongoing project management of the QNI Project.

The majority of this forecast capex relates to incremental labour. Table 5-2 below outlines the additional roles required, including:

- > 5 roles for Project Management within the QNI Project Team;
- > 14 roles resourced to specifically support the QNI Program;
- > 5 roles allocated from the core team of the Major Projects Division;
- > 19 other support and corporate roles allocated from the Major Projects Division.

Resources outlined above will be backfilled as per the methodology detailed in section 7.2.5. For roles which work across multiple major projects, we have allocated their costs between the QNI Project and other major projects on which they are also working, using the total expected capex for each project as the allocator. This is discussed further in section 7.1.1.

We have forecast project development capex based on the incremental FTE and our approved standard labour rates.¹⁴ In addition, there are non-labour costs for consultant and professional fees as set out in the table below. The table below shows that the total forecast capex for Project Development is \$5.97 million.

5.1 Summary

Table 5-1 - Project Development Cost Estimate Summary (\$M, Real 2017-18)

Category	Total capex	Report Reference
Labour	4.58	5.2
Comprising:		
QNI Core - Project Management Team	2.88	
QNI - Other Incremental Roles	1.04	
Major Projects Team	0.23	
Other QNI Incremental Resources	0.43	
Labour related costs	0.34	
Comprising:		
Training	0.02	5.3.1
Recruitment	0.17	5.3.2
Office & IT costs	0.09	5.3.3

¹⁴ Labour and Support Cost Rates Effective July 2019.

Category	Total capex	Report Reference
Travel and Sustenance – QNI Project Management Team	0.06	5.3.4
Non-Labour costs	1.05	
Comprising:		
Consultant and Professional fees	0.34	5.4.1
TL Design, HV Design, Civil Design, Equipment Engineering & Procurement	0.72	
Total Project Development	5.97	

5.2 Labour

As outlined below in Table 5-2, we require 43 incremental roles for the QNI Project and the Major Projects Division. These roles have been categorised across four functions as shown in the table below.

Table 5-2 - Project Development - Resource requirements (\$M, Real 2017-18)

Role	Responsibility	Number of roles	% allocation to QNI	Total labour cost attributable to QNI
QNI – Core Team (Project Management)	Directly manage QNI for TransGrid	5	100%	2.88
QNI - Other Incremental Roles	Directly resourced on QNI	14	100%	1.04
Major Projects Division – Core team	Small team to support across Major Projects	5	5%	0.23
Major Projects Division - Other Support and Corporate roles ¹⁵	Other roles supporting QNI including engineering, regulatory, spatial, finance, HR, ongoing procurement	19	5%	0.43
Total		43		4.58

The full listing of these roles is available within the Appendix A (see section A.1.1).

¹⁵ Other Support and Corporate Roles are a mix of existing TransGrid FTEs reallocated to the Major Project Division, where a backfill resource has been recruited and new labour hired specifically for the purposes of supporting the Major Projects Division.

5.2.1 Rates

Labour rates have been estimated using our salary ranges and labour rates as at 30 June 2018.¹⁶ We have not applied labour cost escalation rates or CPI to these rates. The labour rate methodology is consistent with the labour rate methodology detailed in section 7.2.1.

Where the FTEs are expected to work across Major Projects and Engineering and Support, we have allocated five per cent of their cost to the QNI Project (using a share of total capex as the allocator). This methodology is detailed in section 7.1.1.

5.3 Labour related capex

5.3.1 Training

We have included an allowance for training costs of new Project Development FTEs at the standard rate of \$1,500 per person, per annum in line with the methodology as detailed at section 7.2.2. The total forecast capex for training of Project Development staff is \$20,668.

5.3.2 Recruitment

We have included an allowance for recruitment costs relating to the new Project Development FTEs, based on the methodology set out in section 7.2.3. The total estimated cost for recruiting Project Development staff is \$171,794. This cost includes a 5 per cent allocation of major projects labour recruitment costs. Recruitment cost estimates are based on historical experience and current market conditions.

5.3.3 Office Lease Costs

5.3.3.1 Property

Additional short term office space is required to accommodate the Major Projects Division Team and the QNI Project Team. Our current head office at Haymarket does not have sufficient facilities including desk space, meeting rooms and video conferencing facilities to accommodate the new Project Development FTEs. We are currently renting additional meeting room space in order to meet the requirements of the current workforce.

In order to accommodate the additional FTEs for the QNI Project, we have shortlisted six suitable properties within the vicinity of our Haymarket office. The evaluation of potential suitable property options was determined based on the following criteria:

- > Proximity to existing premises
- > Price
- > Capacity
- > Facilities – including meeting rooms, video conference capacity and collaboration space

Based on the above criteria, we consider that a new office space at [REDACTED] is the most efficient and prudent option to meet our growing needs. This option includes 50 workstations, two meeting rooms (including VC and audio set up) and one private office.

¹⁶ 30 June 2018 labour rates have been calculated using standard rates as at 30 June 2019 which have been adjusted to 2017-8 dollars by removing labour escalation and CPI.

We have allocated five per cent of the costs of the new office space to the QNI Project as per the methodology explained in section 7.1.1 for the period up until project commissioning.

All property costs have been forecast using the preferred option identified in our Short Term Office Leasing Report¹⁷.

Table 5-3 - Project Development – Property costs

Criteria	Property – Office Space	
Capex category	Project Development / Labour Related Costs	
Forecast capex (\$, Real 2018-2019)	Office space estimate	\$75,457
Forecast capex (Real 2017-18)	Total - \$74,274	
Nature of capex	> Our current head office space is at capacity and therefore new office space is required for new FTEs.	
Assumptions and methodology	> \$500,000 per annum rent plus \$250,000 per annum office outgoings charge (factored into total - \$186,766 as above) applied at five per cent allocation to QNI, adjusted to 2017-18 dollars.	
Basis/Source of Estimate	> Forecast capex is based on current available market rates and recent historical data	

5.3.3.2 IT costs

Additional IT hardware and connectivity is required for the new FTEs. We have based these costs on quotes from existing suppliers at current rates. Costs relate to hardware and IT requirements for the establishment of the Major Projects Division Office (lap-tops, phones, VC set up etc.). We have not included any IT support costs in our capex forecasts, as per our Expenditure Capitalisation Procedure.¹⁸

Only five per cent of these costs will be allocated to the QNI Project as per the methodology outlined in section 7.1.1.

Table 5-4 - Project Development – IT costs

Criteria	IT fit out costs
Capex category	Project Development / Labour Related costs
Forecast capex (\$, Real 2018-2019)	Office Network Connectivity Data and Voice – \$72,000
	Hardware - \$30,000
	IP Desktop Phones - \$28,000
	Laptop and Desk set up – \$87,500
	VC Set up - \$45,000

¹⁷ TransGrid Short Term Office Preliminary Options Report V2 20191016.

¹⁸ Expenditure Capitalisation Procedure, TransGrid, 2018.

Criteria	IT fit out costs
	Conference Phones - \$2,600
	■ Multifunction Printer – \$5,000
	Total – \$270,100 (\$13,582 allocated to the QNI Project)
Forecast capex (Real 2017-18)	Total - (\$13,369 allocated to the QNI Project)
Assumptions and methodology	<ul style="list-style-type: none"> > Office Network Connectivity Data and Voice total cost is based on a \$1,200 monthly recurring fee as per similar arrangements currently in place > Costs for ■ IT Desktop phones and Laptop and desktop set up are estimated for 50 workstations within the Major Projects Office (including the QNI Team) > All IT set up costs and network connectivity costs will be attributed at 5 per cent to the QNI Project
Basis/Source of Estimate	> Forecast capex is based on current available market rates and recent historical data
Nature of capex	Costs Include: <ul style="list-style-type: none"> > Office Network Connectivity Data and Voice (■) – \$72,000 (rate is for \$1,200 per month (cost allocated to the QNI Project until 30 September 2021)¹⁹ > Hardware – includes Router, 48 Port Switch stack, inverter and Wifi AP > Laptop and Desktop set up includes – Laptop, Single Monitor, Docking Station, Mouse, Keyboard, Lock and Backpack \$1750 per (for 50 workstations) > ■ IP Desktop Phone total cost – Estimated at \$560 per unit, for 50 units (1 per workstation)

5.3.4 The QNI Project Development Team Travel and Sustenance

Forecast capex for air travel (flights) and sustenance expense for Project Development staff is \$58,679. This has been forecast in accordance with the ATO Standard Guidelines and TransGrid Sustenance Rates. This is discussed further in section 7.2.8.

Table 5-5 - Project Development – Travel costs

Criteria	The QNI Team Travel & Expenses
Capex category	Project Development / Labour Related Costs
Nature of capex	Costs Include: <ul style="list-style-type: none"> > All travel, flights, accommodation and expenses for the QNI Project Development team for the duration of the project

¹⁹ Allocation of costs from the Major Projects Office – Including labour, property and IT until 30 September 2021 as a proportion of the capital value of projects within the Major Projects Portfolio, as outlined in 7.1.1.

Criteria	The QNI Team Travel & Expenses
Forecast capex (\$, Real 2018-2019)	\$59,614
Forecast capex (Real 2017-18)	\$58,679
Assumptions and methodology	<ul style="list-style-type: none"> > Non-recurring capex > Aligned with ATO Standard Guidelines as explained in section 7.2.8 > Excludes car hire

5.4 Project Development - Non-Labour capex

Forecast non-labour Project development capex is \$1.05 million. Forecast capex is based on recent historical costs and is consistent with our procurement and governance processes.

5.4.1 Consulting Fees – application preparation

Specialist consultants have been engaged to support us prepare our Application and supporting documents for the QNI Project. As set out in the table below, these consultants have provided:

- > Drafting assistance and specialist knowledge and skills for specific tasks, and
- > Independent verification of the QNI Project's scope, procurement process and capex.

Table 5-6 - Project Development – Consulting fee costs

Cost Category	Consulting Fees – application preparation
Capex category	Project Development / Non-Labour / Consulting Costs
Forecast capex (\$, Real 2018-2019)	\$341,000
Forecast capex (Real 2017-18)	\$335,653
Assumptions and methodology	<ul style="list-style-type: none"> > Non-recurring capex > Based on fees expected to be incurred over the course of the project
Basis/Source of Estimate	<ul style="list-style-type: none"> > Based on actual costs incurred to date and fee proposals from suppliers > Where specific fee proposals have not been provided by suppliers, estimates have been made based on agreed rates under master service agreements

Table 5-7 - Project Development - Summary of Consulting Cost Estimate

Cost Category	Detail	Total capex
Forecast methodology documentation and advice	External support to lead the drafting of the Capex forecasting methodology and provide critical review of the approach	████████
Forecast indirect capex documentation and advice	External support to document the methodology for determining the indirect capex for the QNI Project, including consolidating inputs and validating methodologies and assumptions	████████
Expenditure forecasts validation	Engineering assessment of: <ul style="list-style-type: none"> > the efficiency of unit costs and total Capex forecast and the reasonableness and > the appropriateness of the process undertaken to develop the costs 	████████
Regulatory compliance review	External review of the consistency of the proposed costs for the QNI Project with the NER requirements	████████
Forecast capex (\$, Real 2018-2019)		\$341,000
Forecast capex (Real 2017-18)		\$335,653

5.4.2 Consulting fees – Design and Equipment engineering

Specialist consultants will be required to support the delivery of the QNI project. These are detailed in the below table.

Table 5-8- Project Development - Summary of consulting cost estimate – Design and Equipment engineering

Criteria	TL Design, HV Design, Civil Design & Equipment Engineering
Capex category	Project Development / Other non-labour costs
Nature of capex	Costs Include: <ul style="list-style-type: none"> > Specialist consulting costs to support the design of the QNI project
TL Design	\$138,539
HV Design	\$127,952
Civil Design	\$366,000
Equipment Engineering	\$95,015
Forecast capex (\$, Real 2018-2019)	\$727,506
Forecast capex (Real 2017-18)	\$716,099

Criteria	TL Design, HV Design, Civil Design & Equipment Engineering
Assumptions and methodology	<ul style="list-style-type: none"> > Non-recurring capex > Based on fees expected to be incurred over the course of the project > Based on actual costs incurred to date and fee proposals from consultants > Where specific fee proposals have not been provided by suppliers, estimates have been made based on agreed rates under master service agreements

6. Other Indirect Capex

This section explains and justifies our forecasting methodology for other indirect capex for the QNI Project, which includes:

- (i) Forecast capex for land and environment
- (ii) Forecast capex for stakeholder and community engagement
- (iii) Forecast capex for insurance during construction, and
- (iv) Forecast capex for bidder payments.

6.1 Forecast capex for Land and Environment

Forecast Land and Environment capex for the QNI Project is \$285,201. This relates to labour, non-labour costs, travel, training and recruitment costs.

Table 6-1 - Land and Environment - Summary incremental costs (\$M, Real 2017-18)

Category	Total capex	Report Reference
Labour	0.24	6.1
Labour related costs (travel, training and recruitment)	0.01	6.1.1/6.1.2/6.1.3
Non-Labour costs (Environmental Consultant)	0.04	6.1
Total Land & Environment	0.29	

An Environment Officer role has been identified as incremental to the QNI Project. The travel allowance is based on the ATO standard rules.

Whilst there is a larger Land and Environment team allocating time to the QNI Project, this has been resourced using existing internal resources apportioning less than 25 per cent of their time during the course of the project. Accordingly, as per section 7.2.5 these costs have not been included in the forecast capex.

6.1.1 Travel Costs

We have included a forecast capex of \$5,856 for travel related expenses. This relates to the travel for the Land and Environment team to undertake necessary site visits.

The Travel costs estimates are in line with the ATO's standard rates. Further explanation of the methodology applied can be found in section 7.2.8.

6.1.2 Training

We have included an allowance for training costs at \$1,500 per person, per annum in line with the methodology as discussed in section 7.2.2. The total forecast capex for training of additional incremental Land and Environment FTEs is \$738.²⁰

²⁰ This amount has been pro-rated based on the tenure of the employees. Further detail regarding the calculation can be found within the QNI spreadsheets –“ Land and Environment Labour & Related Costs”.

6.1.3 Recruitment

We have included an allowance for the recruitment of Land and Environment staff, based on the methodology set out in section 7.2.3. The total estimated cost for recruitment of Land and Environment FTEs is \$4,029. This is based on historical experience and current market conditions.

6.2 Forecast capex for Stakeholder and Community Engagement

Forecast capex for Stakeholder and Community Engagement for the QNI Project is \$168,669. Our Community and Stakeholder Engagement Plan (CSEP)²¹ details the engagement approach for the QNI Project.

The CSEP highlights the engagement tools and techniques required to address the key stakeholders affected by the QNI Project. Key costs relate to:

- > Design and Communications Costs,
- > Community Improvement Activities, and
- > Travel and Expenses.

Table 6-2 - Forecast capex for stakeholder and community engagement, June 2018 (\$M, Real 2017-18)

Category	Total capex, Millions	Report Reference
Labour	0.03	6.2.1
Labour-related costs (travel)	0.04	6.2.2
Non-Labour costs (Design / Communciation and Community Improvement)	0.10	6.2.3
Total	0.17	

6.2.1 Labour capex

Forecast capex of \$30,453 is required for a portion of one FTE (a Media & Communications Manager) for the period 1 December 2019 – 30 September 2021. This new FTE will work across the Major Projects Division. We have therefore allocated five per cent of the cost of this FTE to the QNI Project in line with the methodology in section 7.1.1.

We will leverage our existing community and stakeholder engagement team to undertake all other stakeholder activities.

6.2.2 Travel Costs

We have included a forecast capex of \$34,986 for travel related expenses. This relates to site visits and community engagement meetings to be undertaken during the QNI Project. The series of required community and stakeholder meetings have been included in the CSEP²². All costs have been aligned to the ATO standard rates, further explanation of the methodology can be found in section 7.2.8.

²¹ QNI Community and Stakeholder Engagement Plan, TransGrid, 2019.

²² Sections 2.2.2 and Sections 5.5 of TransGrid's Community and Stakeholder Engagement Plan detail the key stakeholders and meetings required during QNI.

6.2.3 Non-Labour costs

Forecast capex of \$49,216 is required for community improvement activities. These activities, set out in the table below, are essential to ensure the QNI Project meets community expectations, as per the CSEP.

Table 6-3 - Stakeholder and Community Engagement – Community improvement costs

Cost	Community Improvement
Capex category	Stakeholder and Communications / Non-Labour
Nature of capex	Costs Include: <ul style="list-style-type: none"> > Community based programs in areas where QNI construction works will be undertaken > Community improvement activities within the regions of construction between NSW and QLD as detailed in the Community Partnerships Program (CPP) 2019²³ > Contributing \$50,000 towards community improvement initiatives within the Northern NSW region
Forecast capex (\$, Real 2018-2019)	\$50,000
Forecast capex (Real 2017-18)	\$49,216
Assumptions and methodology	<ul style="list-style-type: none"> > Estimate based on \$25,000 per annum for the duration of the QNI Project > This rate is based on our experience and recent historical costs for similar activities

Forecast capex of \$51,185 is for design and communications. These activities, set out in the table below, are essential to ensure the QNI Project meets community expectations, as per the CSEP.

Table 6-4 - Design and communication costs

Cost	Design and Communication costs
Capex category	Stakeholder and Communications / Non-Labour
Nature of capex	Costs Include: <ul style="list-style-type: none"> > Research/ testing project messages, > Printed materials > Web and social media > Video and animations production > Events > Advertising

²³ CPP 2019 – Document details applications received by TransGrid for Community improvement initiatives from Community organisations within Regional NSW.

Cost	Design and Communication costs
	> Graphic design
Forecast capex (\$, Real 2018-2019)	\$52,000
Forecast capex (Real 2017-18)	\$51,185
Assumptions and methodology	<ul style="list-style-type: none"> > Estimate based on \$2,261 cost per month over the course of the project > Based on our experience and recent historical costs for similar activities > Requirement for these activities as part of our stakeholder engagement strategy is detailed in the CSEP²⁴

6.3 Forecast capex for insurance during construction

Forecast capex of [REDACTED] for insurance during construction is based on incremental premium costs [REDACTED].

We will require additional insurance to cover the risk associated with “construction” activities during the substation and transmission line uprating works scheduled within the QNI project schedule²⁵. The provision of additional insurance coverage has been scoped as Principal Arranged Insurance and includes:

- > Construction all risks insurance
- > Construction third party liability insurance, and
- > Marine cargo insurance, to cover the period from construction to commissioning.

As noted, these costs relate to the construction phase of the project and are additional to our current operational insurance [REDACTED]. On completion of the project, the assets will impact our ongoing insurance requirements. These additional ongoing costs are not included in this document, rather they are incorporated into the opex forecast (as detailed in the QNI Opex Forecasting Methodology).

For accounting purposes, we have applied our Expenditure Capitalisation Procedure²⁶ in conjunction with the accounting standards requirements set out in AASB 116 Property, Plant and Equipment.

The cost of property, plant and equipment under AASB 116 includes any cost that is directly attributable to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management.

The construction risk insurance costs for the project are considered to be directly attributable costs in this respect. This treatment is consistent with our capitalisation of the PAI costs for our constructed assets.

²⁴ Section 5.4 of the TransGrid Community and Stakeholder Engagement Plan details the activities required as part of the community and stakeholder engagement strategy for QNI.

²⁵ Section 2.1 and 2.2 of P0016469 – Queensland & New South Wales Interconnector (QNI), TransGrid 2019 details the nature of construction works to be performed.

²⁶ Expenditure Capitalisation Procedure, TransGrid 2019.

Table 6-5 - Forecast capex for insurance during construction

Cost	Insurance
Capex category	Insurance
Nature of capex	Costs Include: <ul style="list-style-type: none"> > Construction All Risks Insurance > Construction – Third Party Liability Insurance > Marine Cargo Insurance
Forecast capex (\$, Real 2018-2019)	<div></div> <div></div> <div></div> <div></div>
Forecast capex (Real 2017-18)	<div></div>
Assumptions and methodology	<ul style="list-style-type: none"> > Insurance costs cover all construction in relation to substations and transmission lines for the duration of the QNI Project > All amounts tabled are subject to variation > Any additional provisions for insurance must be estimated separately (this includes, Construction All Risks Delay in Start Up, Marine Cargo Delay in Start Up, Workers Compensation, Motor Vehicle Insurance and Professional Indemnity Insurance – which have been excluded from estimates above)
Basis/Source of Estimate	> <div></div>

6.4 Forecast capex for Bidder Payments

Forecast capex of \$196,864 for compensatory payments made to suppliers where they are asked to prepare detailed designs during the bidding phase of tenders. The detailed design and construction works for the QNI Project will be performed by a contracting party. These include the production of the Transmission Line design works to enable the requisite scheduling and outage planning for site works to commence during March 2020. These payments are necessary to:

- > Ensure competitive participation of multiple bidders, and
- > Ensure the quality submissions

These payments are in-line with common industry practices and NSW government guidelines²⁸.

²⁷

²⁸ Bid Costs Contribution Policy, NSW Treasury, 2018.

Table 6-6 - Forecast capex for bidder payments

Criteria	Bidder Payments
Capex Category	Bidder Payments
Nature of capex	Costs Include: <ul style="list-style-type: none"> > Transmission line design works
Forecast capex (\$, Real 2018-2019)	Total - \$200,000
Forecast capex (Real 2017-18)	Total – \$196,864
Assumptions	<ul style="list-style-type: none"> > Rates are determined by contracting party > Non-recurring capex
Basis/Source of Estimate	<ul style="list-style-type: none"> > Determined in consultation with the bidders

7. Key Assumptions

This section explains and justifies the key assumptions and calculation underpinning our indirect capex.

7.1 Cost Allocation

7.1.1 Costs associated with the Major Projects Division

The establishment of a Major Projects Division is required in order to coordinate and deliver major Integrated System Plan (ISP) projects including the QNI Project, Hume Link (Snowy 2.0), Project EnergyConnect (PEC) and Victorian Interconnector (VNI).

The cost estimates associated with the Major Projects Division have been allocated between each of the major projects based on the indicative total capex forecast for each project (until commissioning). We have applied the percentage allocations below in this Application:

Table 7-1 - Allocation rates between Major Projects

#	Major Projects Portfolio	% of Portfolio
1	Project EnergyConnect (PEC)	46%
2	Hume Link (Snowy 2.0)	46%
3	Queensland New South Wales Interconnector (QNI)	5%
4	Victorian Interconnector (VNI)	3%
Total		100%

We have applied the following assumptions and methodologies to derive our indirect capex forecast for the QNI Project:

- > All costs (both labour and non-labour) that are directly attributable to the QNI project will be 100 per cent allocated to the QNI Project
- > An allocated five per cent of all costs associated with the Major Projects Office are apportioned to the QNI Project, which includes:
 - Labour – Major Projects Division Core and Support Team
 - Property and Facilities – Major Projects office (including office rental, maintenance and outgoing costs)
 - IT – support costs, licencing and hardware for the Major Projects Office
 - Expenses and Travel – Major Projects Division Staff
 - Training – Major Projects Division Staff
- > All cost estimates will only be allocated once
- > Actual costs will be allocated across projects as per the AER-approved CAM and our accounting policies and practices.

7.2 Labour

Labour cost estimates associated with Project Development and Works Delivery have been calculated based on the following:

- > Standard labour rates apply
- > Training expenses are required for all staff and contractors on an annual basis
- > Recruitment costs are incurred to recruit new staff and contractors
- > Labour on-costs will be incurred for all staff and contractors
- > Resources seconded from existing business as usual roles to the QNI Project will be backfilled in most cases
- > External contractor rates will be sourced from those contracts where appropriate
- > No real labour cost escalation is included in the rates (as this is applied subsequently in the QNI Capex Forecasting Methodology)
- > Standard travel and related expense allowances apply for expected QNI-related travel.

These conditions are explained further below.

7.2.1 Standard Labour Rates

Labour rates and role classifications were aligned to our 2019 Standard labour rates²⁹ and our Employee's Agreement.³⁰ These are consistent with the approved 2018 determination allowances. The labour rates were restated to 30 June 2018 labour rates using a discount factor.³¹ Escalation rates have not been applied to subsequent years of the project.

Labour including our internal staff, contractors and external labour hire have been classified into a series of salary bands and the corresponding labour rate has been used to estimate costs.

Proportional Effort of Existing FTE charged to Project Work Order:

In accordance with our approved CAM:³²

- > All project staff will timesheet and charge to a Work Order
- > Actual times (logged to work orders) will be used to determine labour costs
- > In limited cases, where an employee is an existing staff member allocating a significant proportion (25% or more) of time to the QNI Project, only the time charged to the Work Order will be used to calculate the cost
- > The significant portion of time spent by existing team members is considered an incremental cost due to the required backfill of these roles

²⁹ Labour and Support Cost Rates Effective July 2019.

³⁰ TransGrid Employees Agreement 2016.

³¹ 30 June 2018 labour rates have been calculated using standard rates as at 30 June 2019 which have been adjusted to 2017/8 rates through removing labour escalation and CPI.

³² TransGrid, Cost Allocation Methodology, 14 December 2016.

7.2.2 Training

Training costs for staff within Project Development, Works Delivery, Land & Environment teams are based on our standard allowance of \$1,500 per person, per annum. This allowance is for all FTEs that are Contract Officers or under an Enterprise Agreement (Award).

The allowance for training has been applied on a per FTE basis. The total training costs have been allocated using the cost allocation approach described above. For example, if the role is 100 per cent attributable to the QNI Project, then the costs are directly attributed to the QNI Project. In contrast, where an FTE works across all four major projects then 5 per cent of their costs are allocated to the QNI Project as per the method outlined in section 7.1.1.

The nature of training provided includes, mandatory field training, soft skills and development training, professional development and industry specific training for each role.

A Learning and Development resource (one FTE) has also been included in the incremental resources relating to major projects. This FTE will be responsible for identifying learning and development needs, coordinating formal learning requirements including induction of the incremental and seconded resources and will be shared across major projects.

The training costs that have been included in the estimates for Works Delivery, Project Development and Land and Environment are in line with the categorisation of labour as explained in this report.

7.2.3 Recruitment

In order to account for the recruitment of the additional resources required for the QNI Project and the Major Projects Division, an allocated recruitment cost has been included in the forecasted additional labour costs in Works Delivery, Project Development and Land and Environment.

We have employed a Talent Acquisition Advisor to coordinate the engagement with external recruitment agencies and to facilitate the on-boarding process for successful candidates across the Major Projects portfolio. This cost is included within the Project Development labour costings and has been allocated at five per cent to the QNI Project until 30 September 2021.³³

In addition, we will incur an agency fee of 15 per cent of the value of the first year's annualised salary where a recruitment service provider is used.

Based on historical experience, it is anticipated that 50 per cent of the new FTEs (including backfilled roles) will be employed directly and the remaining 50 per cent will require recruiter assistance. These rates will be based on the procurement panel utilising vendor negotiated rates.³⁴

The recruitment costs are applied on the following basis:

$$\text{Recruitment fees} = \text{sum of annualised salary of incremental employees} \times 50\% \times 15\%$$

This has been applied consistently across as Project Development, Works Delivery and Land and Environment cost estimates.

7.2.4 Labour On-Costs

A labour on-cost rate has been applied to the base labour costs in line with standard practice and our policies.

³³ 1 FTE tabled under project development costs – Major Projects Division - see A.1.1.

³⁴ Agency Contact Details- Q42_18 Recruitment Services, TransGrid 2019 – Document details TransGrid's Recruitment Panel Service providers and negotiated rates for recruitment fees. Given the commercial sensitivity of information included within the document, it has not been included as an attachment to this report, but may be available upon request.

Table 7-2 - Labour on-cost rates

Labour On Cost Rate		
Type	Rate (%)	Breakdown
Employees under Award – Enterprise Agreement	0.4	Annual Leave – 10%
		Long Service Leave – 7%
		Payroll Tax – 7%
		Superannuation – 16%
Employees on individual employment contracts – Contract Officers	0.24	Annual Leave – 10%
		Long Service Leave – 7%
		Payroll Tax – 7%
		*Superannuation is included in the base rate for Contract Officers

7.2.5 Resource Backfill and Evidence

The following assumptions have been applied in this document:

- > Where an existing employee takes on a new role that is required for the QNI Project, it is assumed that their previous role will be backfilled using the existing standard labour rate and level.
- > Where 25 per cent (or more) of an existing employees' time is expected to be required to support the QNI Project or the Major Projects Office, it is assumed that their previous role will be backfilled, and hence this cost is incremental and would not be incurred if the QNI Project did not proceed.

7.2.6 External Contractor Rates

The rates applied for external contracted labour have been determined based on documentation provided by the external party detailing fees, rates and charges. These rates have been provided by the external party at current rates, being 2018-9 dollars. These costs have been converted into real 2017-18 dollars for this document.

7.2.7 Escalation Factors

No escalation factors have been applied. It is noted that the labour rates have been restated to 30 June 2018 rates.

7.2.8 Travel and Expenses

All costs in relation to Travel and Expenses (including accommodation, meal allowances and other expenses) have been determined in accordance with ATO Guidelines TD 2019/11.³⁵ The application of these standard rates and calculation methodologies are summarised in the table below:

³⁵ ATO, TD 2019,11.

Table 7-3 - Travel and expenses methodology and assumptions

Labour Type	Calculation Methodology, Assumptions and Application
TransGrid QNI Project Team	<p>Allowance for travel costs has been determined in accordance with the following assumptions in relation to travel frequency, duration and location:</p> <ul style="list-style-type: none"> > Estimation methodology includes scheduled frequency and duration of visits per role and grade > Estimated total is averaged to allow for - monthly travel of 2 FTE for the duration of the project for a series of roles across Project Development as indicated in A.1.1 > Flight allowance has been determined using average flight costs for Sydney to Tamworth and Sydney to Armidale (return) between November 2019 and September 2021 > All expenses and accommodation allowances have been aligned with ATO TD 2018/19 > Estimate is based on average trip duration of 2 nights, with an allowance of \$293.65 per night > Expenses and accommodation allowances have been determined utilising a salary grade of \$124,481 - \$221,550 for all FTEs (including Executive staff) > All expense amounts have been calculated using the Tier 2 Country Cost Centre classification provided by the ATO > Cost includes car hire estimated at \$125 per day, based on current market rates
Works Delivery Labour	<ul style="list-style-type: none"> > All travel costs have been integrated into the labour rates for Works Delivery with a detailed breakdown provided in 4.3.1 > Flights – are estimated as a total cost for flights on a per FTE basis for the duration of the construction period > All estimates have been aligned to the ATOs standard rules and our Sustenance earnings code list > Estimates are based on assumptions provided for each role within section 4 of P001649 – Queensland & New South Wales Interconnector (QNI), Substations and TL Uprating Works Delivery Advice, TransGrid, 2019
Land, Environment and Team	<ul style="list-style-type: none"> > The estimate provided for travel and expenses for our QNI Land and Environment Team has been determined in alignment with the ATO Standard Rates > Estimation methodology includes scheduled frequency and duration of visits per role and grade > Flight allowance has been determined using average flight costs for Sydney to Tamworth and Sydney to Armidale (return) between December 2019 – March 2020 during the project development phase > Estimated total is averaged to allow for - monthly travel of 2 FTE between December 2019 – March 2020 for a series of roles across the Land and Environment Team as indicated A.1.1 > Estimate is based on average trip duration of 2 nights, with an allowance of \$293.65 per night > All expenses and accommodation allowances have been aligned with ATO Standard Rates

Labour Type	Calculation Methodology, Assumptions and Application
	<ul style="list-style-type: none"> > Expenses and accommodation allowances have been determined utilising a salary grade of \$124,481 - \$221,550 for all FTEs (including Executive staff) > All expense amounts have been calculated using the Tier 2 Country Cost Centre classification provided by the ATO > Cost includes car hire estimated at \$125 per day, based on current market rates
Stakeholder and Community Engagement	<ul style="list-style-type: none"> > The estimate provided for travel and expenses for the 7 FTE within our Stakeholder and Community Engagement Team has been determined in alignment with the ATO Standard Rates > Estimation methodology includes scheduled frequency and duration of visits per role and grade > Flight allowance has been determined using average flight costs for Sydney to Tamworth and Sydney to Armidale (Return) for the duration of the QNI Project > Estimate is based on average trip duration is 2 nights, with an allowance of \$293.65 per night > Estimated total is averaged to allow for - monthly travel of 4 FTE within the Stakeholder and Community Engagement Team from January 2020 until the completion of construction works in March 2021 > All expenses and accommodation allowances have been aligned with ATO Standard Rates > Expenses and accommodation allowances have been determined utilising a salary grade of \$124,481 - \$221,550 for all FTEs (including Executive staff) > All expense amounts have been calculated using the Tier 2 Country Cost Centre classification provided by the ATO

7.3 External Advice – Consulting Fees and Other Services

Where possible, costs in relation to consulting fees and legal advice were sourced directly from external party documents that detail fees, rates and charges. All rates are assumed to have been provided at current rates which are assumed to be in dollars as at 1 July 2019. No escalation for CPI or real rate escalation has been applied.

Details regarding the nature of anticipated costs and activities have been detailed in the relevant sections of this report. Where documentation has not been provided within the required time frame for the delivery of this report, we have used our experience from previous projects to estimate the costs of external advice.

7.4 IT

As the proposed office facility will house employees operating across the four major projects, all IT set up costs and network connectivity costs associated with the new office space will be attributed at five per cent to the QNI Project as per section 7.1.1. Our approach to IT for Major Projects is consistent with our IT Strategy. All cost estimates are based on the selected preferable option noted in 5.3.3.1.

8. Reference Material

Agency Contact Details- Q42 - 18 Recruitment Services, TransGrid 2019

Australian Taxation Office Tax Determination 2019/11

Community Partnerships Program, TransGrid, 2019

GHD Independent Verification Assessment Report, 2019

Expenditure Capitalisation Procedure, TransGrid, 2018

TransGrid's Labour and Support Cost Rates Effective July 2019

P001649 – Queensland & New South Wales Interconnector (QNI), Substations and TL Upgrading Works Delivery Advice, TransGrid, 2019

QNI Community and Stakeholder Engagement Plan, TransGrid 2019

Talent Acquisition Advisor – Position Description – Project Based, TransGrid, 2019

TransGrid Cost Allocation Methodology, TransGrid, 14 December 2016

TransGrid Employees Agreement 2016

TransGrid Short Term Office Preliminary Options Report V2 20191016

TransGrid QNI Insurance Report, Aon, 2019

Appendix A

A.1.1 Incremental labour by role

All labour included within the table below has been determined as incremental, as per the methodology outlined within section 7.2.5.

A.1.2 QNI Project Team

QNI Project Team			
Category	Requirement/Responsibilities	Role	Duration
1 QNI Project Team	Provides overall oversight and management of resources, contracts and risks across the QNI program.	Project Director	Duration of the project (December 2019 – October 2021)
2 Project Management	Overall project administration and technical support activities for QNI team	Project Engineer	
3 Project Management	Support and undertake a subset of project task level activities associated with individual project requirements, as set out by the Senior Project Managers.	Project Manager	
4 Project Management	Role/s will provide management oversight and support to Project Director on delivery project managers, governance, reporting and strategic planning and commercial management throughout the project lifecycle. Multiple roles required to facilitate the various components of work including complex substations, TLs, technical and procurement inputs.	Senior Project Manager	
5 Project Management		Senior Project Manager	

A.1.3 QNI Other supporting incremental roles

QNI Project Team			
Category	Requirement/Responsibilities	Role	Duration
1 QNI Other supporting incremental roles	Roles identified by the QNI core project team as attributing over 25% of their time during the course of QNI, requiring backfill as per section 7.2.5	Senior Legal Counsel	Phased across duration of the project (December 2019 – October 2021)
2 QNI Other supporting incremental roles		HV Design Manager	
3 QNI Other supporting incremental roles		Civil Designer (1)	
4 QNI Other supporting incremental roles		Civil Designer (2)	
5 QNI Other supporting incremental roles		P&M Design Manager	
6 QNI Other supporting incremental roles		Protection Design Engineer	
7 QNI Other supporting incremental roles		C&A Design Manager	
8 QNI Other supporting incremental roles		Senior Control Designer	
9 QNI Other supporting incremental roles		Control Designer (1)	
10 QNI Other supporting incremental roles		Control Designer (2)	
11 QNI Other supporting incremental roles		Control Drafter	
12 QNI Other supporting incremental roles		Senior Automation Designer (1)	
13 QNI Other supporting incremental roles		Senior Automation Designer (2)	

QNI Project Team			
Category	Requirement/Responsibilities	Role	Duration
14 QNI Other supporting incremental roles		Procurement Officer	

A.1.4 Works Delivery Labour

Works Delivery			
Category	Requirement/Responsibilities	Role	Duration
1. Project Management – Works Delivery	Project Wide Delivery Management	Construction Manager	Phased across the duration of QNI (December 2019 – October 2021)
2. Project Management – Works Delivery	Responsible for all contract administration activities required for QNI	Contracts Administrator	
3. Project Management – Works Delivery	Responsible for program management, contracts and commercial management and project controls.	Senior Program Manager	
4. Project Management – Works Delivery	Responsible for scheduling of Works Delivery labour required for QNI	Project Scheduler	
5. Project Management – Works Delivery	Responsible for project management and oversight of all works at Dumaresq & Tamworth Substations	Project Manager – Works Delivery (Dumaresq & Tamworth Substations)	
6. Project Management – Works Delivery	Responsible for project management and oversight of all works at Armidale, Muswellbrook & Liddell Substations	Project Manager – Works Delivery (Armidale, Muswellbrook & Liddell Substations)	
7. Project Management – Works Delivery	Resource required for oversight and project management of Works Delivery and support for core management team.	Project Manager – Works Delivery	
Substation Resources (Dumaresq, Tamworth & Armidale)			
Category	Requirement/Responsibilities	Role	Duration
1 Substation Resources – Works Delivery	Detailed breakdown of roles and assumptions provided in section 4.3 of	Senior Site Manager - Substations	Phased across the duration of

Works Delivery			
Category	Requirement/Responsibilities	Role	Duration
2 Substation Resources – Works Delivery	P001649 – Queensland & New South Wales Interconnector (QNI), Substations and TL Uprating Works Delivery Advice, TransGrid, 2019	Site Manager - Substations	QNI Construction Phase (December 2019 – September 2021)
3 Substation Resources – Works Delivery		Site Manager (Transmission Lines – Tamworth Only)	
4 Substation Resources – Works Delivery		Safety officer	
5 Substation Resources – Works Delivery		Environment Officer	
6 Substation Resources – Works Delivery		Control Technician	
7 Substation Resources – Works Delivery		Substation Fitter	
8 Substation Resources – Works Delivery		Secondary Systems Tech	
9 Substation Resources – Works Delivery		Telecommunications Technician	
Substation Resources (Muswellbrook & Liddell)			
Category	Requirement/Responsibilities	Role	Duration
1 Substation Resources – Works Delivery	Detailed breakdown of roles and assumptions provided in section 4.4 of P001649 – Queensland & New South Wales Interconnector (QNI), Substations and TL Uprating Works Delivery Advice, TransGrid, 2019	Site Manager Substations (Muswellbrook & Liddell)	Phased across the duration of QNI Construction Phase (December 2019 – September 2021)
2 Substation Resources – Works Delivery		Safety Officer	
3 Substation Resources – Works Delivery		Environment Officer	
4 Substation Resources – Works Delivery		Control Technician	

Works Delivery				
Category		Requirement/Responsibilities	Role	Duration
5 Substation Resources – Works Delivery			Substation Fitter	
6 Substation Resources – Works Delivery			Secondary Systems Tech	
7 Substation Resources – Works Delivery			Telecommunications Technician	
Transmission Lines Resources (88,83 & 84)				
Category		Requirement/Responsibilities	Role	Duration
1 Transmission Lines Resources – Works Delivery		Detailed breakdown of roles and assumptions provided in section 4.5 of P001649 – Queensland & New South Wales Interconnector (QNI), Substations and TL Uprating Works Delivery Advice, TransGrid, 2019	Senior Site Manager – Transmission Lines	Phased across the duration of QNI Construction Phase (December 2019 – September 2021)
2 Transmission Lines Resources – Works Delivery			Safety Officer	
3 Transmission Lines Resources – Works Delivery			Environmental Officer	
4 Transmission Lines Resources – Works Delivery			Site Manager - Lines	
5 Transmission Lines Resources – Works Delivery			Substation Fitter - 1	
6 Transmission Lines Resources – Works Delivery			Substation Fitter - 2	

A.1.5 Land and Environment

Land and environment			
Category	Requirement/Responsibilities	Role	Duration
1 Land and Environment	Incremental roles within the L&E team attributing over 25% of their time during the course of QNI, requiring backfill as per section 7.2.5	Senior Drafting Officer	Phased across the duration of QNI December 2019 – September 2021
2 Land and Environment		Environment Officer	
3 Land and Environment		Senior Land Developer	

A.1.6 Major Projects Core Team

Major Projects ³⁶				
Category	Requirement/Responsibilities	Role	Cost Allocation to QNI	Duration
1 Major Projects	Leadership across all four major projects. Ensuring that each project remains on track to deliver within project budget and timelines. Leadership and sponsorship of program of works.	Executive	5%	December 2019 – September 2021
2 Major Projects	Responsible for supporting the Executive in the oversight of all works within the Major Projects portfolio.	Assistant	5%	
3 Major Projects	Coordination of activities across all four major projects. Interdependencies and interactions identified and managed.	PMO	5%	
4 Major Projects	Responsible for implementing safety protocols across the four major projects.	Safety Manager	5%	
5 Major Projects	Responsible for commercial management across all four major projects including the implementation of policies and execution of business strategy.	Commercial Manager	5%	

A.1.7 Major Projects - Support Team

Major Projects - Other incremental Corporate costs				
Category	Requirement/Responsibilities	Role	Cost Allocation to QNI	Duration
1 Major Projects - Other incremental Corporate costs	Management of Engineering Team function	Engineering Manager	5%	December 2019 – September 2021
2 Major Projects - Other incremental Corporate costs	Engineering Team responsible for design inputs, approvals, development of inspection test plans, testing and commissioning of construction	Engineering - Lines	5%	

³⁶ All Major Projects Resources have been allocated to QNI as per the allocation methodology outlined within 7.1.1

Major Projects - Other incremental Corporate costs				
Category	Requirement/Responsibilities	Role	Cost Allocation to QNI	Duration
3 Major Projects - Other incremental Corporate costs	works within the contingent project portfolio.	Engineering - Civil Lines/Substations	5%	
4 Major Projects - Other incremental Corporate costs		Engineering - Civil Lines/Substations	5%	
5 Major Projects - Other incremental Corporate costs		Engineering - Substations	5%	
6 Major Projects - Other incremental Corporate costs		Engineering - Structural	5%	
7 Major Projects - Other incremental Corporate costs		Engineering - Communications	5%	
8 Major Projects - Other incremental Corporate costs		Engineering - Secondary Systems	5%	
9 Major Projects - Other incremental Corporate costs		Engineering - System Planning	5%	
10 Major Projects - Other incremental Corporate costs	Role required to perform inputs in relation to System planning, testing and commissioning for projects within the contingent project portfolio.	Spatial Systems Data team	5%	
11 Major Projects - Other incremental Corporate costs	Delivery and oversight of all regulatory requirements for contingent project portfolio. Including the development and execution of all regulatory documentation and reporting	Regulatory	5%	
12 Major Projects - Other incremental Corporate costs	Responsible for developing budgets and estimates across all four projects. Tracking and reporting on financial performance across projects. Ensuring consistency of financial reporting. Providing support for decision making.	Finance Business Partner	5%	
13 Major Projects - Other incremental Corporate costs	Significant increase in headcount, creates a need for additional HR support across	HR, Payroll and Recruitment	5%	

Major Projects - Other incremental Corporate costs				
Category	Requirement/Responsibilities	Role	Cost Allocation to QNI	Duration
	HR business partnering, payroll and recruitment. ³⁷			
14 Major Projects - Other incremental Corporate costs	Coordination of training for QNI employees including induction training of new staff.	Training	5%	
15 Major Projects - Other incremental Corporate costs	Role to provide internal audit of QNI whilst in construction phase. The nature of the project requires specialist skills in this domain.	Audit	5%	
16 Major Projects - Other incremental Corporate costs	Other Support Resources	Risk Management, Workshops & Modelling	5%	
17 Major Projects - Other incremental Corporate costs	Required to respond to incremental procurement activity as a result of the four major projects. The combined cost estimates of the major projects is \$3.2bn and will require procurement of goods and services from new and different suppliers.	Procurement Manager	5%	
18 Major Projects - Other incremental Corporate costs		Procurement Manager	5%	
19 Major Projects - Other incremental Corporate costs		Procurement Specialist	5%	

A.1.8 Major Projects Core Team

Major Projects ³⁸				
Category	Requirement/Responsibilities	Role	Cost Allocation to the QNI Project	Duration
6 Major Projects	Leadership across all four major projects. Ensuring that each project remains on track to deliver within project budget and timelines. Leadership and sponsorship of program of works.	Executive	5%	December 2019 – September 2021

³⁷ Talent Acquisition Advisor – Position Description – Project Based, TransGrid, 2019 – provides role description and responsibilities for the FTE.

³⁸ All Major Projects Resources have been allocated to QNI as per the allocation methodology outlined within 7.1.1

Major Projects ³⁸				
Category	Requirement/Responsibilities	Role	Cost Allocation to the QNI Project	Duration
7 Major Projects	Responsible for supporting the Executive in the oversight of all works within the Major Projects portfolio.	Assistant	5%	
8 Major Projects	Coordination of activities across all four major projects. Interdependencies and interactions identified and managed.	PMO	5%	
9 Major Projects	Responsible for implementing safety protocols across the four major projects.	Safety Manager	5%	
10 Major Projects	Responsible for commercial management across all four major projects including the implementation of policies and execution of business strategy.	Commercial Manager	5%	

A.1.9 Major Projects - Support Team

Major Projects - Other incremental Corporate costs				
Category	Requirement/Responsibilities	Role	Cost Allocation to the QNI Project	Duration
20 Major Projects - Other incremental Corporate costs	Management of Engineering Team function Engineering Team responsible for design inputs, approvals, development of inspection test plans, testing and commissioning of construction works within the contingent project portfolio.	Engineering Manager	5%	December 2019 – September 2021
21 Major Projects - Other incremental Corporate costs		Engineering - Lines	5%	
22 Major Projects - Other incremental Corporate costs		Engineering - Civil Lines/Substations	5%	
23 Major Projects - Other incremental Corporate costs		Engineering - Civil Lines/Substations	5%	

Major Projects - Other incremental Corporate costs				
Category	Requirement/Responsibilities	Role	Cost Allocation to the QNI Project	Duration
24 Major Projects - Other incremental Corporate costs		Engineering - Substations	5%	
25 Major Projects - Other incremental Corporate costs		Engineering - Structural	5%	
26 Major Projects - Other incremental Corporate costs		Engineering - Communications	5%	
27 Major Projects - Other incremental Corporate costs		Engineering - Secondary Systems	5%	
28 Major Projects - Other incremental Corporate costs		Engineering - System Planning	5%	
29 Major Projects - Other incremental Corporate costs	Role required to perform inputs in relation to System planning, testing and commissioning for projects within the contingent project portfolio.	Spatial Systems Data team	5%	
30 Major Projects - Other incremental Corporate costs	Delivery and oversight of all regulatory requirements for contingent project portfolio. Including the development and execution of all regulatory documentation and reporting	Regulatory	5%	
31 Major Projects - Other incremental Corporate costs	Responsible for developing budgets and estimates across all four projects. Tracking and reporting on financial performance across projects. Ensuring consistency of financial reporting. Providing support for decision making.	Finance Business Partner	5%	
32 Major Projects - Other incremental Corporate costs	Significant increase in headcount, creates a need for additional HR support across	HR, Payroll and Recruitment	5%	

Major Projects - Other incremental Corporate costs				
Category	Requirement/Responsibilities	Role	Cost Allocation to the QNI Project	Duration
	HR business partnering, payroll and recruitment. ³⁹			
33 Major Projects - Other incremental Corporate costs	Coordination of training for QNI employees including induction training of new staff.	Training	5%	
34 Major Projects - Other incremental Corporate costs	Role to provide internal audit of QNI whilst in construction phase. The nature of the project requires specialist skills in this domain.	Audit	5%	
35 Major Projects - Other incremental Corporate costs	Other Support Resources	Risk Management, Workshops & Modelling	5%	
36 Major Projects - Other incremental Corporate costs	Required to respond to incremental procurement activity as a result of the four major projects. The combined cost estimates of the major projects is \$3.2bn and will require procurement of goods and services from new and different suppliers.	Procurement Manager	5%	
37 Major Projects - Other incremental Corporate costs		Procurement Manager	5%	
38 Major Projects - Other incremental Corporate costs		Procurement Specialist	5%	

³⁹ Talent Acquisition Advisor – Position Description – Project Based, TransGrid, 2019 – provides role description and responsibilities for the FTE.