



# **Revised Proposal**

## **Attachment 5.16.1**

### **Project Justifications for augmentation major projects (Addendum)**

January 2019

## **1. Background**

Ausgrid proposed a number of augmentation major projects in our original proposal in April 2018. Attachment 5.16 set out the justification for those projects. This attachment (5.16.1) to our revised proposal summarises Ausgrid's updated position on those projects and sets out the basis for one new conditional major project, Beresfield Zone Substation, which was not included in our original submission.

## **2. Update on Previous Augmentation Major Projects**

### **1. Macquarie Park Subtransmission Substation Establishment**

The AER found that Ausgrid had satisfactorily demonstrated the need for Macquarie Park Subtransmission Substation (STS) and included the funding proposed by Ausgrid in their draft decision. The project was included as a conditional project with 75% likelihood and therefore only 75% of the costs were included. Since the original submission, load applications have further progressed and the RIT-D process has been completed, with the project effectively becoming committed. We have therefore increased the capex associated with this agreed project from 75% to 100% of the estimated cost (\$33.4 million) in our revised proposal.

### **2. Rozelle 132/33kV Subtransmission Substation Augmentation**

The AER supported the inclusion of Rozelle STS with a scope reduced from three bus sections to two bus sections at a reduced cost (\$15.5 million). Ausgrid accepts the AER's draft decision for Rozelle STS and has reflected this in our revised proposal

### **3. Alexandria 132/33kV Subtransmission Substation Augmentation**

The AER supported the augmentation of Alexandria STS with a third transformer and section of switchgear based on the forecasts available at the time of our original proposal. Updated forecasts and review of customer activity in this area have led to a reduced demand forecast and we have deferred this project beyond the 2019-24 regulatory period. This is reflected by removal of capex for Alexandria STS from our revised proposal.

### **4. White Bay Zone Substation Establishment**

White Bay Zone Substation (ZS) was included in our original proposal as a conditional project with a likelihood of 10%. The AER did not support the \$2.2 million in capex proposed for the 2019-24 period due to the uncertainty of the project proceeding and other non-system alternatives were likely to be able to manage the risk. We have accepted the AER decision in relation to this project and have not included funding in our revised proposal for White Bay ZS.

### **5. Pyrmont Subtransmission Substation Augmentation**

Pyrmont STS augmentation was included in our original proposal as a conditional project with a likelihood of 50%, to facilitate system switching flexibility given the very flat load profile in the area. The AER did not accept the need for this project due to the relatively low value of expected unserved energy. Ausgrid has accepted the AER's decision in

relation to this project and has not included funding in our revised proposal for Pymont STS Augmentation.

### 3. Additional Augmentation Requirement

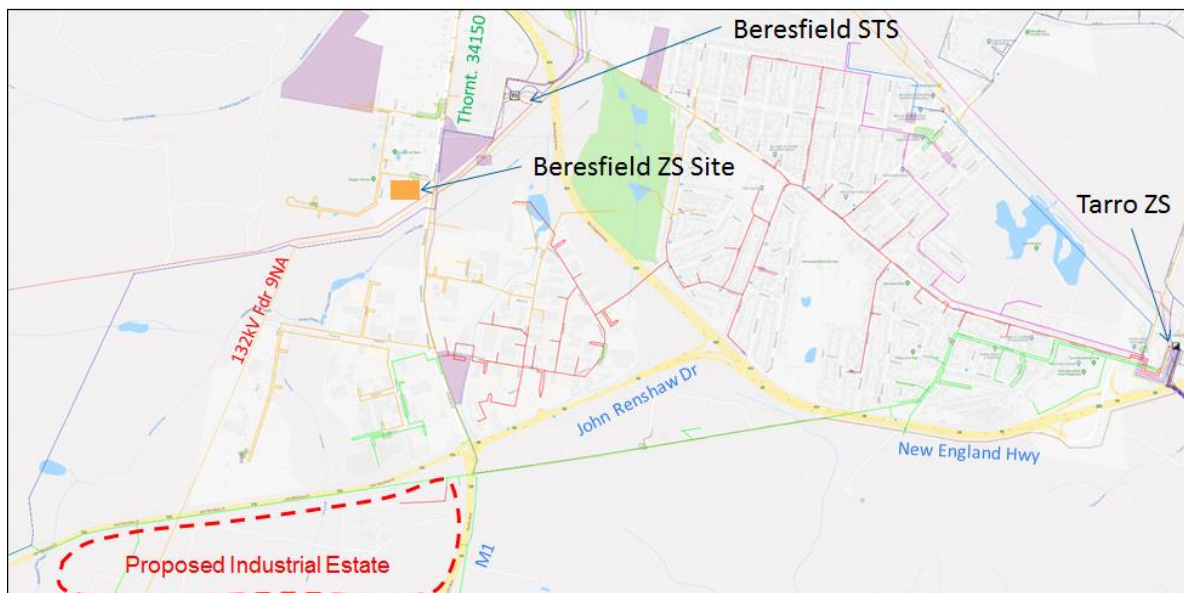
Following several industrial connection applications with a combined load of 39.3 MVA in the Beresfield area, an additional conditional project has been identified.

#### Beresfield Zone (Conditional Project - 50% Likelihood)

##### Project Description

The project is to establish a new 132/11kV Zone to supply a number of existing and new industrial developments in the area.

This project has been allocated a probability of 50% of proceeding, based on the status of connection applications and the need to augment the sub-transmission network to support this preferred solution. The allocated project cost is \$10.3 million which is forecast to be incurred in the 2019-24 period. It is expected to be due for completion during the second half of 2023.



##### Project Need

The Beresfield area is north of Newcastle and in an industrial area at the northern end of the main highway from Sydney. A number of load applications have been received as follows;

- 5 industrial lots (1MVA - 2019)
- 8 industrial lots (0.8MVA – 2019) with an additional 1.5MVA in design for completion 2020-21.
- Industrial load (0.5MVA – 2019)
- Industrial load (0.5MVA – 2020)
- New Industrial Estate (35MVA – over the period 2019 to 2027).

Load applications of 3.8MVA for connection before 2020 have been received. Connection of these loads will result in insufficient installed capacity to maintain supply in the area.

### Options

We examined the following options:

1. 11kV supply from existing Thornton 33/11kV zone
2. 11kV supply from existing Tarro 33/11kV zone
3. 11kV supply from a new zone substation in or adjacent to existing Beresfield subtransmission substation
4. Consideration of demand management

Thornton Zone has some spare substation capacity but limited 11kV circuit breaker availability (one spare panel) and is located over 6 km away from the load. It would require additional 11kV circuit breakers and extensive 11kV development works to connect the proposed loads.

Tarro zone substation is located approximately 5 km away from the load area with limited substation capacity and no spare 11kV panels. Peak load at Tarro Zone in 2017/18 (23.4 MVA) was close to the existing capacity of the zone (23.8 MVA). Supply of the new loads from Tarro would also require extensive 11kV development works to connect the new loads to the Tarro site.

The existing Beresfield STS is located significantly closer to the area of proposed load growth and provides opportunity to connect either a 132/11kV or 33/11kV zone substation in the vicinity.

Supply of the new loads from either Thornton or Tarro 33/11kV zones would require subtransmission from Beresfield STS at 33kV and distribution connections back to the loads at 11kV. It would not be either technically or economically feasible to supply the proposed loads from the existing network without significant augmentation.

Tarro Zone also currently faces asset condition issues and a planned project to replace 11kV switchgear is included in Ausgrid's forecast capex, with forecast capex of \$4.1M, to be completed by 2025. Cost Benefit analysis indicates that this project is justified. The planned Tarro switchgear replacement project would not address the need for additional capacity required to meet forecast increases in demand noted above.

Given the above considerations, the most feasible option to supply the proposed load is the construction of a new 132/11kV zone substation at Beresfield, either within or near the existing Beresfield STS site and close to the developing load centre of Beresfield industrial area.

This project has been identified as a conditional project with an estimated cost of \$20.6M and a 50% likelihood of proceeding.

HV transfers from the existing Tarro Zone to the new substation (\$3M-\$4M) were not included in Ausgrid's forecast capex. In the event that this conditional project proceeds Ausgrid would review the Tarro switchboard replacement project and whether it was more cost effective to utilise the funds to undertake load transfer works from Tarro to Beresfield

zone, allowing retirement of the Tarro switchgear, or to continue with its replacement independent of Beresfield development.

### Timing

Based on the timing of proposed connections, it is anticipated that the zone will be required by the end of 2023 in order to avoid significant HV development works.

### Demand Management

The driver for the scope and timing of the planned work is the need to provide connections, capacity and the relevant reliability to meet the requirements of the major customer connections. Due to the scale of the proposed connection loads, non-network options are extremely unlikely to be able to address the proposed loads. As planning and customer decisions are firmed up, a detailed assessment will be completed.

As part of the Rules requirements, a RIT-D is expected to be conducted for the project. This will inform interested parties of the opportunity identified, and invite submissions from non-network proponents. Where the RIT-D process or any consequent tender for non-network solutions indicates that a non-network scope of work offers an improved cost benefit outcome, the selected solution to the need will be modified accordingly.

### Costing

An estimate of the project cost has been calculated using the Business Planning and Consolidation (BPC) tool outlined in a separate attachment. The proposed direct cost cash flow for this project is presented in the table below.

**Table1. Project direct cost cash flow (\$m, real FY19)**

	Previous years	2019-20	2020-21	2021-22	2022-23	2023-24	Later years
Network Option	-	0.1	1.0	6.4	2.6	0.2	-