

# NEED/OPPORTUNITY STATEMENT (NOS)



ActewAGL - Molonglo Establishment

NOS- 000000001695 revision 2.0

**Ellipse project no(s):** P0010126

**TRIM file:** [TRIM No]

**Project reason:** Other - Customer request

**Project category:** Prescribed - Augmentation

## Approvals

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<b>Date submitted for approval</b>	12 October 2016	

## Change history

Revision	Date	Amendment
0	24/10/2016	Initial Issue
1	12/12/2016	Updated risk section and attached risk cost summary

## 1. Background

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The Molonglo Valley District is situated in Canberra's west, approximately 10km from the Canberra Central Business District (CBD). The first stage of development of the Molonglo Valley is underway, the Denman Prospect Estate Stage 1A comprising 390 residential lots and a proposed school. Supply is currently being provided to this development via the existing ActewAGL 11 kV network.

Load forecasts indicate these feeders will reach their thermal capacity around mid-2021 when the load of new developments in the area exceeds 10 MW. To relieve this constraint, ActewAGL proposes to establish a new 132/11 kV zone substation (equipped with a single 132/11 kV 30/55MVA transformer with provision for a second transformer) at Molonglo by winter 2021. The 132 kV connection was proposed to be a loop-in-loop-out to the existing ActewAGL Woden-Civic circuit<sup>1</sup>.

ActewAGL has estimated the forecast demand to be supplied from Molonglo Substation to reach 53 MW by 2045.<sup>2</sup>

TransGrid are currently developing Stockdill 330/132 kV substation as part of compliance with the Australian Capital Territory (ACT) Utilities Technical Regulator, Electricity Transmission Supply Code<sup>3</sup>. Stockdill will contain:

- > One 330/132 kV transformer and
- > A tee'd 132 kV A-1 line connection to Canberra substation (TransGrid) and Woden substation (ActewAGL). That is, there will not be 132 kV line circuit breakers for the Canberra nor Woden lines.

The Stockdill development is due for completion in 2020.

## 2. Need/opportunity

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ActewAGL via joint planning has advised TransGrid that the proposed new Molonglo Zone Substation will now require connection to the current A-1 line, Canberra (TransGrid) to Woden (ActewAGL). This is due to alternative land acquisition for the zone substation in the Molonglo District and consequential transmission line cut-in works.

Note by 2020 A-1 line will be Canberra to Woden tee Stockdill.

Furthermore ActewAGL have advised they are able to delay establishment of the final zone substation at Molonglo by installing a temporary mobile 132/11 kV substation instead (currently Tennent zone substation, but will be released as spare following the commissioning of Angle Creek zone substation in 2017)<sup>4</sup>.

The planned Need Date for Molonglo Substation remains as winter 2021. This Need Date will be monitored via the Joint Planning process and ActewAGL will be requested to submit a work request form and supporting justification documentation so that TransGrid can commit resources to make the required connection.

### 2.1 Risks

The National Electricity Rules (NER) clause 5.14 – Joint Planning requires TransGrid (and Ausgrid) to jointly plan their regional electricity network. In this case, should TransGrid not participate with Ausgrid in addressing this Need, it would be violating this statutory obligation.

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<sup>1</sup> Refer [ActewAGL Transmission Annual Planning Report 2015](#).

<sup>2</sup> See footnote 1.

<sup>3</sup> Refer [ACT Utilities Technical Regulator, Electricity Transmission Supply Code](#).

<sup>4</sup> Refer TransGrid and ActewAGL Joint Planning Minutes 1/09/2016.

The load at risk which is being assessed here is the forecast peak loading at Molonglo ZS of 5.3 MW in 2023<sup>5</sup>, multiplied by a load factor of 0.8.<sup>6</sup> This estimates that the load supplied by the cables are most likely to be at 80% of their peak loading when an outage occurs.

Assuming a load power factor of 0.95 (minimum NER requirement under clause S5.3.5), this equates to  $5.3 * 0.8 = 4.24$  MW.

The risk cost of not addressing this Need is therefore composed of the following components:

- > exposing customer load of 4.24 MW to risk of being unsupplied.
- > damage to TransGrid's reputation (negative media coverage).
- > litigation by customers/consumer groups.

The total cost of these risks has been calculated in TransGrid's Investment Risk Tool thus:

#### VCR Risk Cost (Unserviced Energy)

$$VCR \text{ risk cost} = \text{load at risk} * \text{probability of cables not available for one day}^7 * VCR^8$$

$$\therefore VCR \text{ risk cost} = 4.24 \text{ MW} * 24 \text{ hrs} * \$26,930/\text{MWh}$$

$$\therefore VCR \text{ risk cost} = \$2.74 \text{ million per annum}$$

#### Reliability Risk Cost

$$Reliability \text{ risk cost} = VCR \text{ risk cost} + \text{litigation costs}$$

$$\therefore Reliability \text{ risk cost} = \$2.74\text{m} + \$0.05\text{m}^9 = \$2.79 \text{ million per annum}$$

#### Financial Risk Cost

$$Financial \text{ risk cost} = \text{internal investigation costs} = \$10,000^{10}$$

#### Reputational Risk Cost

$$Reputational \text{ risk cost} = \text{external consultations \& communications costs} = \$10,000^{11}$$

#### Total Risk Cost

$$Total \text{ risk cost} = Reliability \text{ risk cost} + Financial \text{ risk cost} + Reputational \text{ risk cost}$$

$$\therefore Total \text{ risk cost} = \$2.81 \text{ million per annum}$$

### 3. Related needs/opportunities

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- > Need DCN335 – Second supply to the ACT
- > Need 1443 – Canberra 132 kV Connection of ActewAGL Strathnairn ZS (formerly West Belconnen ZS)

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<sup>5</sup> Refer footnote 1..

<sup>6</sup> Load factor = average demand / maximum demand over the period assessed.

<sup>7</sup> This is a snapshot of the risk cost during a single day of summer 2022/23.

<sup>8</sup> TransGrid's Investment Risk Tool bases the Value of Customer Reliability (VCR) on figures published by AEMO in its *Value of Customer Reliability Review - Final Report*, September 2014. In this case we use the residential figure of \$26,930/MWh.

<sup>9</sup> This component is an assumed litigation risk cost of this event.

<sup>10</sup> This component is an assumed financial risk cost of this event.

<sup>11</sup> This component is an assumed reputational risk cost of this event.

## 4. Recommendation

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It is recommended that options be considered to connect ActewAGL's new Molonglo Zone Substation by winter 2021.

## Attachment 1 – Risk Cost Summary

### Current Option Assessment - Risk Summary

Project Name: Establishment of Molonglo Substation (ActewAGL)

Option Name: 1695 - Base Case

Option Assessment Name: 1695 - Base Case - Assessment 1

Rev Reset Period: Next (2018-23)



Major Component	No.	Minor Component	Sel. Hazardous Event	LoC x CoF (\$M)	Failure Mechanism	NoxLoC xCoF (\$M)	PoF (Yr 1)	Total Risk (\$M)	Risk (\$M) (Rel)	Risk (\$M) (Op)	Risk (\$M) (Fin)	Risk (\$M) (Peo)	Risk (\$M) (Env)	Risk (\$M) (Rep)
Cable connection to Canberra Substation	1	High Voltage Cable	Unplanned Outage - HV (Cable connection to Canberra Substation)	\$2.81	Infrastructure Failure	\$2.81	100.00%	\$2.81	\$2.79		\$0.01			\$0.01
				\$2.81		\$2.81		\$2.81	\$2.79		\$0.01			\$0.01

Total VCR Risk: \$2.74

Total ENS Risk: \$0.00