

NEED/OPPORTUNITY STATEMENT (NOS)



Operational excellence – Installation of two way disconnector to replace line 976 tee connection to Murrumbateman substation

NOS- 000000001627 revision 3.0

Ellipse project description:

TRIM file: [TRIM No]

Project reason: Reliability - To meet connection point reliability requirements

Project category: Prescribed - NCIPAP

Approvals

Author	Bhavin Sanghavi	Operations Analysis Engineer
Reviewed/Endorsed	Hoang Tong	Operations Analysis Manager
	Jahan Peiris	Network Modelling & Performance Manager
Approved	Andrew Kingsmill	Manager/Power System Analysis
Date submitted for approval	14 October 2016	

1. Background

This proposal forms part of the Network Capability Incentive Parameter Action Plan (NCIPAP), for the 2018/19 to 2022/23 regulatory control period. The NCIPAP portion of the STPIS described in section 5 of the STPIS guideline¹ is a plan consisting of a suite of small projects aimed at improving the capability of transmission assets through operational expenditure and minor capital expenditure on the transmission network which results in:

- > Improved capability of those elements of the transmission system most important to determining spot prices;
OR
- > Improved capability of the transmission system at times when Transmission Network Users place greatest value on the reliability of the transmission system.

This project proposes a *priority project* to improve the limit of the injection point for the benefit of the Transmission Network Users. This *priority project* is consistent with the requirements of the clause 5.2(a)(2) in section 5 of the STPIS guideline and is consistent with the objectives of the NCIPAP scheme².

The 976 feeder connects Yass 330/132/66 kV substation and Canberra 330/132 kV substation and is teed into TransGrid's Queanbeyan 132/66 kV substation and Essential Energy's Murrumbateman substation.

At present the maximum demand for Murrumbateman substation is as below (As per TransGrid Annual Planning Report 2016).

Summer 2016/17 – 2025/26

- > 4 MW, 1 MVar

Winter 2016 - 2025

- > 6 MW, 0 MVar

The existing arrangement of line 976 tee connection is as shown in Figure 1.

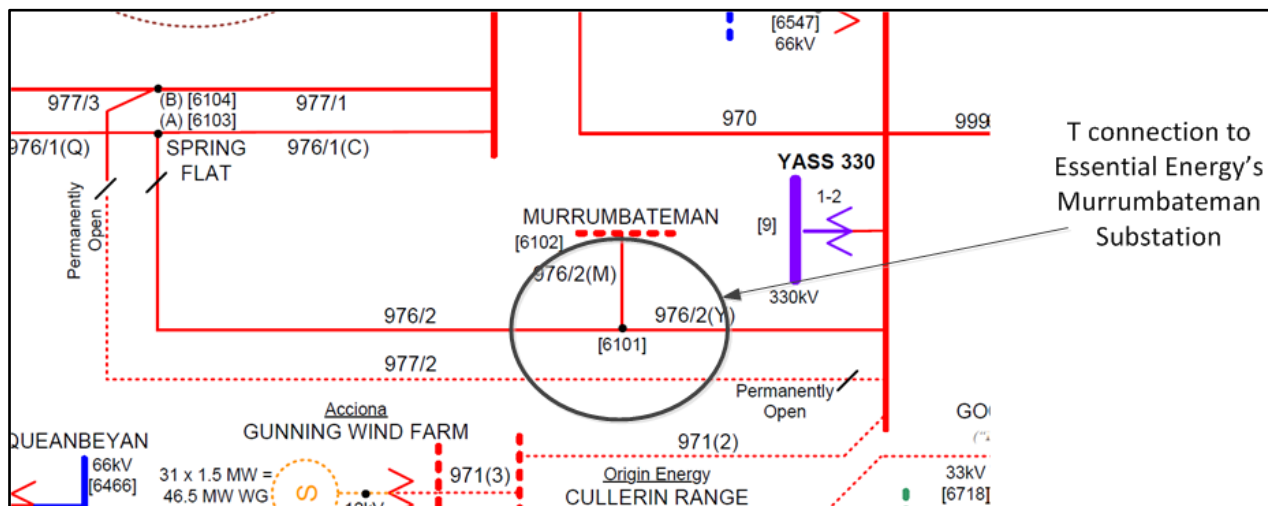


Figure 1 – Existing arrangement of line 976 tee connection

¹ AER, Final Electricity Transmission Network Service Providers Service Target Performance Incentive Scheme, Version 5 October 2015.

² Explanatory statement section 5.3.1 - AER, Draft Electricity Transmission Network Service Providers Service Target Performance Incentive Scheme, Version 5 June 2015.

2. Need/opportunity

A fault on any section of line 976 will result in an interruption of supply to Murrumbateman substation. Due to direct tee connection on line 976, there is no ability to sectionalise 976 at Murrumbateman substation.

A two way disconnector (with the ability to operate remotely using SCADA) can be installed at line 976 tee connection to Murrumbateman substation which will sectionalise 976 and hence there will be ability to isolate faulty section of the line and restore supply quickly.

The benefit is avoidance of unserved energy due to loss of either section 976/1 (Canberra to tee Spring Flat tee Queanbeyan) or 976/2 (Yass to Spring Flat tee Murrumbateman). With a two way disconnector at Murrumbateman, the line will be operated with the Spring Flat disconnector normally closed.

Therefore, with this proposed *priority project*, the post contingency capacity at the supply point can be improved as follows:

Option	Post contingency (outage of line 976) capacity
Do nothing	0 MW for 24 hours
Installation of a two-way disconnector at the tee-off	6 MW peak demand

3. Related needs/opportunities

None.

4. Recommendation

It is recommended that a 132kV two way disconnector be installed at line 976 tee connection to Murrumbateman substation to increase reliability of supplies and restoration times.

Attachment 1 Risk costs summary

Current Option Assessment - Risk Summary



Project Name: Murrumbatemen 132kV TL 976 - 2 3-way D

Option Name: 1627 - Base Case

Option Assessment Name: 1627 - 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)
Conductor	1	Conductor (inc Joints)	Unplanned Outage - HV (Conductor)	\$2.42	Break	\$2.42	39.00%	\$0.94	\$0.91		\$0.02			\$0.02
				\$2.42		\$2.42		\$0.94	\$0.91		\$0.02			\$0.02

Total VCR Risk: \$0.90

Total ENS Risk: \$0.00