

NEED/OPPORTUNITY STATEMENT (NOS)



Operational excellence – Installation of two way disconnecter to replace line 996 tee connection to Morven substation

NOS- 000000001626 revision 1.0

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	Nalin Pahalawaththa	Manager/Power System Analysis
Date submitted for approval	20 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 996 feeder connects Wagga 330kV substation and ANM 132kV substation and is teed to Essential Energy's Morven 132/66kV substation. Morven substation has an alternate 66kV connection to Wagga 132/66kV substation via line 83M. Line 83M has a normally open point between Essential Energy's Henty and Culcairn substation. Hence, supply to Essential Energy's Culcairn, Morven and Holbrook substations rely upon supply from line 996 tee connection.

At present the maximum demand from line 996 tee connection is as below (As per TransGrid Annual Planning Report 2016).

Summer 2016/17 – 2025/26

- > 7 MW, 2 MVar

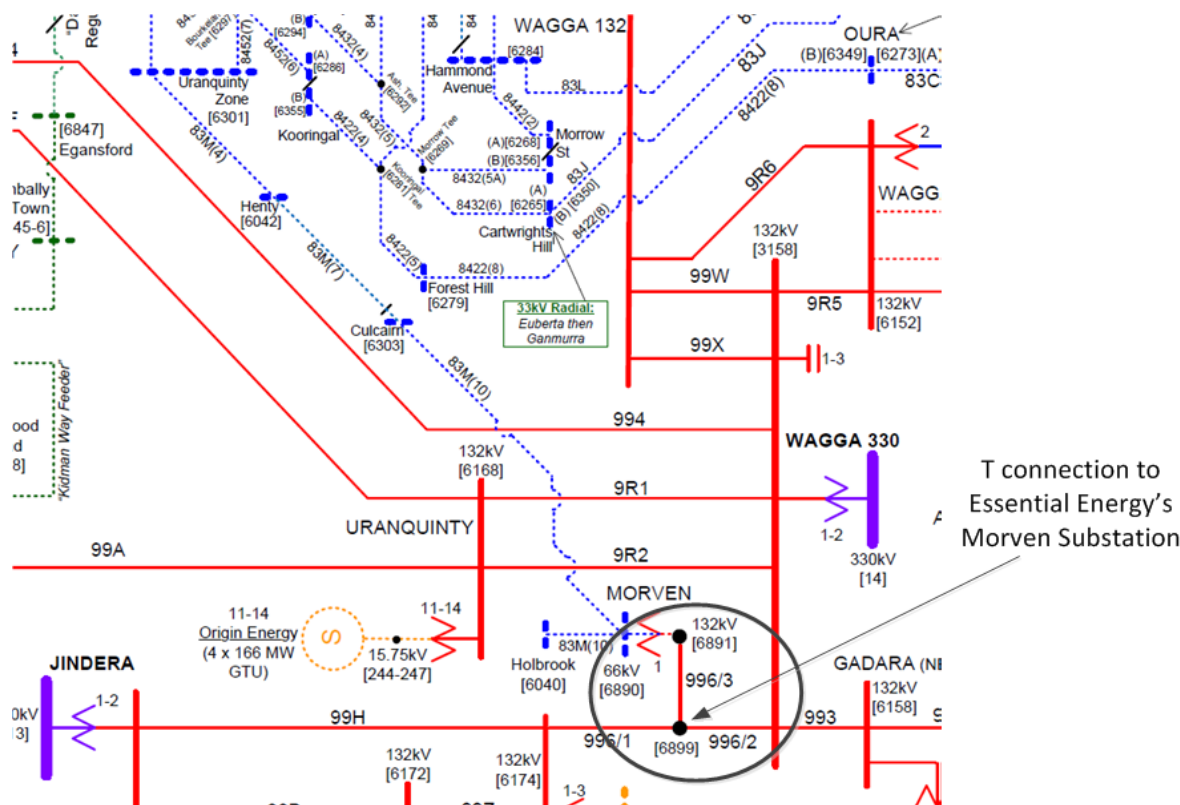
Winter 2016 - 2025

- > 6 MW, 1 MVar

The existing arrangement of line 996 tee connection is as shown in figure 1 on the next page.

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 996 (996/1 - ANM to tee connection and 996/2 – Wagga 330kV to tee connection) will result in an interruption of supply to all loads supplied from line 996 tee connection. Due to direct tee connection on line 996, there is no ability to sectionalise 996 at Morven.

A two way disconnector (with the ability to operate remotely using SCADA) can be installed at line 996 tee connection which will sectionalise 996 and hence there will be ability to isolate faulty section of the line and restore supply quickly.

The benefits of installing two way disconnector are as below.

- Avoidance of unserved energy due to loss of either section 996/1 or 996/2
- Ability to arrange planned outage of section 996/1 or 996/2 without interrupting supply to Morven substation.

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

Option	Post contingency capacity	Duration
Do nothing	0 MW	24 hrs
Installation of two way disconnector switch	7 MW peak load	0.5 hrs

3. Related needs/opportunities

None.

4. Recommendation

It is recommended that a 132kV two way disconnecter be installed at line 996 tee connection to Morven substation to increase reliability of supplies and restoration times.

Attachment 1 Risk costs summary

Current Option Assessment - Risk Summary

Project Name: Morvern 132kV TL 996 3-way Disconnectors

Option Name: 1626 - Base Case

Option Assessment Name: 1626 - 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)	\$3.47	Break	\$3.47	41.34%	\$1.44	\$1.40		\$0.02			\$0.02
				\$3.47		\$3.47		\$1.44	\$1.40		\$0.02			\$0.02

Total VCR Risk: \$1.39

Total ENS Risk: \$0.00