

NEED/OPPORTUNITY STATEMENT (NOS)



Operational excellence – Construction of Two-way Disconnecter
On Line 94M for Ilford Tee

NOS- 000000001632 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	Jim Ye	Operations Analysis Engineer
Endorsed	Hoang Tong	Operations Analysis Manager
	Jahan Peiris	Network Modelling & Performance Manager
	Anwar Kurukchi	Project Portfolio Sponsorship Manager
Approved	Andrew Kingsmill	Manager/Power System Analysis
Date submitted for approval	[Date]	

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.

Line 94M connects Mt Piper 132 Substation and Beryl 132 Substation and is teed to supply Endeavour Energy's Ilford 132/66kV Zone Substation.

Contingencies on the 94M line (feeding from Mt Piper) will cause loss of supply to Ilford Zone Substation for a period of time during carrying out 94M line patrol, investigation and repairs as required, and Endeavour Energy's load transfer.

The existing arrangement of Ilford Tee on Line 94M Mt Piper 132 – Beryl shown as below in figure 1.

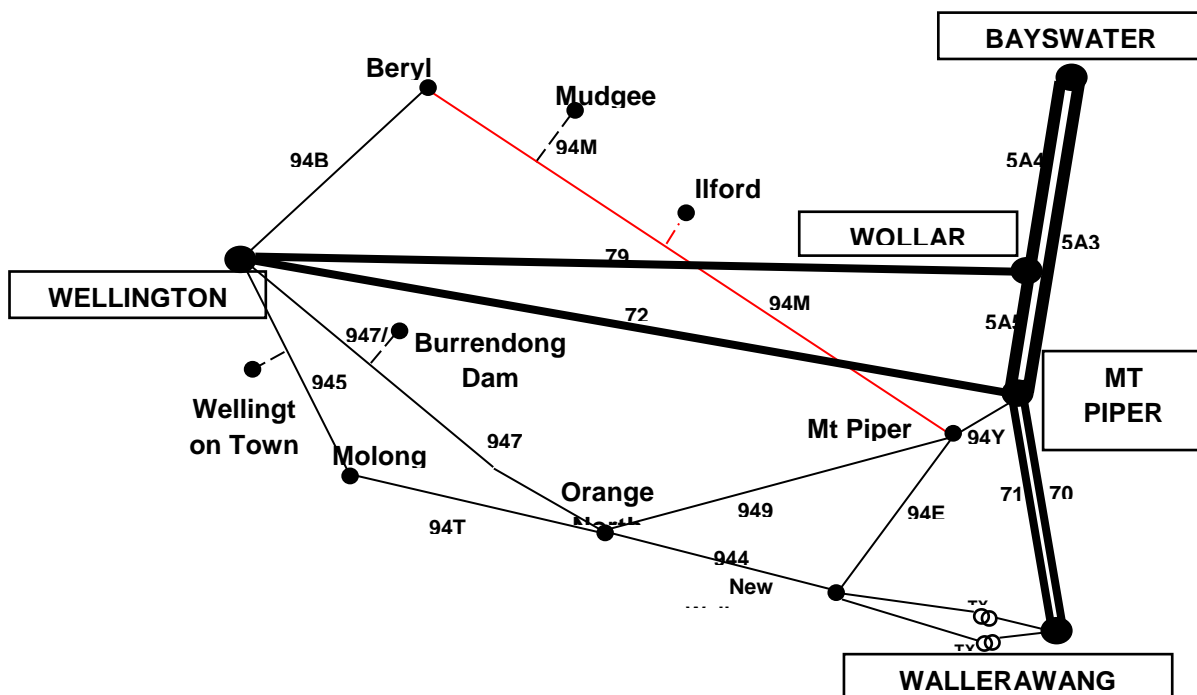


Figure 1 – Existing arrangement of Ilford Tee on Line 94M Mt Piper 132 – Beryl

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.

Endeavour Energy's Ilford 132/66kV Zone Substation on the NSW Western Region supplies Ilford and surrounding areas.

At present the maximum demand at Ilford tee connection point is as below (refer to NSW Transmission Annual Planning Report 2016).

Summer 2016/17

> 30 MW, 14 MVar

Winter 2017

> 42 MW, 17 MVar

2. Need/opportunity

The Costs of Unserved Energy were considerable for the period of the line 94M outages every year. However, the cost can be significantly reduced by installing a pole mounted two-way disconnecter at Ilford Tee (as shown in Figure 2).

The two-way disconnecter can provide operational flexibility in the event of a line fault on either of the connections to Mt Piper 132 or to Beryl, allow supply to be quickly restored to Ilford in the event of a fault on either of the two sections of line.

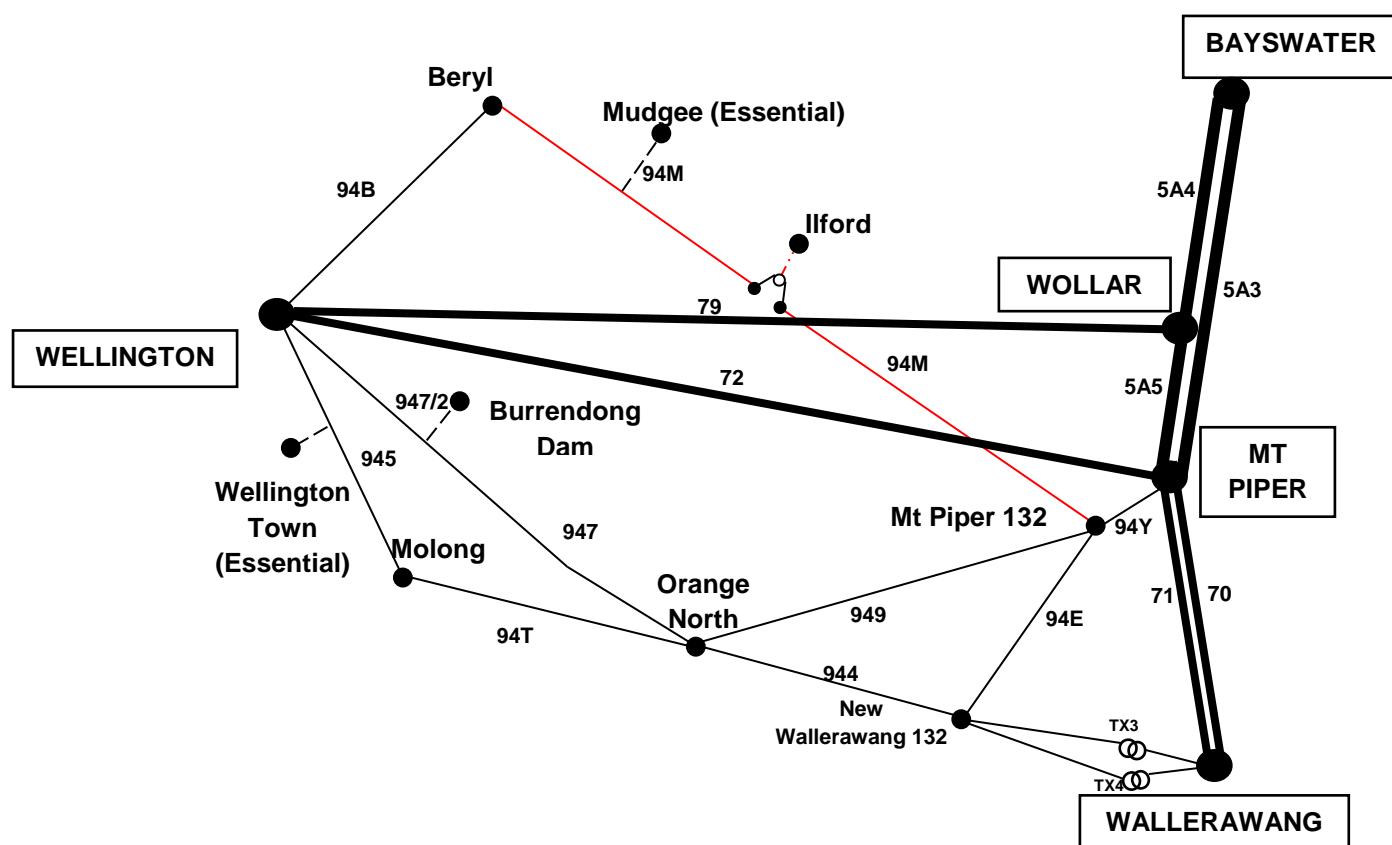


Figure 2 – Proposed Two-way Disconnecter at Ilford Tee

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 94M) capacity
Do nothing	0 MW for 24 hours
Installation of a two-way disconnecter at the tee-off	42 MW peak demand

3. Related needs/opportunities

None

4. Recommendation

It is recommended that a pole mounted two-way disconnecter be installed at Ilford Tee on line 94M to increase reliability of supply and reduce the cost of unserved energy in the regulatory period 2018 – 2023.

Attachment 1 Risk costs summary

Current Option Assessment - Risk Summary



Project Name: Ilford 132kV TL 94M 3-way Disconnectors

Option Name: 1632 - Base Case

Option Assessment Name: 1632 - 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)	\$25.82	Break	\$25.82	1.95%	\$0.50	\$0.50		\$0.00			\$0.00
				\$25.82		\$25.82		\$0.50	\$0.50		\$0.00			\$0.00

Total VCR Risk: \$0.50 Total ENS Risk: \$0.00