

NEED/OPPORTUNITY STATEMENT (NOS)



Making the Grid More Resilient - Line O51 Wagga – Lower
Tumut Ratings Augmentation

NOS- 000000001540 revision 2.0

Ellipse project description:

TRIM file: [TRIM No]

Project reason: Line O51 Wagga – Lower Tumut Ratings Augmentation

Project category: Prescribed - NCIPAP

Approvals

Author	Jim Ye	Operations Analysis Engineer
Reviewed/Endorsed	Jahan Peiris	Network Modelling & Performance Manager
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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.

The 330 kV line O51, from Lower Tumut to Wagga, performs a part of Snowy – NSW – Victoria 330kV power transmission. A network constraint and limitation of transfer capability can occur during system normal condition and outage of line 65 or line 66 in Snowy region, due to line O51 rating limitation, further affect spot prices, reliability and transfer capability of the transmission system.

Currently, line O51 ratings are limited to 1143 MVA due to CT Primary, Disconnectors and Wave Trap at Lower Tumut substation, and Metering at Wagga 330kV substation.

The Lower Tumut substation has a double bus, double breaker configuration. The limitations of CT primary and disconnectors normally are within limits when the line load is shared between both the buses. Accordingly, an upgrading of Wave Trap and Metering will improve the transfer capability by about 20% during contingency reducing market and network impact.

2. Opportunity

Removal of the limitation by upgrading Wave Trap from 2000 Amp to 2400 Amp at Lower Tumut substation and upgrading Metering with CT ratio from 1600/1 to 2400/1 at Wagga 330kV substation, will realise the maximum benefit of transfer capability improvement, and minimise constraints and market costs.

3. Related needs/opportunities

Nil

4. Recommendation

It is recommended that upgrading Wave Trap at Lower Tumut substation and upgrading metering CT ratio at Wagga 330kV substation be implemented to address the identified need/opportunity.

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

Attachment 1 – Benefit Calculations

An market benefit can be estimated based on:

- > Increased capacity due to implementation of the project = 228 MW of transfer capability²
- > Assumed 1 hour per month of constraint, and
- > Market impact due to NSW export limit binding³ = \$15/MWh.

$$\begin{aligned}\text{Benefit} &= [(\text{additional transfer capability}) \times (\text{hours of constraint per month}) \times 12 \times (\text{price difference in generation})] \\ &= \$228 \times 1 \times 12 \times 15 = \$41,040/\text{year}\end{aligned}$$

² Based on the difference between present rating and the rating achieved if the Option A is implemented, line O51 rating to increase from 1143 MVA to 1371 MVA.

³ Based on the difference between VIC Brown Coal variable costs and typical Renewable Generation bid price of \$0 (or less) – refer page 61 of Jacobs report “Retail electricity price history and projections.pdf” filed in PDGS supporting documents for VIC Brown Coal Price details. VIC price is expected to be at higher end following retirement of Hazelwood Coal Power Station. Hence, high -range Coal prices in VIC was used. Accordingly, Market impact = \$15 - \$0 = \$15.