

NEED/OPPORTUNITY STATEMENT (NOS)



Sydney West SVC Replacement

NOS- 00000001286 revision 2.0

Ellipse project no.: P0005909

TRIM file: [TRIM No]

Project reason: Capability - Asset Replacement for end of life condition

Project category: Prescribed - Replacement

Approvals

Author	Annie Welvaert	Secondary Systems Analyst
Endorsed	Mark Jones	Secondary Systems and Communications Asset Manager
Approved	Lance Wee	M/Asset Strategy
Date submitted for approval	9 November 2016	

Change history

Revision	Date	Amendment
0	6 June 2016	Initial issue
1	11 October 2016	Update to 2016/17 dollars
2	9 November 2016	Update to format

1. Background

The Static Var Compensator (SVC) at Sydney West has been in service since 2004. According to the Substation Renewal and Maintenance Strategy¹, SVCs have a nominal life of 20 years, which means that the system will approach its nominal life by 2023.

The SVC at Sydney West is required to balance the overall reactive power requirement of the NSW system and to provide a dynamic source of reactive power to support the system during and following disturbances so as to maintain stability.

The control system installed for the SVC at Sydney West operates on an obsolete operating system which is no longer supported by the manufacturer. The remaining spare PC held by TransGrid runs on the same system and is of a similar vintage to the in-service unit. The Operator Work Station PC monitor has had a permanent problem with low disk space, and therefore is unable to retain the past SVC history beyond 24 hours. This technology has had issues where a hard reboot is the only course of action, demonstrating the vulnerability the existing control system creates in the continued service of the SVC.

2. Need/opportunity

This Need covers the replacement of the complete control and protection system for the SVC at Sydney West Substation.

The risk cost associated with all assets in the SVC installation at Sydney West is \$1.84m per annum. The operation of the thyristors and associated cooling plant is reliant on the health of the control system. Failure of the existing system would result in a lengthy period of unavailability while the control system was replaced. This risk is based on the cost of market impacts and energy not served due to the failure of the SVC or cooling plant, as well as the increased replacement costs to accelerate the recovery. The risk costs have been modelled for 2016/17 based on historical probabilities of failure.

3. Related Needs/opportunities

NIL

4. Recommendation

It is recommended that options be considered to address the identified Need/opportunity.

¹ Refer Substations Renewal and Maintenance Strategy, pg77

Current Option Assessment - Risk Summary



Project Name: Sydney West SVC Replacement

Option Name: 1286 - Base Case

Option Assessment Name: 1286 - 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)
SVC	1	Cooling System	Unplanned Outage - HV (SVC)	\$8.86	Failure	\$8.86	10.38%	\$0.92	\$0.21		\$0.71			\$0.00
SVC	1	SVC	Unplanned Outage - HV (SVC)	\$8.86	Failure	\$8.86	10.38%	\$0.92	\$0.21		\$0.71			\$0.00
								\$17.72	\$1.84	\$0.42	\$1.42		\$0.00	

Total VCR Risk: \$0.40 Total ENS Risk: \$0.02