

NEED/OPPORTUNITY STATEMENT (NOS)



SCADA-EMS NM4 Replacement

NOS- 000000001254 revision 2.0

Ellipse project no.: P0005327

TRIM file: [TRIM No]

Project reason: Capability - Obsolescence/Manufacturer support withdrawn

Project category: Prescribed - Replacement

Approvals

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

Change history

Revision	Date	Amendment
0	30 May 2016	Initial issue
1	10 October 2016	Update to 2016/17 dollars
2	9 November 2016	Update to format

1. Background

The SCADA platform is a vital tool that allows TransGrid to efficiently operate and maintain its high voltage network, providing real-time visibility of the network status and indication when elements are defective. The platform also acts as a concentrator for network and generator data that is then passed onto AEMO for its use to dispatch and operate the National Electricity Market.

2. Need/opportunity

TransGrid commissioned the ABB SCADA NM4 platform in 2015 to manage all activity related to operating and controlling the high voltage network remotely from the network control room.

Previous SCADA platforms have had a lifecycle of 7 years and if this holds true for the ABB package it will require replacement by 2022. The ABB NM4 deployment took 5 years to complete.

Due to the long lead time in replacing the platform, TransGrid cannot wait for defect rates and trends to be established prior to actively planning its replacement.

Additionally, there are three primary factors that indicate the current platform will be unable to exceed the predicted life of 7 years:

1. The platform is native to Windows XP which is no longer available or supported by Microsoft.
2. The platform utilises point-to-point communications via RS-232 which is becoming obsolete and at risk of being incompatible with substation and communications systems being installed across the network.
3. The implementation of IEC61850 will create a step change in the quantity of digitised information available at the substation level. This likely will not be able to be supported by the SCADA platform in its current form and under the current licensing system.

The risk cost associated with the SCADA-EMS NM4 platform is \$1.78m per annum. The most significant element of concern is the reliability consequence associated with a large scale interruption either due to, or exacerbated by, a failure of the SCADA platform. The risk costs are based on 2015/16 probabilities of failure taken as a trend of existing defect rates of the assessed assets derived from the condition assessment. The SCADA platform has multiple layers of contingency due to the potential impact a large scale outage would have on the NEM. This consequently reduces the risk cost as the likelihood of the consequence is extremely rare. However, as TransGrid's ability to recover from failures is exhausted this risk will likely increase significantly.

3. Related Needs/opportunities

The work under this Need will be affected by the following Need:

- > Need 1365 – Telecommunications SDH Network Condition

4. Recommendation

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

Attachment 1 – Risk costs summary

Summary of results is attached below. Refer to supporting document in PDGS for full risk assessment.

Current Option Assessment - Risk Summary

Project Name: SCADA Replacement

Option Name: 1254 - Base Case

Option Assessment Name: 1254 - Base Case - Assessment 1

Rev Reset Period: Current (2014-18)



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)
Controls 2	4	Bay Controller	Uncontrolled Electrical Discharge (SCADA Servers)	\$1.48	Failure	\$5.91	5.00%	\$0.30	\$0.28		\$0.01			\$0.00
SCADA Servers	4	Bay Controller	Unplanned Outage - HV (SCADA Servers)	\$7.41	Failure	\$29.64	5.00%	\$1.48	\$1.47		\$0.01			\$0.00
									\$1.78	\$1.75	\$0.03			\$0.00

Total VCR Risk: \$1.75 Total ENS Risk: \$0.00