



Jemena Electricity Networks (Vic) Ltd

Technology Plan

IT Investment Brief - Operational Technology Step change

Recurrent - Step Change



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Glossary

AER	Australian Energy Regulator
Current regulatory period	The period covering 1 Jan 2016 to 31 Dec 2020
CYxx	The calendar year which covers the 12 months to 31 December of year 20xx. For the current regulatory period, this is equivalent to RYxx
DMS	Distribution Management System
ICT	Information and Communications Technology
Intervening period	The period covering 1 Jan 2021 to 30 Jun 2021 covers the time between the current regulatory period and the next regulatory period. The Intervening period arises with the move from a calendar year regulatory year to financial.
Jemena	Refers to the parent company of Jemena Electricity Networks (Vic) Ltd.
JEN	Jemena Electricity Networks (Vic) Ltd.
Next regulatory period	The period covering 1 Jul 2021 to 30 Jun 2026
OMS	Outage Management System
OT	Operational Technology
Platforms, systems and hardware	Includes all software and hardware required to operate an application, including physical servers and storage, software operating systems, database software security software and application management software
RTS	Real-Time Systems
RYxx	Regulatory year covering the 12 months to 30 June of year 20xx for years in the Next Regulatory Period and the 12 months to 31 December of year 20xx for years in the Current Regulatory Period. For example, RY20 covers 1 January 2019 to 31 December 2020 and RY22 covers 1 July 2021 to 30 June 2022
SCADA	Supervisory Control And Data Acquisition

SCADA/RTS Recurrent Step Change

Objective	<p>The objective of this business case is to ensure that Jemena Electricity Network (Vic) Ltd (JEN) maintains its Operational Technology (OT) on vendor supported versions. This case covers the SCADA/RTS applications and supporting platforms and systems.</p>
Background	<p>During the current regulatory period, JEN implemented a new SCADA/RTS system, which included a new Distribution Management System (DMS) and Outage Management System (OMS). The implementation included the installation of new platforms, supporting systems and hardware. The platforms and systems supporting the old SCADA systems were subsequently decommissioned.</p> <p>In the lead up to implementing the new system, no lifecycle maintenance was performed on the old SCADA systems.</p> <p>As a result of the implementation of new systems, there was a significant <i>Non-recurrent - Maintain</i> project in the current regulatory period and no <i>recurrent</i> expenditure. In the next regulatory period, JEN will incur mostly recurrent expenditure for the SCADA/RTS and supporting platforms and systems and minimal non-recurrent expenditure to support the current functionality.</p> <p><i>[Note: There is, however, a significant non-recurrent spend proposed in the “Future Network Initiative”, some of which relates to the SCADA/RTS systems. The justification for that expenditure is outlined in the separate business case.]</i></p> <p>JEN’s ‘base’ recurrent expenditure (used to forecast recurrent expenditure required during the next regulatory period) is calculated from the actual recurrent expenditure during the current regulatory period. As this does not include any recurrent expenditure for SCADA/RTS, a step change is required to account for the additional recurrent expenditure that will be required during the next regulatory period for these systems.</p> <p>We have therefore included this step change to reflect the necessary ongoing lifecycle maintenance activities associated with this system which are not captured in JEN’s ‘base’ recurrent expenditure for the current regulatory period.</p> <p><i>NB: Operational Technology is separated off from Jemena’s other “corporate” ICT systems in a separate security zone with firewalls and separate management tools for cyber-security protection. JEN is classified as National Critical Infrastructure under the Australian Government’s Security of Critical Infrastructure Act 2018 (Cth). A malicious cyber-attack on the Operational Technology has the highest potential impact for supply outages, asset damage and public safety of any style of cyber-threat. Operating any component of Operational Technology on unsupported or out of date versions is an unacceptable security risk.</i></p>
Customer Importance	<p>The SCADA/RTS application is key to the control and monitoring of the electricity distribution network. The monitoring and control capabilities of these systems are necessary to manage the growing number of smart network devices used by JEN and to manage the increasing adoption of smart energy devices deployed by customers and connected to the electricity network.</p> <p>There is a requirement to maintain the entire technology stack, including supporting platforms and systems, within vendor support to ensure the whole system continues to perform their function and retain cybersecurity-resilience.</p>
Strategic Approach	<p>Jemena has invested during the current regulatory period in a foundational platform for enhanced DMS-OMS capabilities. This system is used to control the operations of the entire electricity distribution network. The delivered capabilities will enable advancements on both the network and customer sides of the network that JEN will see occur as smart energy devices continue to evolve into the future.</p>

	<p>The DMS-OMS is a long-term, strategic investment to manage the electricity network, and JEN intends to maintain the platforms and systems within that environment to keep them current and to ensure the delivery of the benefits of the system to customers.</p>																																																															
Options	<p>JEN has considered only one option – to maintain the Operational Technology environment given the criticality of the systems.</p> <p>The proposed expenditure is to maintain an existing level of functionality and is recurrent in nature with a frequency of at least every five years. There is no reasonable alternative option available. For example, the alternative of deploying a new SCADA/RTS system is far greater than upgrading, partially because the current SCADA/RTS system is relatively new.</p> <p>Jemena has a strong track record of maintaining its platforms, systems and applications efficiently and prudently as evidenced by the work performed as <i>Recurrent – base</i> over the current and previous regulatory periods.</p> <p>Option 1: Lifecycle the SCADA/RTS supporting platforms and systems</p> <p>Description</p> <p>JEN will update the SCADA/RTS application and supporting platforms and systems with regular lifecycle upgrades. This includes replacing, upgrading and adding capacity to the hardware platforms through similar procedures as are undertaken for the equivalent corporate hardware systems. All lifecycle maintenance frequencies are based on current practices for similar systems and to remain within vendor support windows.</p> <p>Costs</p> <p>SCADA/RTS systems are shared across Jemena’s subsidiary businesses. JEN’s portion of costs for this option is outlined in the table below.</p> <p style="text-align: center;">Table 1: Option 1 Costs – JEN portion, Direct Escalated (mid-year 2021)</p> <table border="1"> <thead> <tr> <th>\$2021</th> <th>Project ID</th> <th>RY22</th> <th>RY23</th> <th>RY24</th> <th>RY25</th> <th>RY26</th> </tr> </thead> <tbody> <tr> <td>SCADA DMS OMS Lifecycle Upgrades</td> <td>A336</td> <td>442,009</td> <td>336,311</td> <td></td> <td>244,266</td> <td>245,188</td> </tr> <tr> <td>SCADA/RTS Data Centre Network Replacement</td> <td>ITSB02</td> <td>27,524</td> <td>68,469</td> <td>10,143</td> <td></td> <td></td> </tr> <tr> <td>SCADA/RTS Data Centre DWDM Replacement</td> <td>ITSB03</td> <td></td> <td></td> <td>27,203</td> <td></td> <td></td> </tr> <tr> <td>SCADA/RTS Backup Infrastructure Replacement</td> <td>ITSB04</td> <td></td> <td>435,269</td> <td></td> <td></td> <td></td> </tr> <tr> <td>SCADA/RTS Storage Replacement</td> <td>ITSB05</td> <td></td> <td>466,047</td> <td>156,053</td> <td></td> <td></td> </tr> <tr> <td>SCADA/RTS Hypervisor Upgrades</td> <td>ITSB06</td> <td>311,696</td> <td></td> <td></td> <td>315,159</td> <td></td> </tr> <tr> <td>SCADA/RTS Server Host Hardware Replacements</td> <td>ITSB07</td> <td>220,087</td> <td>342,410</td> <td></td> <td></td> <td></td> </tr> <tr> <td>SCADA/RTS Server Hardware Growth/Capacity</td> <td>ITSB08</td> <td>44,017</td> <td></td> <td></td> <td>44,363</td> <td></td> </tr> </tbody> </table>	\$2021	Project ID	RY22	RY23	RY24	RY25	RY26	SCADA DMS OMS Lifecycle Upgrades	A336	442,009	336,311		244,266	245,188	SCADA/RTS Data Centre Network Replacement	ITSB02	27,524	68,469	10,143			SCADA/RTS Data Centre DWDM Replacement	ITSB03			27,203			SCADA/RTS Backup Infrastructure Replacement	ITSB04		435,269				SCADA/RTS Storage Replacement	ITSB05		466,047	156,053			SCADA/RTS Hypervisor Upgrades	ITSB06	311,696			315,159		SCADA/RTS Server Host Hardware Replacements	ITSB07	220,087	342,410				SCADA/RTS Server Hardware Growth/Capacity	ITSB08	44,017			44,363	
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SCADA/RTS Data Centre Firewall Replacements	ITSB09			107,145	51,208	
SCADA/RTS Checkpoint Smartconsole Lifecycle Upgrade	ITSC01			35,679		
SCADA/RTS McAfee EPO Lifecycle Upgrade	ITSC02	70,840				71,898
SCADA/RTS Microsoft SCCM Lifecycle Upgrade	ITSC03		42,656			
SCADA/RTS SIEM (Huntsman) Lifecycle Upgrade	ITSC04	93,509				
Total		1,209,681	1,691,163	336,224	654,996	317,086

This option will incur recurrent capital costs for the maintenance of the SCADA/RTS supporting platforms and systems of \$4.2M (\$2021) over the next regulatory period.

These costs were estimated using JEN's standardised estimator tool for IT projects as described in the Technology Plan under the section on Forecasting Method. They are in keeping with equivalent projects for the hardware platforms and system management tools in the corporate systems security zone under the Recurrent – base project list.

Risks

The risks of these projects are managed within Jemena's governance and project management framework; the risks—typically deployment, technological and change management—are not considered material for these projects. Risks are best managed by maintaining these systems on vendor supported versions.

Benefits

There are no specific incremental benefits associated with this option. All forecast expenditure is for maintaining existing functionality through regular updates and replacement to remain current and supported.

Summary

This option will maintain the existing systems at an efficient cost. If these projects are not undertaken, it will materially impact upon the operations of the entire electricity distribution network and potentially put JEN in breach of federal laws governing the management of critical infrastructure.

Options Summary

The table below summarises the quantitative and qualitative differences between the analysed options.

Table 2: Options Summary

	Capex \$2021	Qualitative Risks	Qualitative Benefits
Option 1	4,209,149	Low	Low

What We Are Recommending	<p>Jemena proposes to proceed with maintaining the SCADA/RTS systems into the future as recurrent expenditure similar to the other major corporate ICT systems that Jemena manages.</p> <p>As no recurrent replacement expenditure was incurred during the current regulatory period for SCADA/RTS, a step change of \$4,280,509 (\$2021, direct, escalated) should be applied to the <i>recurrent – base</i> forecast for the next regulatory period. This will ensure that the allowance for recurrent expenditure during the next regulatory period is sufficient to cover SCADA/RTS lifecycle projects that were not required during the current regulatory period due to significant non-recurrent projects applied to these platforms and systems.</p>
Relationship to ICT Capital Forecast	<p>The proposed option for this business case is contained in the ICT investment plan as Recurrent – step Project IDs: A336, ITSB02-09 & ITSC01-05.</p>