Jemena Gas Networks (NSW) Ltd

Investment Brief
Reporting Server and Database Systems Lifecycle

Jemena
bringing energy to life

Glossary

2020-25 regulatory period	The period covering 1 Jul 2020 to 30 Jun 2025
AER	Australian Energy Regulator
Current regulatory period	The period covering 1 Jul 2015 to 30 Jun 2020
ERP	Enterprise Resource Planning
ICT	Information and Communications Technology
IS-U	Industry Specific for Utilities (SAP module for utility billing)
Jemena	Refers to the parent company of Jemena Gas Network
JGN	Jemena Gas Networks (NSW) Ltd
NGR	National Gas Rules
RYxx	Regulatory year covering the 12 months to 30 June of year 20xx. For example, RY20 covers 1 July 2019 to 30 June 2020.

1. Reporting Data Storage & Management Systems

Introduction	Jemena provides a shared reporting environment that supports Jemena Gas Networks (NSW) Ltd (**JGN**). There are two lifecycle projects in this brief which support this reporting environment. These projects are not associated in any way with SAP ERP or Industry Specific for Utilities (**ISU**) modules or the potential migration to S/4HANA. The projects underpin only JGN's business intelligence reporting environment which was approved in the previous determination and has been implemented during this regulatory period using the SAP HANA database platform. These systems require maintenance in the 2020-25 regulatory period.
Objective	The objective of this investment is to mitigate against the loss of distribution services and associated impacts on customers by proactively managing the life cycle risks associated with Jemena's server and data management infrastructure for reporting, with elements of these systems reaching an unacceptable level of support risk at various times during the 2020-25 regulatory period.
Background	The on-premise infrastructure (server and database) that stores and manages the reporting data draws information from the major systems in the IT ecosystem and forms the basis for information provided to customers, the Australian Energy Regulator (**AER**), other regulatory bodies as well as internal reporting requirements. For example, the Regulatory Information Notices provided to the AER are extracted from this reporting system. The robustness of the reporting server and database is crucial in allowing JGN to continue delivering and operating the core information systems that underpin the safe and efficient distribution services to customers. Jemena's reporting server and database have a limited life and eventually require replacement to ensure they can continue to provide services as expected by JGN's customers. Jemena's data storage and management systems are subject to regular assessment as to whether they remain fit for purpose as measured against a range of criteria including performance, security, cost effectiveness, serviceability, end-of-life timeframes and overall risk. Jemena also makes decisions to replace these assets by taking into account the optimum time for upgrade or replacement based on past experience and serviceability of the components and interdependent systems and processes. The guidelines to making a prudent assessment are described in the Information Technology Plan under the section on IT Asset Lifecycle Management.
Customer Importance	Reporting plays an important role in JGN's ability to deliver safe, secure, reliable and affordable services to JGN's customers. Throughout our engagement with them, customers outlined that they expect us to maintain our current services throughout the 2020-25 regulatory period. To enable JGN to maintain current service levels, the reporting server and database which stores and protects information must continue to be reliable, secure and meet other performance requirements of JGN's asset management and network operations teams, contractors and other external parties such as regulators and other stakeholders.
Strategic Approach	JGN's strategic approach to managing the reporting server and database is to maintain the system under supported versions, on-premise.
Reason for Step Change	Under the AER's proposed[1] framework for assessing forecast ICT capex, recurrent ICT expenditure is to be assessed by the AER based on revealed costs. Under this approach, forecast recurrent capex is based on the actual recurrent ICT capex during the current regulatory period. Where a regulated

[1] AER Framework for Forecasting ICT Capex

	network has a significant increase in recurrent ICT capex, a justification must be provided for the step change increase to the current period expenditure. The reporting server and database was installed during the current regulatory period as a non-recurrent ICT capex project. As the reporting server and database did not exist at the start of the current period, and because it is new, it has not yet required life-cycle replacements. In the 2020-25 regulatory period, the reporting server and database will require life-cycling. JGN requires a step-change increase in its recurrent ICT expenditure to reflect these additional recurrent costs that will be incurred. The forecast capital expenditure has leveraged Jemena's experience from implementing the platforms that underpin the whole data warehouse and reporting environment in the current regulatory period.
Step-Change Benefits	The step change in recurrent expenditure will enable the upkeep of the reporting server and database. Without the additional expenditure, the reporting server and database would become out of date and unsupported by the vendor. The step change provides for both regular life cycling of reporting server environment (patching, version updates and renewal of the software and hardware environment) and updating the reporting server and database to ensure it is fit for purpose and can respond to changes in requirements (optimisation, dashboard updates in response to changing user requirements, management of new data types, business requested enhancements, etc.). The reporting server and database contains sensitive information and therefore is a high-value target from a cybersecurity perspective. Ensuring the reporting server and database are regularly patched and maintained on the latest software versions is necessary to mitigate security risks to JGN's network. This is best practice security management, and failure to patch and upgrade would diminish the effectiveness of other cybersecurity investments made by Jemena.
Options	To mitigate the risks associated with unsupported platforms and to ensure that JGN can meet customer expectations—that JGN continues to provide safe, reliable and efficient services—JGN has assessed a series of options to determine the best way to deliver on its objective of managing lifecycle risks of platform and processing systems. These options include: 1. **Managed with risk** 2. **Maintain level of support** 3. **Rearchitecting and replacement.** **Option 1: Manage with risk** **Description** Systems would not be updated or refreshed. This will result in a significant risk to JGN's ability to operate its network safely, reliably and efficiently. Whilst JGN could attempt to put in place manual mitigations such as: • Storage of unsupported replacement parts to replace with on failure • Minimise use of the systems and switch to alternative options to minimise the need to engage vendor support • Deploy additional processing equipment outside of existing assets all of which will require significant resources to achieve with little assurance that JGN's efforts would be successful, whilst also introducing business and process inefficiencies. **Costs** This option does not align with Jemena's Information Technology Plan under the section on IT Asset Lifecycle Management nor is it consistent with industry based best practice. Therefore, no costings have been developed for additional support resulting from the manage with risk approach.

Risks

This approach presents too high a risk to the business, would compromise JGN's ability to continue to deliver distribution services and comply with regulatory requirements, would require significant new business resources and is outside the strategic investment plans as outlined in the IT technology plan.

Benefits

There are no additional benefits associated with this option.

NPV Analysis

Not applicable.

Summary

Option 1 aims to maintain the existing systems at low cost but it comes with unacceptable business risk.

Option 2: Maintain level of support

Description

This approach involves following the established technology upgrade path of the reporting server and database system in this investment brief to the most recent supported versions to avoid operating them outside vendor support windows. This upgrade approach would result in Jemena continuing to use the same vendor and maintaining a broadly similar IT architecture which leverages Jemena's inherent expertise and capabilities with existing systems.

Direct Unescalated Costs (mid-year 2018)

$2018	RY21	RY22	RY23	RY24	RY25
HANA Database Upgrades			332,825		
HANA TDI (Hardware & OS) Replacements			365,751		
Total			**698,576**		

The cost of this option is $0.7m with the activity completed during RY23. This estimate is calculated using JGN's standardised IT Project Estimation Tool as described in the Technology Plan under the section on Forecasting Method and reflects the cost incurred for the server and database components of the larger implementation project when the reporting environment was initially established during the current regulatory period.

The scope and the basis of the cost estimates for each project are:

1. HANA Database Upgrades (Project ID ITSA05) - SAP HANA database upgrade required to ensure that data stored within SAP HANA can continue to be accessed by IT Systems and Applications. Upgrades are provided by the vendors regularly and versions need to be kept current to access the proper support channels and maintain security. Based on experience implementing the system during this regulatory period, Jemena assesses that this is a medium level project that will take less than 6 months to implement and is of moderate complexity.
2. HANA TDI (Hardware & OS) Replacements (Project ID ITSA15) - Replacement of the SAP HANA Tailored Data Integration hardware and Operating System replacement as they reach the end of their warranty/support periods. There are 10 hardware storage units making up the core of the system and they will require replacement as part of this project. Based on this, Jemena assesses that this is a small to medium level project to implement the replacement hardware that will take less than 3 months to implement and is of moderate complexity.

Risks

There are no material risks for this option.

Conforming capital expenditure

Rule 79(1)(a) of the National Gas Rules (**NGR**) states:

> *The capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services.*

Undertaking these projects, the proposed capital expenditure is consistent with the NGR rule 79 as it is:

- Prudent - The expenditure is necessary to maintain the integrity of services to customers and personnel and is of a nature that a prudent service provider would incur. It is the best practice approach to maintaining the ability to continue providing financial, management and regulatory reports.
- Efficient - The option selected is the most cost-effective long-term option that meets the necessary operational requirements in order to meet the compliance with legislative, regulatory obligations and Australian Standards.
- Consistent with accepted and good industry practice. In addition, it is consistent with Jemena's Risk Management Manual and AS2885.

The project is also consistent with NGR rule 79(2)(c), because it is necessary to:

- Maintain the integrity of service (79(2)(c)(ii)) – will enable the upkeep of the reporting server and database. Without the additional expenditure, the reporting server and database would become out of date and unsupported by the vendor and therefore the integrity of JGN's services would be negatively impacted.
- Comply with a regulatory obligation (79(2)(c)(iii)) – enables JGN to continue to provide information to the AER as set out in its Regulatory Information Notices.

Benefits

Quantifiable

There are no direct, quantifiable benefits for this option as it is maintaining the current systems under supported versions.

NPV Analysis

The Net Present Cost of this option is $-599k.

See attachment "NPV for Reporting Server and Database Lifecycle Investment Brief" – NPV Calc|Option 2.

Summary

Option 2 is expected to:

- Reduce implementation risk given the upgrade to existing systems does not involve the installation of new technologies and require minimal business process change.
- Ensure Jemena's systems remain current, reliable, secure and fit for purpose.
- Represent the most cost effective and risk mitigating option.

Option 3 Rearchitect and Replace

Description

A market review would be conducted prior to the current systems being end-of-life (RY2023) to identify alternate technology solutions to replace existing reporting server and database systems, potentially resulting in the use of different applications and the rebuilding of the data extraction, transformation and loading of the reporting environment including the integration and testing. A competitive tender process would occur to secure a fit for purpose technology followed by a significant project similar in size to the one conducted in the current regulatory period.

Costs

The historical spend for implementing the reporting environment this period and building the data extracts and reports is the best estimator for a full rearchitect and rebuild scenario. That figure totalled $5.3m. Given that the reporting environment has only been implemented in the current regulatory period, a full replacement of the environment, at similar cost to the that incurred in this period, is not justified nor required.

Conforming capital expenditure

As per option 2.

Risks

A full rearchitect and replacement of the reporting environment is highly risky and may result in cost overruns.

Benefits

JGN estimates that the benefits of this option are comparable to option 2.

NPV Analysis

The NPV for this option would be $-4.5m.

See attachment “NPV for Reporting Server and Database Lifecycle Investment Brief” – NPV Calc|Option 3.

Summary

Option 3 aims to maintain the existing capability but at substantial cost and risk.

Options Summary

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

	NPV $2018	Qualitative Risks	Qualitative Benefits
Option 1	$0	Medium/high	Low
Option 2	$-599k	Low	Low
Option 3	$-4.5m	Medium/High	Low

JGN selects its appropriate preferred option by considering the direct differences between the options as expressed in the NPV analysis and indirect or qualitative differences in risks and benefits.

What We Are Recommending

Option 2 is the preferred option. This option is expected to maintain the current Jemena shared platform for reporting using secure, reliable and vendor supported versions.

Relationship to ICT Capital Forecast	The preferred option for this business case is contained in the ICT investment plan as two recurrent projects under Project IDs ITSA05 & ITSA15.