Jemena Electricity Networks (Vic) Ltd

IT Investment Brief – Data Foundations and Governance

Non-recurrent – Compliance

Jemena
bringing energy to life

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Glossary

ACCC	Australian Competition and Consumer Commission
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
Capex	Capital Expenditure
Current regulatory period	The period covering 1 Jul 2021 to 30 Jun 2026
CYxx	Calander Year xx – the period covering January to December
DER	Distributed Energy Resources
DEECA	Victorian Department of Energy, Environment and Climate Action
DVA	Data Visibility and Analytics
FIRB	Foreign Investment Review Board
GIS	Geographical Information Systems
HR	Human Resources
ICT	Information and Communications Technology
IDAM	Identity and Access Management
IDX	Industry Data Exchange
IoT	Internet of Things
Jemena	Refers to the parent company of Jemena Electricity Network
JEN	Jemena Electricity Network (Vic) Ltd.
NEM	National Energy Market
NERR	National Energy Retail Rules
Next regulatory period	The period covering 1 Jul 2026 to 30 Jun 2031
NPV	Net Present Value
MITE	Market Interface Technology Enhancement
Opex	Operating Expenditure
PI	Personal Information
RIN	Regulatory Information Notice
RYxx	Regulatory year covering the 12 months to 30 June of year 20xx for years in the Next Regulatory Period. For example, RY25 covers 1 July 2024 to 30 June 2025
SaaS	Software as a Service
SAP	SAP accounting and ERP software
SCADA	Supervisory Control and Data Acquisition
SNAP	Strategic Network Analytics Platform
SOI	Sensitive Operational Information
Totex	Total Expenditure

Data Foundations and Governance

Objective	This initiative aims to uplift Jemena Electricity Networks Vic Ltd. (JEN's) data foundations and governance capabilities, delivering maximum value from JEN's data to ensure compliance with various industry-specific regulations and standards related to security of our data.		
Non-recurrent ICT sub-categorisation	☐ Maintaining existing services, functionalities, capability, and/or market benefits	☒ Complying with new/altered regulatory obligations/requirements	☐ New or expanded ICT capability, functions, and services
Background	**Data foundation and governance defined** We define data foundation and governance as the capability required to address critical aspects of data management. It ensures data quality, consistency, and accessibility, laying a solid groundwork for effective data utilisation to extract value from sophisticated analytics. Integrating data governance toolsets enhances JEN's data capabilities by enforcing data policies, standards and controls. It provides for the continuous process of tracking, evaluating, and maintaining the quality of data to ensure it meets predefined standards and business requirements. It plays a critical role in ensuring that data is accurate, consistent, complete, and reliable over time. Effective data management fosters a data-driven culture and enables informed decision-making and maximises the value derived from JEN's data assets (see below). It is critical in facilitating regulatory compliance, data security, and privacy protection while promoting transparency and accountability in data handling processes. **The current approach to managing our data** The Data Visibility and Analytics (DVA) program forms part of the JEN Future Network Strategy. It supports JEN's strategic objective of connecting its customers to a renewable energy future, by facilitating the integration of Distributed Energy Resources (DER) into the electricity distribution network and facilitating the electrification of the economy. The DVA program has three key components: • Implementing a Strategic Network Analytics Platform (SNAP) to replace the current digital analytics solution which is reaching end-of life. • Enhancing the smart metering infrastructure to deliver near real-time (5 minutes) smart meter power quality data to enable further operational and safety improvements such as near real-time power quality investigations and predictive fault detection. • Implementing a program of network analytics to improve operational efficiency and effectiveness, improve safety, and respond to emerging customer and regulatory needs over the next 10 years and beyond. Whilst the DVA program establishes key JEN analytics platforms and a program of analytics, it does not consider the way in which data is managed and governed. JEN currently does not have a dedicated toolset for data governance and currently manages this function in various distributed systems and spreadsheets, resulting in reactive remediation when data quality issues are encountered. With limited standardisation, this process is reliant on individuals which results in variability in data quality. As a result, there is limited proactive management and governance of JEN data as an asset. Without uplifting data quality and governance capabilities, JEN risks undermining the full potential of the DVA program, as well as its broader strategy of connecting our customers to a renewable energy future, by facilitating the integration of Distributed Energy Resources (DER) into the electricity distribution network and facilitating the electrification of the economy. **Changes in the Australian Energy market** Australia's energy market transition is characterised by a rapid shift towards sustainable and renewable sources aiming for net-zero by 2050, resulting in a rapidly evolving landscape. This transformation is not just limited to the physical infrastructure but extends the need to		

extract value from JEN's current and new data sources through sophisticated analytics to glean actionable insights amidst the complexities of this evolving landscape. This will include providing data and analytics products to 3rd parties as part of the AER/DEECA Victorian Network Visibility data trials in Victoria. Further data-related capabilities are also required to help us maintain compliance with Energy Safe Victoria Act, Essential Services Commission, and the Electricity Distribution Code of Practice.

The transition to a future network necessitates a strong foundation in data quality, accessibility, and governance. As data becomes central to delivering value, JEN must expand the scope and depth of these capabilities. By continuing to invest in the effective management of data, JEN will be well-positioned to support the energy transition and a more sustainable future. This is explored in more detail below.

Data related legal and regulatory obligations

The convergence of regulatory changes related to data management standards and expectations has further amplified the importance of robust data management and governance. Policy and regulatory changes are increasing Electricity distribution management standards and expectations. For instance, JEN needs to satisfy several legal and regulatory expectations regarding the data it manages including:

- New obligations and reporting requirements for facilities subject to the Safeguard Mechanism (including the JEN network) under the *National Greenhouse and Energy Reporting Act 2007* (Cth) and relevant regulations, increasing the need for accurate and auditable data on greenhouse gas emissions.
- The Australian Energy Market Commission (AEMC) has officially incorporated emissions reduction considerations into the National Energy Rules, solidifying a significant regulatory shift towards net zero, increasing the need for accurate and auditable data on greenhouse gas emissions.
- The issuance of the FIRB Land Exemption Certificate by the Foreign Investment Review Board, that grants the Group with an exemption from seeking approval for Australian land acquisitions is subject to specified conditions that JEN must comply with, increasing the data management needs for sensitive operational data.
- In December 2022, the Privacy Act 1988 (Cth) (Privacy Act) was amended to significantly increase the maximum penalties for serious privacy breaches and to provide the regulator with more extensive powers, furthermore on 16 February 2023, the Attorney General released the Privacy Act Review Report which contains extensive recommendations to reform and broadens the application of the Privacy Act, increasing the need to better govern and safeguard personal identifiable information (PII).
- The Australian Energy Regulator (AER) employs Regulatory Information Notices (RINs) to gather accurate data for regulatory decisions. If the RIN information is incorrect, it could lead to non-compliance with regulatory requirements. The AER relies on accurate data to make informed decisions increasing the need for accurate and auditable data.
- We also anticipate other changes impacting the way in which we govern our data such as the [redacted]
- As part of the National Energy Market (NEM) reform implementation program there is an increasing focus on data. The objective of the Market Interface Technology Enhancement (MITE) initiative is to implement Identity and Access Management (IDAM), Industry Data Exchange (IDX) and Portal Consolidation that have been identified as a set of initiatives within the NEM reform implementation program to provide foundational and strategic frameworks that the upcoming reform initiatives can leverage.

Good industry practice – Supporting the energy transition

The energy transition is accelerating the need for future-focused networks, transforming how Australian distribution companies manage assets, enhance operational efficiency, and integrate renewable energy sources.

	Collaboration between ICT and Network teams is increasingly vital for JEN with the growing digitalisation and complexity of the energy landscape. As the grid modernises with smart technologies and automation, ICT provides the digital infrastructure needed for real-time data collection and analysis, while Network teams manage the physical infrastructure. Together, they ensure a resilient and adaptable grid capable of accommodating the demands of renewable energy integration, which relies on advanced digital tools such as machine learning to monitor grid health and manage load fluctuations. The widespread adoption of advanced data analytics, artificial intelligence, and IoT-enabled devices, such as smart meters and network sensors, is equipping utilities with vital insights to make informed, data-driven decisions that align with the shift towards a more sustainable energy system. Data and the associated capability and governance required to ensure its integrity, is an essential foundation for enabling utilities to accurately forecast network demand, optimise renewable energy distribution, and proactively plan for infrastructure that supports the evolving energy landscape. Utilities around the world are increasingly adopting and investing in improving their data capabilities to support the energy transition, take advantage of data collected and to surmount increasingly complex challenges. Recent examples include: • Ausgrid's $30 million data and analytics program[1] aims to provide data in the right channels and format to empower customers, enhance internal capabilities to meet the changing needs of the community and undertake scenario-based optimisation to improve operational efficiency and safety outcomes. New capabilities include a data lake expansion and data to intelligence, asset data analytics and predictive maintenance capabilities. Key quantifiable benefits are the optimisation of asset management as their field force. • AusNet's $40 million information management program[2] to extend the information management platform to enable access to timely, accurate data (across all core systems, assets, and processes) enabling more advanced data analytics and reporting to support better decision-making across the Electricity business. Ausgrid's and AusNet's programs have been approved by the AER.
Customer Importance	It is critical for customers that JEN invests in data foundations and governance because it enables JEN to provide better services and solutions that meet customers' needs and expectations. This new data management capability will better deliver data that is accurate, consistent, secure, accessible, and aligned with the customer needs and regulatory obligations. By delivering high quality, managed data sources we can support customers by delivering insights aimed at: • Reduced costs (and in turn reduced prices) from an enhanced ability to optimise operations, asset management strategies in the context of a highly uncertain and dynamic operating environment. • A lower cost pathway to net-zero, which may not be achieved without supporting data and analytics to improve emissions measurement, reporting as well as identification and evaluation of potential emissions reduction activities. • Lower cost and more accurate regulatory reporting to the regulatory and market participants. • Improved security over the Personal Identifiable Information (PII) collected, stored, and used by the JEN network, in line with the Privacy Act. [redacted] • Management of data required for entry of new market participants and other market reforms to support the ongoing energy transition Investing in data capability is critical for JEN to manage its data more effectively, leading to more accurate data to deliver enhanced customer services, improved decision-making, and swift response to the changing markets and regulatory environment.

[1] Ausgrid 2023, Attachment 5.9.f Data & analytics program
[2] Ausnet. (2022). ASG – GAAR – ICT Program Brief Information Management – 11 July 2022 – PUBLIC.pdf (aer.gov.au)

Key Considerations	Our strategic data foundations and governance objective emphasises the capabilities that ensures data quality, consistency, and accessibility, laying a solid groundwork for effective data utilisation to extract value from adjacent JEN investments proposed in the next regulatory control period, namely the DVA program outlined in the Background section above. We have considered various strategic factors in recommending our preferred option: • It is necessary to act as soon as possible and within the 2026-31 period to enable JEN to respond promptly to the changing market and regulatory environment and avoid non-compliance to regulatory obligations as set out in the Background section. • Through the investment and timing proposed in this initiative brief, JEN will be positioned to uplift our data quality and governance capabilities in order to align with the DVA program, thereby supporting a broad range of current and future business needs that are dependent on high quality data. • It is appropriate to invest in this initiative in the context of the current market. Should the initiative proceed, we anticipate broad, local availability of necessary labour and expertise in the technology sector to implement the capabilities in JEN's business and network, as the market in Australia for implementing these capabilities is mature. **How costs were derived** To derive the costs for JENs preferred recommendation, we engaged 5 vendors [redacted] As the solution scope was not yet fully defined, the vendors provided costs based on similar past projects, encompassing both internal and external labour requirements. Our estimates assume a blended team, with the vendor supporting key implementation activities before transitioning responsibilities to our internal project team. Vendor insights also helped guide the roles and skill sets required internally, allowing for accurate resource planning. We have assumed SaaS cloud-based solution hence implementation costs are opex. The solution assumes ongoing licences for which the vendor provided indicative quotes; These are new capabilities and so recurrent-step opex is incremental to current period. Additional internal labour is required to support this new capability. This is incremental because the new toolsets, coupled with increasing volume of data and analytics, necessitate subject matter expertise with Jemena specific knowledge. This expertise will be essential for liaising with 3rd party support, coordinating internal efforts and managing issue and problem management and troubleshooting.
Options	JEN has considered three options to deliver the capability articulated above: • Do nothing – not recommended • Increase resources dedicated to the effective management of data – not recommended • Establish data foundation capability and governance – recommended **Option 1: Do nothing** **Description** This option requires that no action be taken and would result in no enhancement to the way in which we manage our data; there would be no changes to data-related governance processes, toolsets or systems. **Benefits** There are no benefits associated with the option. By doing nothing, JEN would only avoid incurring the investment costs associated with improving data governance. **Risks** In the absence of necessary investment to support the uplift of JEN's data foundation and governance capability, there may be the following risks:

- Compliance - Failure to invest in this initiative will impact JEN's ability to comply with existing and new regulatory obligations as set out in the background section. This risk will further exacerbate as reforms continue across the regulatory landscape.
- Customer privacy - It also has the potential to result in serious harm to our customers as a result of not proactively managing our data, resulting in a potential data breach that could lead to identity fraud and personal safety risks. Such incidents can also severely damage JEN's reputation, leading to customer trust erosion.
- Service delivery - The management of data is currently distributed across the business. This means there is a lack of centralised control over data and quality standards resulting in inconsistencies, discrepancies, and variations in data quality. As a result of the distributed management of data, more extensive efforts and resources are being required to manage and correct data inaccuracies, diverting valuable resources away from customer-centric and business critical initiatives. JEN's focus on delivering exceptional customer experiences and maximising customer value may be compromised as a result.
- Customer experience - Inaccurate data, flowing through various processes, can also have a detrimental impact on customer experiences. Challenges in providing accurate information to customers when providing services including incorrect billing information, and erroneous service preferences lead to customer dissatisfaction. Furthermore, inaccurate life support information or outdated contact details can lead to safety and emergency issues that erode their trust in JEN's capabilities.
- Employee retention - Without modern systems and processes, JEN could risk employee retention and hiring as employees would be operating in a more complex environment.
- Adjacent investment – Without quality data and tools to manage data that will be ingested in the analytics platform and used for network analytics (per the DVA program), JENs ability to extract value from this program may be compromised.

Summary

This option is not recommended as we do not consider it reflects good industry practice given the risks outlined above.

Option 2: Increase resources dedicated to the effective management of data.

Description

An increase in the headcount of resources that are dedicated to the effective management of data and data quality process improvements will be required under this option to maintain JEN's ability to maintain compliance with its regulatory obligations and also support the DVA program as set out in the Background section. We estimate that we would require up to 10 dedicated data stewards - two for each data domain containing JEN data, including Asset, Customer, Finance, HR, and Operations.

Benefits

The key benefit of this option is that there will be no impact to system architecture as there will be no system changes. There will be some data quality and governance improvements to support regulatory compliance and the DVA program.

Risks

By continuing to govern the data by relying solely on people introduces some risks and challenges including:

- Human error - Relying solely on manual efforts from data specialists to manage data will constrain JEN's ability to maintain consistent governance protocols without the support of data governance toolsets. For instance, the manual handling of data quality issues management and access permissions controls can be prone to errors, leading to potentially flawed asset investment and optimisation decisions, data

breaches, or unauthorised access incidents that automated data governance toolsets could better mitigate.

- Knowledge silos - Depending solely on individuals for data management will not easily break down the current knowledge silos and operational gaps, particularly when there is staff turnover. The loss of institutional knowledge and expertise can impede the continuity of effective data governance practices.
- Time intensive - Compliance with regulatory requirements becomes resource-intensive in the absence of a systematic approach. Demonstrating compliance and conducting audits manually may require considerable time and effort, diverting resources from other critical business functions.
- Poor decision-making ability - The insights obtained from our data for decision making may fall short of their potential due to poor data management practices resulting in poor data quality.

Costs

The estimated costs for this option are outlined in the table below, based on a market scan of salaries for data specialists.

$2024	FY27	FY28	FY29	FY30	FY31
Total capex					
Non-recurrent opex					
Recurrent-step opex	$579,372	$579,372	$579,372	$579,372	$579,372
Total opex	$579,372	$579,372	$579,372	$579,372	$579,372
Totex	**$579,372**	**$579,372**	**$579,372**	**$579,372**	**$579,372**

This is an Enterprise-wide initiative, which means the costs of uplifting governance capabilities are shared across a broader set of Jemena enterprises. A consequence of this approach is that JEN's customers benefit from (i) lower costs and (ii) greater purchasing power when negotiating vendor contracts.

Costs have been allocated in accordance with Jemena Group Cost Allocation Methodology.

The forecast of recurrent opex is $2,896,860– with a total expenditure over the 2026-31 period of **$2,896,860.**

Summary

This option is not recommended as we do not consider it reflects good industry practice given the risks outlined above. Furthermore, it does not provide the most efficient cost.

Option 3: Establish data foundation capability and governance

Description

JEN will implement contemporary and effective data governance toolsets and design these tools to work effectively across JENs data ecosystem to uplift its current data management capabilities. This will provide the necessary data-related capability for robust and efficient decision-making processes, and the data governance toolsets will help maintain a data inventory for ensuring data quality and integrity.

There are several purpose-built tools available in the market, providing a wide range of critical functions and capabilities that will help JEN implement and support the practice of data ingestion and quality assurance that will facilitate the increased use of technology and digitisation.

[redacted]

Benefits

Key benefits of this option include:

- Embedded data controls - Integrating data governance toolsets enhances the data management capabilities by enforcing data policies, standards and controls. This ensures regulatory compliance, data security, and privacy protection while promoting transparency and accountability in data handling processes.
- Data catalogue - allowing more effective data discovery, through a single integrated data dictionary view and associated metadata aligned to consistent data standards and definitions across the business delivering maximum value from JEN's data.
- Supporting customers - Trusted data quality and good data management enabled by having data foundation and governance capabilities, will support JEN in being better prepared and proactive in supporting and working with customers on the Energy Transition and detailing available energy options for them informed by quality data.
- Improved decision making - Having good data foundation and governance capabilities will minimise the time spent in finding data, cleansing data and enhancing data so that more time can be spent extracting value from our data and making decisions based on data insights. This option will help to foster a data-driven culture that maximises the value derived from JEN's data assets through informed decision-making on high quality data.
- Data traceability and lineage - These capabilities also allow for better data discovery and up-to-date metadata informing users on the intended use, data security, data definitions, quality and other attributes.

Risks

There are some key risks associated with this option as listed below:

- Reliance on external vendors or partners for certain aspects may not deliver outcomes as expected. This may result in delays in the initiative's implementation and benefits being realised, and unexpected costs. Project governance will be implemented throughout implementation to mitigate this risk.
- Effectively managing the vast amounts of data accumulated by JEN, may present a challenge. Failing to prioritise and focus on the most important data sources can lead to inefficient resource allocation and suboptimal results. A data strategy will underpin implementation to mitigate this risk.
- Modern data governance toolsets use a federated approach where business stakeholders are primarily responsible for the use of the tool. Resistance to change and lack of knowledge may lead to low user adoption. If employees do not fully embrace the new tools and processes, it could limit the effectiveness of the required data management. Change management and training will be critical in mitigating this risk.

Costs

The estimated costs for this option are outlined in the table below [redacted]:

$2024	FY27	FY28	FY29	FY30	FY31
Total capex					
Non-recurrent opex	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Recurrent-step opex	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Total opex	[redacted]	[redacted]	[redacted]	[redacted]	
Totex	[redacted]	[redacted]	[redacted]	[redacted]	

This is an Enterprise-wide initiative, which means the costs associated with data foundation capability and governance are shared across a broader set of Jemena enterprises. A consequence of this approach is that JEN's customers benefit from (i) lower costs and (ii) greater purchasing power when negotiating vendor contracts. Costs have been allocated in accordance with Jemena Group Cost Allocation Methodology.

[redacted]

The data foundation and governance toolsets are new capabilities and so recurrent step opex is incremental to current period; [redacted] Additional internal labour is required to support this new capability. This is incremental because with the new data foundation and governance toolsets, subject matter functional expertise is required who has Jemena-specific knowledge, will liaise with 3rd party support, and coordinate internally on issue and problem management and trouble shooting.

Summary

This option is recommended as we consider it reflects good industry practice given the benefits and risks outlined above. Furthermore, it provides the lowest sustainable cost.

Options Summary

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

$2024	Capex	Opex	Totex	NPV	Residual Risk
Option 1	Not applicable	Not applicable	Not applicable	Not applicable	High
Option 2	Not applicable	$2,896,860	$2,896,860	Not applicable	High
Option 3	Not applicable	[redacted]	[redacted]	Not applicable	[redacted]

What We Are Recommending

JEN proposes to proceed with option 3 as this option is the most efficient cost approach to reducing risks related to non-compliance with data related regulatory obligations, such as regulatory reporting and accurate information provision.[3] It will ensure that JEN has access to high-quality data consistent with the expectations of governments, regulators, customers and stakeholders. JEN also considers that it best reflects good industry practice and provides the lowest sustainable cost. It will also enable other benefits related to improving process efficiency and decision-making.

While option 2 is a lower cost outcome it does not address any of the risks associated with non-compliance with regulatory obligations. Nor does it strengthen JEN's decision-making processes.

Option 2 is not recommended as this option has a higher cost, provides less flexibility, has limited scope and will not deliver future capabilities required in a changing external environment.

[3] This initiative is part of an enterprise-wide approach and was also included in the Jemena Gas Networks (NSW) Ltd. (JGN) Access Arrangement (AA) proposal. The proposed option received approval as part of the AER's 2025-30 Draft Decision.

Dependencies on other Investment Briefs	As data becomes central to delivering value, JEN must expand the scope and depth of these capabilities. Investment in areas such as data analytics and supporting infrastructure, geospatial systems, and robust data governance will be crucial from 2026-31 to keep pace with change and maintain performance within the energy sector. Data foundation and data governance capabilities described in this Investment Brief provide robust data management capability that is a key dependency for the following Investment Briefs for the 2026 - 2031 period: • Facilitation of all CER Integration initiatives relating to the energy transition; and more specifically the Data Visibility and Analytics program and 3D Digital Twin. • Reform initiatives including Market Interface Technology Enhancements.
Relationship to ICT Capital Forecast	The supporting modelling for this investment brief is contained in the following model**: JEN – IT Investment Brief – Data Foundations and Governance – Costs and Benefits Analysis Model**