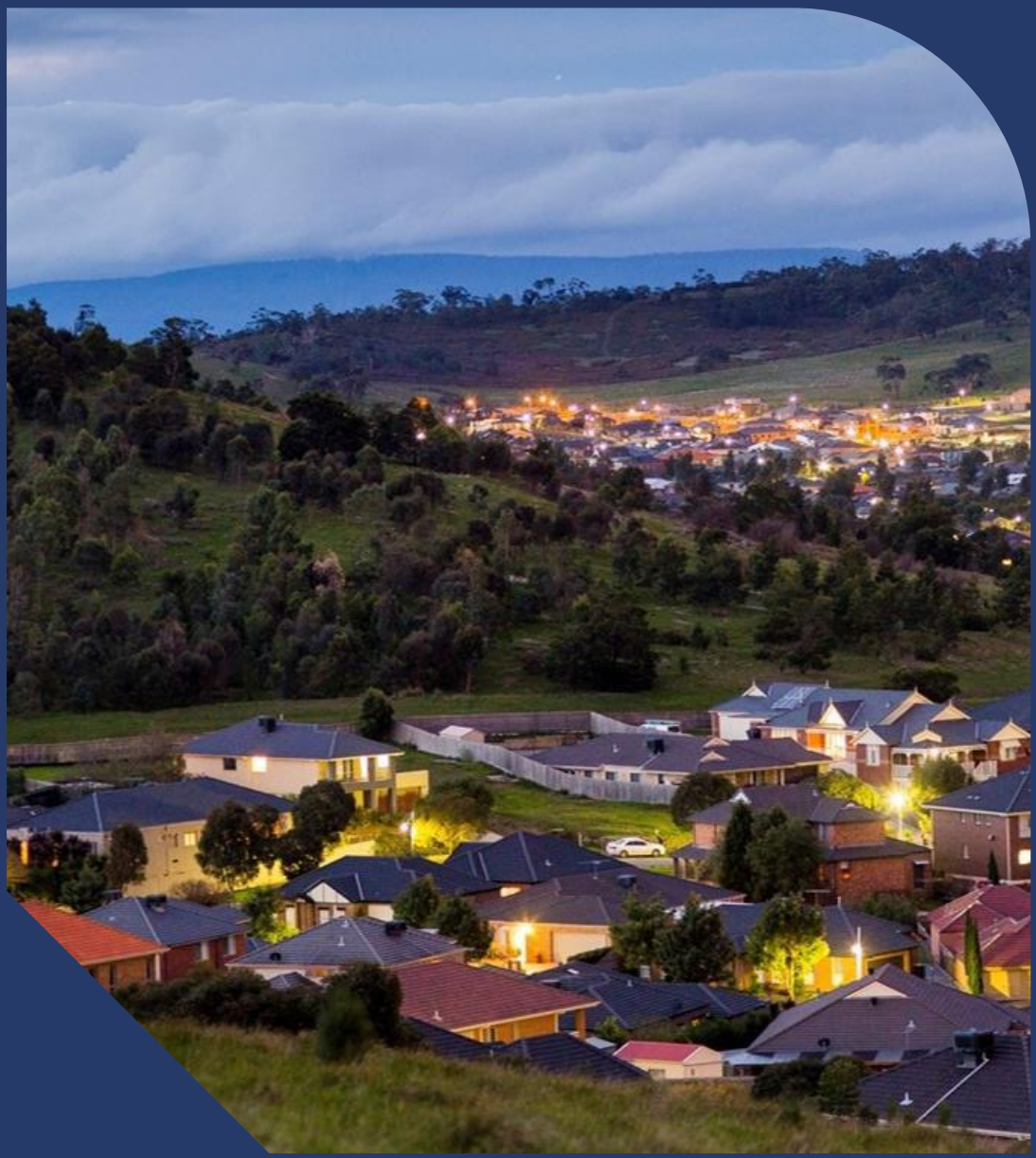
AusNet

Electricity Distribution Price Review FY2027 to FY2031 (EDPR 2027-31)

Business case: Asset Management Systems

Date: January 2025



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Document history

DATE	VERSION	COMMENT
17/10/2024	V1.0	Initial draft business case for review
04/11/2024	V2.0	Updated draft incorporating review input
01/12/2024	V3.0	Revised business case for SME review
31/12/2024	V4.0	Final business case document

Related documents

DOCUMENT	VERSION	AUTHOR
Technology Strategy and Investment Plan	V3.0	AusNet Services
AusNet Resilience Strategy	V3.0	AusNet Services
AusNet EDPR 2027-31 Digital Program NPV model	V3.0	AusNet Services

Approvals

POSITION	DATE
Digital & Technology – Strategy, Regulatory and Partner Management	December 2024
Digital & Technology – Architecture	December 2024
Group Operations – Asset Management	December 2024
Distribution – Strategy and Regulation	December 2024

1. Executive summary

AusNet has identified opportunities to gain value from updating and improving its asset management systems which is consistent with peer Distribution Network Service Providers (DNSPs) and aligned to our customer expectations. Modern asset management systems will help relieve the current reliance on manual processes and upgrade our analytics software to improve our decision making, particularly as we need to manage an increasing number of assets that are exceeding their expected service life. In addition to ensuring that our asset management system and practices are appropriate and fit for purpose for meeting obligations in our distribution licence and enshrined in the National Electricity Rules (NER), there have been several key drivers during the current regulatory period which are driving the need for AusNet to uplift its asset management system capability. These include:

- A greater proportion of AusNet's assets will be operating beyond their planned life over the next 20 years. Asset management systems provide the necessary foundation for prudent and efficient decisions on maintenance and renewal programs, including optimised risk decisions.
- The storm events experienced in the 2021-26 regulatory period, and the expected impacts of climate change, demonstrate a need to improve our analytics and decision making to ensure continued network resilience and reduce negative customer impacts from planned and unplanned outages.
- There have been significant improvements in asset management software that can be leveraged to improve analytics and decision making capabilities.

In light of recent events, external reviews and changes to the asset management landscape, AusNet has reviewed the current state of its asset management system, supporting software and processes. We are currently undertaking a process to recertify our asset management systems to ISO55001 and have found that additional investment is required in order to deliver compliance with the updated ISO55001:2024 requirements, meet the expectations of customers and other stakeholders, and to most efficiently manage cost, risk and performance of our assets.

Our gap analysis of current state versus desired future state have shown that AusNet needs to uplift its asset management capabilities across the following areas: asset data; risk frameworks and models; forecasting, investment planning and optimisation; and staff capability.

The proposed non-recurrent ICT expenditure is directed at uplifting AusNet's current capabilities to maintain and invest efficiently in electricity network infrastructure. The program includes capital and operating expenditure on asset management systems to improve analytics and uplift decision-making capabilities.

Our customers will benefit from investment in asset management systems in two ways. Firstly, improved decision-making will help us target reliability, security and safety risks associated with our network assets including preventive action that can avoid adverse consequences. Secondly, the analytics and decision-making capabilities will help us better manage our assets across the lifecycle, delivering lower expenditure and prices in the long term. For example, improved analytics could help us defer replacement of ageing infrastructure through optimised maintenance programs and increased risk tolerance.

AusNet has considered the following three investment options for the Asset Management program.

OPTION	SUMMARY
Option 1: Maintain existing capability (counterfactual)	Business-as-usual case that maintains the existing systems and processes. This is not considered a viable option but is used to measure the benefits of the alternative options.
Option 2: Leverage and augment existing systems	This option proposes to extend our existing suite of software systems and improve asset management systems to address the identified needs.
Option 3: Deploy a new platform / system architecture	This option proposes to retire our existing suite of software systems and replace them with a new comprehensive platform – or suite of systems – that will meet the identified needs.

The recommended option is Option 2 based on the results of our options analysis summarised below.

Table 1 Summary of options assessment against assessment criteria

Criteria	Option 1	Option 2	Option 3
NPV ($'000, real FY24)	$ -	$0.1 million	-$7.6 million
Capex ($'000, real FY24)	$ -	$71.5 million	$78.4 million
Opex ($'000, real FY24)	$ -	$3.17 million	$3.97 million
Technically feasible	✓	✓	✓
Addresses identified need	✗	✓	✓
Meets customer expectations	✗	✓	✓
Deliverable within timeframe	n/a	✓	✓ **(Risk of delay)**
Delivery risk	n/a	**Low**	**Moderate**
Preferred option	✗	✓	✗

Option 2 is recommended because it provides the highest and only positive NPV and lowest risk outcomes relative to the other options considered. It is also consistent with customer expectations and aligns with our Asset Management objectives. This option will make our asset management systems more functional, to deliver the asset performance and cost effectiveness needed as network complexity and challenge increases into the future.

2. Context

Asset management is a fundamental function of AusNet. At its core, asset management supports business decision-making regarding "if, when and how" to invest to manage cost, risk and performance of assets to achieve the businesses' objectives. As an electricity distribution business, we have assets installed across the eastern half of Victoria and supply power to approximately 809,000 customers. Table 2, below, provides an overview of the number of and diversity of assets that we manage to ensure the reliable and safe supply of electricity to our customers.

Table 2 Overview of assets under management

Asset group	Volume
Cables (km)	8,540
Circuit breakers (#)	3,074
Comms and protection devices (#)	6,872
Conductors (km)	37,949
Distribution switchgear (#)	219,890
Distribution transformers (#)	63,082
HV Poles (#)	226,836
LV Poles (#)	85,746
Power transformers (#)	150
Public lighting poles (#)	109,980
Service lines (#)	197,061
Energy from residential embedded generation (GWh)	814
Energy from non-residential embedded generation (GWh)	1,336

Source: 2024 Category Analysis RIN Table 5.2

We are required under our distribution licence to implement good asset management practices[1] and are required under the National Electricity Rules (NER) to invest prudently and efficiently in operating and maintaining a safe, reliable, and secure distribution network.

The implementation of a robust asset management system is necessary for meeting AusNet's asset management obligations under its distribution licence and in the NER. AusNet was the first electricity distribution business in Australia to achieve ISO55001 accreditation, and is currently undergoing recertification in line with ongoing review and improvement in asset management systems and practices.[2] Although retaining ISO55001 accreditation is not strictly required to meet AusNet's licence conditions there are several key drivers that are necessitating the need for AusNet to review and improve its asset management systems and practices which are discussed in section 2.1 below.

2.1. Drivers of investment

Our analysis of peer networks demonstrates that AusNet is not keeping pace with its peers in terms of utilising modern digital solutions to deliver our asset management functions. There are three key drivers for investing in the 2026-31 period to uplift our capabilities. These are:

- the need to manage ageing electricity infrastructure
- the need to ensure AusNet has sufficient network resilience to better manage the increasing risk of major events associated with climate change

[1] See clause 19.2 of AusNet's distribution licence conditions.
[2] The new standard ISO55000:2024 was only released in August 2024 and the need to make any changes to the asset management systems as a result of the revised standard are not yet known.

- the need to drive further efficiencies in asset management practices by leveraging technology improvements in asset management software to support better informed asset management decision-making.

Ageing network infrastructure

AusNet's network is ageing with an increasing number of assets that are exceeding their planned serviceable life. AusNet is implementing initiatives to transform from a largely time-based approach to risk-based approach for both asset maintenance and replacement. This will enable deferral of replacements while managing risk and performance.

However, the risk-based approach requires a solid asset management system and asset management tools to ensure the risk is being appropriately quantified and asset condition that informs risk is being incorporated in the replacement decision making appropriately.

While undergoing the ISO55001 recertification process, AusNet has identified opportunities to gain value from updating and improving its asset management systems, which is consistent with peer DNSP and aligned to our customer expectations. Modern asset management systems will help relieve the current reliance on manual processes and address our outdated analytics software to improve our decision making and business efficiency.

Limitations of current tools

We have found that our asset data, and the systems we have deployed to manage and analyse the data, are no longer adequate for managing our network. As the network ages we can either increase replacement expenditure or update and upgrade our systems to improve decision making to achieve our performance targets while minimising cost to our customers. Recent external reviews, described below, support that there are areas where the asset management system needs to improve.

During the past few years, new or improved software solutions specific to managing large portfolios of assets based on the principles of ISO55001 have emerged on the market. These software solutions typically have different modules that can be implemented individually or as a complete system and include:

- Asset condition and risk assessment
- Portfolio analysis and optimisation
- Integration with other common systems

These are capabilities that are currently managed by AusNet using multiple different spreadsheets. Automating asset management capabilities through the adoption of a single system would provide a single source of truth, enable additional portfolio analysis and prioritisation, improve asset related decision-making, and provide efficiencies in maintaining asset data once implemented. However, these solutions require investment to implement and take time before value and benefits are realised.

Our research has found that most electricity distribution businesses have implemented one of the commercially available software solutions that provide portfolio analysis and optimisation capability, and these platforms are becoming common practice. AusNet has not yet implemented one of these systems.

Escalating risks: major events during the current period

Operating our network is becoming increasingly complex, with major storm events experienced during the 2021-26 regulatory control period exposing deficiencies in our current approach to asset management[3].

In recent years there have been several reviews by the Victorian government as well as internal reviews undertaken. While these reviews have generally focused on network performance outcomes, we consider that the overall effectiveness of the asset management system should be assessed for any deficiencies, and improved if needed, as the network performance is a function of how the assets are managed.

[3] Post Incident Review into AusNet's response to the February 2024 outage event, Nous, May 2024

Findings from Victoria State Government's Network Resilience Review[4] and Network Outage Review[5] have also highlighted shortcomings in how we manage our network and identified actions that AusNet could implement to improve network management practices.

The **Network Outage Review** made 19 recommendations to improve network reliability and management of network outages. The recommendations are largely focused on changes to regulation, cooperation between government agencies and electricity businesses, and reporting. This included establishing more onerous reporting requirements, improving information on defects and review of AusNet's risk management practices[6].

The **Network Resilience Review** made 8 recommendations to improve network resilience and management of network outages. These recommendations are primarily focused on actions related to improved use of geospatial data, improved collaboration with other emergency support agencies, improved communications with customers and sharing data with other agencies[7].

The **Post Incident Review by Nous** was focused on AusNet's response to the major event of storms that occurred during February 2024. The review identified several deficiencies that were materially impacted or caused by inadequate functionality of AusNet's asset management systems and asset management practices.

An effective asset management system is an underlying enabler for these recommendations and to correct the deficiencies identified by the reviews. If these recommendations are accepted and enacted by the Victorian Government, the changes will require significantly more information processing and data management capability than is currently available from AusNet's existing systems.

Customer expectations of reliability and resilience

We aim to deliver services to a level of quality that is expected by our customers. Recent major events experienced during the current regulatory control period have highlighted deficiencies in how we respond to and manage outages. This has resulted in poor customer outcomes and less than satisfactory customer experience as evidenced by recent findings from our customer satisfaction program which show declining customer sentiment towards the level of service they received in relation to planned and unplanned outages and new connections. We have tested customers' willingness to pay for higher levels of service as part of this process – our proposal reflects both the levels of service that customers tell us they want us to deliver and that they are willing to pay for.

2.2. Current period initiatives

During the current period we have been investing in our asset management systems and processes with a focus on assessing and managing asset risk.

We have built in-house risk modelling tools and systems, but due to deficiencies in the quality and reliability of input data, resulting in the need for manual data cleansing and manipulation processes, these have not resulted in the targeted consistency of outcomes. Consistent outcomes provide assurance that the models are working correctly and reliably. This has inhibited our ability to advance in this area, and as a result investment in data quality improvement, along with further systems upgrades, is required in order to reach an appropriate level of maturity for our industry.

In parallel with in-house risk modelling systems development, the [CIC] upgrade being implemented in the current 2021-26 period will provide the foundational platform for improving data quality, and implementing the next generation of maintenance and asset data analysis tools.

[4] Electricity Distribution Network Resilience Review, Final Recommendations Report, May 2022
[5] Network Outage Review, Independent review of Transmission and Distribution Businesses Operational Response, Final report, September 2024
[6] Network outage review, recommendations 2, 3a, 17 and 19.
[7] Network resilience review, recommendations 1, 2 and 3

3. Identified need

In light of recent events, external reviews and changes to the asset management landscape, AusNet has reviewed the current state of its asset management system, supporting software and processes. We have identified opportunities to gain value from updating and improving our asset management systems to be consistent with practices of peer DNSP. Modern asset management systems will help relieve the current reliance on manual processes and address our outdated analytics software to improve our decision making and help us maintain compliance with requirements, meet the expectations of customers and other stakeholders, and manage cost, risk and performance.

In the following sections we provide an overview of AusNet's current approaches towards planning asset maintenance and replacement, required future state capabilities that will enable us to meet our strategic objectives, and analysis of gaps in capability, systems, processes and/or information that require addressing.

3.1. Current state analysis

AusNet's current approach towards asset maintenance is to apply a time-based or number-of-operations approach, which is largely based on vendor recommendations. These are incorporated in [CIC] to provide AusNet's asset maintenance schedules.

While time-based maintenance has served well and delivered the required performance, economic pressures are increasing the need for AusNet to be more targeted with our investments. Consequently, greater data granularity and more powerful analytical tools are required to enable more informed asset management decision-making that allows for re-prioritisation of expenditure from low-risk assets to higher risk assets based on asset performance, condition and duration in service rather than treating each asset within an asset type the same.

Our approach to asset replacement planning is comprised of several separate models developed in house for high value/high risk assets with other uncontrolled spreadsheet models used for low value/low risk assets. This range of different models makes optimisation of the replacement program difficult and cumbersome. Leveraging recent advancements in technology will be required to enable us to make more efficient investment decisions that will provide the required performance at the lowest cost to customers.

Changes in network design and configuration, combined with penetration of Distributed Energy Resources (DER) and adverse climate change impacts, are making it more difficult for AusNet to achieve historic good performance and expenditure outcomes. These changes are necessitating the need to optimise and prioritise how we manage our network assets to ensure we maintain service levels and deliver value to customers.

Currently, AusNet does not have the systems, tools and in house capability to undertake these new advanced asset management activities which creates a gap between the current state of AusNet's asset management practices and those required to ensure long term sustainability and delivery of our asset management objectives.

We recognise that our practices need to improve and that there are a number of supporting activities that are required before more advanced asset management practices and techniques can be implemented. In particular, setting up data systems to be structured to capture data from the field (asset characteristics and condition data) that can then be analysed. This requires review and remediation of existing data sets to ensure that they are accurate, complete, and still relevant.

Table 3 below provides a summary of AusNet's current asset management practice, and the future capabilities we have identified as required to operate an increasingly complex network prudently and efficiently to dynamically respond to changes in our operating environment and to support Victoria's energy transition.

Table 3 Summary of current state, future state and gaps

CURRENT STATE	REQUIRED FUTURE STATE	IDENTIFIED GAP / FOCUS AREA
Fixed cycle maintenance activities for all assets. This is largely a combination of time-based activities (ie annually or monthly), based on manufacturer recommendations, or based on a fixed number of	Condition based or risk-based asset management by improving and expanding use of the Asset Performance Management (APM) and Asset Risk Management (ARM) methodologies.	**Risk framework, modelling and investment planning** **Asset data** **Maintenance management** **Knowledge and skills**

CURRENT STATE	REQUIRED FUTURE STATE	IDENTIFIED GAP / FOCUS AREA
operations (ie number of switches) without considering actual condition.	This will also require an uplift to our [CIC] implementation and Asset data remediation.	
[CIC] is used as system of record, maintenance strategies and plans, applied across broad asset types	Develop specific asset strategies and plans for each individual asset type to ensure they are usable and functional.	**Risk framework, modelling and investment planning** **Maintenance management**
Condition data is non-structured data, unclear on accuracy, currency and validity	Structured data (ie data base with specific fields and data types per field).	**Asset data**
A range of inconsistent and uncontrolled asset risk models that were custom made in house	Consistent risk framework and model for all assets to enable comparison of risk on common basis for improved prioritisation and optimisation.	**Risk framework, modelling and investment planning** **Maintenance management**
Some staff focused on managing and updating models, but not a broad level of asset modelling and replacement planning	Uplift in systems and staff knowledge so that asset management practices are broadly known and consistent practices and models applied.	**Knowledge and skills** **Risk framework, modelling and investment planning**
Manual processes to ensure that appropriately skill and qualified staff are deployed in the field for each job.	Centralised data base that is used to automatically ensure that field crews have the right staff (skills and qualifications) for each workorder issued.	**Knowledge and skills**

3.2. External review recommendations

External reviews (Section 2.1) identified a number deficiencies in our asset management system and practices that lead to poor performance during major events and in relation to network resilience and made a number of recommendations to drive improvement. An effective asset management system is an underlying enabler for AusNet to be able to correct the identified deficiencies and achieve compliance with any new obligations.

The most relevant recommendations from the Victorian Government reviews have been summarised in Table 4 below and mapped to the relevant focus area(s).

Table 4 Summary of recommendations from external reviews

#	RECOMMENDATION	IDENTIFIED GAP / FOCUS AREA
Outage review		
2	Attestation requirements	**Asset data**
3a	Respond and incorporate and guidelines issued by the responsible minister related to operational resilience	**Knowledge and skills**
17	Tracking and reporting on properties with defect notices.	**Asset data**
19	Independent assessment of AusNet's risk management practices	**Risk framework, modelling and investment planning**
Resilience review		
1	Identifying high risk locations and using geospatial analysis to identify where investment is prudent and efficient.	**Asset data** **Risk framework, modelling and investment planning**
2	The distribution businesses should be required to take an all-hazards approach to risk mitigation for the	**Risk framework, modelling and investment planning**

	purposes of safety, reliability, security and resilience of the electricity system.	
3	Understanding customer expectations and willingness to pay for investment.	**Maintenance management**

3.3. Achieving the resilience strategy

In response to the Network Resilience Review, and to improve performance for customers, AusNet has developed a Resilience Strategy. The strategy has been informed by our engagement with our Electricity Availability Panel and consumers more broadly, who have helped us to target our efforts to best meet the needs of our customers and communities.[8]

While this resilience strategy formalises our approach to improving resilience, it is important to acknowledge that this has been an area of increasing focus for AusNet, our customers, the Victorian Government and industry regulators. Our Resilience Strategy describes our vision and approach for ensuring that we factor resilience into our decision-making, so that we deliver optimal outcomes for our customers when disruptive events occur. A core element of the Resilience Strategy is to develop digital solutions to replace or enhance existing practices and invest in systems and processes to avoid outages and reduce their duration.

Asset management is a core part of the 'Prevent and Prepare' elements of the resilience strategy as shown in Figure 1. We have identified the following gaps in our systems and capabilities which need to be remediated in order to enable this to be carried out. These are listed in Table 5 below.

Figure 1 – Initiatives to improve network resilience

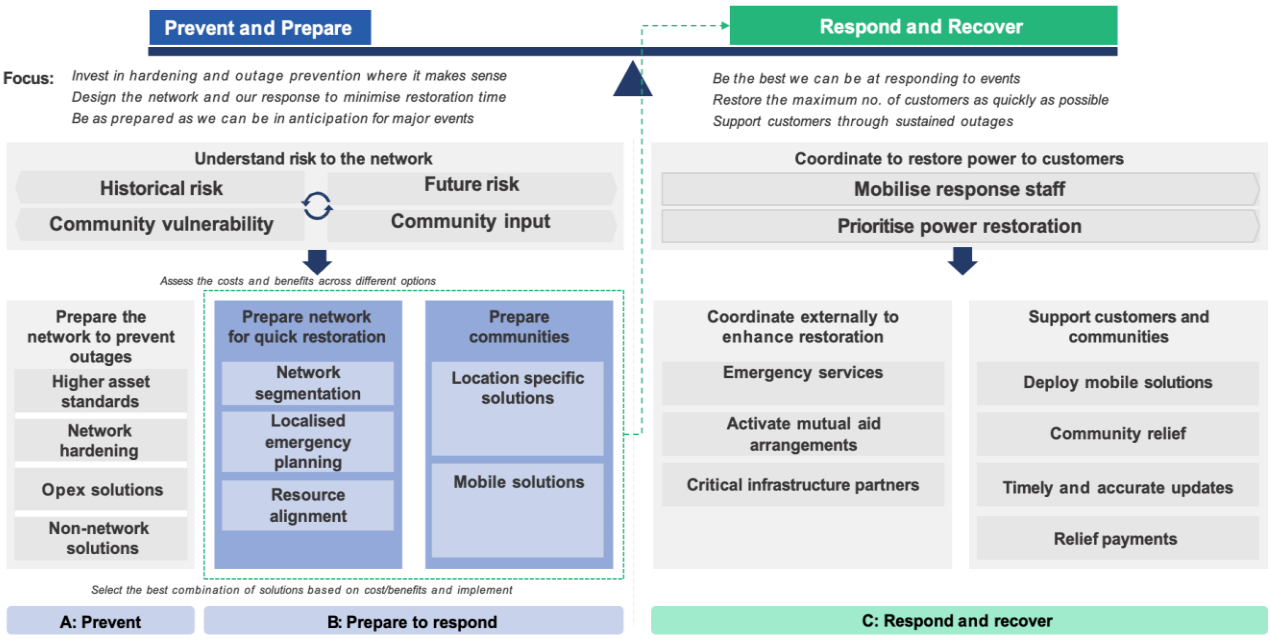


Table 5 Gaps to address to align with the resilience strategy

RECOMMENDATION	IDENTIFIED GAP / FOCUS AREA
Reliable, accurate and complete asset data to enable improved understanding of network risk and improved options identification and analysis.	**Asset data**
Uplifted skills and knowledge within the business to enable our staff to undertake appropriate analysis.	**Knowledge and skills**
Improved understanding of risk, including appropriate risk frameworks and models.	**Risk framework, modelling and investment planning**

[8] Refer AusNet Resilience Strategy

3.4. Summary of identified needs and initiatives

Analysis of our current and future state asset management practices has highlighted 4 gap areas to be addressed; asset data; maintenance management; risk frameworks and models, and investment planning and optimisation; and staff knowledge and skills. Table 7 below summarises the identified future state asset management capabilities required to address identified asset management gaps / focus areas.

Data remediation and the need to establish an appropriate database/data warehouse structures have been identified as a critical gap requiring addressing. This is because accurate data that can be accessed by software tools is required for benefits to be realised and to mitigate the risk of asset management decisions being made on the basis of incorrect, incomplete, or out of date data.

Table 6 Summary of identified need

IDENTIFIED GAP / FOCUS AREA	FUTURE STATE REQUIREMENTS
Asset data	Ensure that there is reliable, accurate and complete asset data stored as structured data to enable: • Consistency and a single source of truth. • Interconnectivity with delivery and construction partners. • Real-time condition monitoring and improved management of asset defect information. • Improved capture and recording of asset condition data. • Improved data quality that can be used by asset management functions within AusNet for analysis, improvement and reporting.
Maintenance management	Implement a risk and condition-based approach to managing network maintenance. This will move away from the current-time based approach and enable optimisation of work. It will enable: • Moving away from fixed-cycle maintenance and replacement practices to implement a condition-based and/or risk-based approach. • Improved understanding of risk and enable targeted asset management decisions. • Risk based optimisation of maintenance to improve safety, reliability, security and resilience of the electricity system. Including grouping maintenance tasks into a single outage. • Identifying high risk locations and using geospatial analysis to identify where maintenance should be focused to achieve prudent and efficient outcomes. • Review and consolidate the existing range of inconsistent and uncontrolled asset risk models so they apply consistent approaches to maintenance planning.
Risk framework, modelling and investment planning	Review and update the risk framework and models, and implement a system to enable improved investment planning and optimisation so the investment portfolio is aligned to customer expectations and willingness to pay for levels of service. Enable portfolio optimisation and risk-based scenario and decision making, beyond the outputs of core [CIC] maintenance strategies and plans.
Knowledge and skills	Provide tools to uplift and better retain staff skills and knowledge within the business to enable our staff to: • Fully understand asset management principles, the risk framework and models for planning asset maintenance and replacement to ensure prudent and efficient investments. • Respond and incorporate any guidelines issued by the responsible minister related to operational resilience. • Automate any manual processes to ensure that appropriately skill and qualified staff are deployed in the field for each job.

4. Options assessed

This section provides an overview of the options identified that may feasibly enable AusNet to address the limitations with our existing asset management systems identified in Section 3. In developing these options, we considered alternative approaches for addressing the issues and gaps identified. We specifically considered different approaches to implementation that will achieve the outcomes required for the future sustainability of the network, using different system architectures and potentially delivering different benefits.

The AER's guidance note – "Non-network ICT capex assessment approach" of November 2019 notes that non-recurrent expenditure must have a positive net present value unless a compliance requirement, or unless strong customer support and willingness to pay is demonstrated. In all cases, it is expected that timing and scope options of the investments (to demonstrate prudency) and options for alternative implementation approaches, systems and service providers (to demonstrate efficiency) will be evaluated. Assessment is to be made of the discounted costs against the benefits of the programme.

As per the AER guidelines, we examined credible options for the delivery of the asset management program. We examined whether the identified gaps could be met prudently and efficiently by leveraging our existing systems with upgrades and augmentation, or whether a new system or platform would be appropriate. We assessed these options relative to the counterfactual of retaining our existing capabilities, without further investment.

4.1. Quantifying benefits

The options have been assessed relative to their ability to address the identified asset management capability gaps, the cost of implementing the option, deliverability and risk, and the benefits expected to be obtained. The risk assessment applied AusNet's Enterprise Risk Management Framework.

The identified asset management capability gaps will be addressed through the initiatives shown in Table 10 below. There are dependencies between initiatives, with asset data improvements being a key pre-requisite for enabling maintenance management and risk modelling improvements, and knowledge and skills initiatives being key to maintaining continuity of improved performance over time.

Table 7 Description of initiatives to address each of the capability gap focus areas

FOCUS AREA	INITATIVE	DESCRIPTION
Asset Data	Asset Data Remediation	Review and update asset characteristic and condition data to ensure consistency, currency, completeness and accuracy of data. Establish databases so data is 'Structured' to be suitable for future data analysis
	Digital Asset Monitoring	Deploy sensors on high value assets to obtain live condition monitoring, to be used for asset management decision making. This will provide AusNet an improved capability to extend the life of an asset to just prior to failure and therefore maximum the serviceable life and minimise replacement costs to customers. It will also improve analysis of safety, network performance and sustainability/resilience.
	Service & Project Delivery Collaboration	Implement tools to improve collaboration with design and construction delivery partners. Improve referential integrity of data by direct integration with AusNet systems rather than ad-hoc email and file transfers.
Risk framework, modelling and investment planning	Integrate industry asset management models	Incorporate industry best practice into our risk framework and models based on practices by peer DNSPs, peak bodies and authorities such as AEMO. These frameworks and models will be integrated into our systems to ensure a consistent application and centrally maintained systems.
	Revise/Enhance Asset Risk Models	Deploy a new system(s) that will enable consistent asset risk and replacement modelling across all asset classes and

FOCUS AREA	INITATIVE	DESCRIPTION
		implement continuous improvement practices to ensure the models remain up to date with good industry practice.
	Enhance asset risk framework	Incorporate asset condition and quality feeds into the asset management risk framework and risk models to develop a holistic view of network risk.
Maintenance management	Enhance maintenance planning through ERP improvement	Moving to condition and risk-based maintenance planning and away from time based, operation based and vendor recommendations. Improve our Predictive Asset Performance Management (APM) approach and expand it across all asset fleets. Improved planning to bundle works together, particularly in relation to items at the 'edge' of an outage zone, rather than requiring multiple outages. Collectively delivered through upgrades to the [CIC] platform, enabled by [CIC] migration
	Automation and Integration of ARM Decisions	Application of models into [CIC] Asset Performance Management using the new [CIC]
Knowledge and skills	Skills Management	Capability data base/system that will map the capability of staff to work orders to form crews that have the right qualifications, skills, and licence to work on the assets and for each work order issued. This is currently a manual process that requires a high level of effort and has significant risk of dispatching incorrectly qualified crews.
	Advanced Knowledge Management	Currently a lot of information is buried in documents, where it is duplicated in multiple folder structures and documents. This system creates a source of truth for information (so the same table of information would be able to be referenced/repeated in different documents), lowering the barrier for updating and reviewing information.

Benefits from these investments were assessed relative to the counterfactual of retaining the existing systems with no additional investment. The benefits expected to be achieved through the asset management program, and included in the cost benefit model, were:

- Reduction in planned outage duration for customers through improved planning and bundling of work
- Reduction in unplanned outages due to improved targeting of maintenance and replacement on higher risk assets
- Reduced expenditure – compared to the counterfactual case – due to improved targeting of asset maintenance through risk and condition based planning and improved prioritisation.
- Improved staff efficiency/productivity as a result of improved systems for analysis, structured data and data quality

The benefits obtained by AusNet were calculated based on review of historical asset maintenance expenditure, review of systems and processes for key work types, and assessment of potential savings from improved performance. Workshops with the key work groups identified potential productivity improvements, with expected benefit valued based on the average salary of a full-time employee.

The economic value of the reduction in outages experienced by customers was calculated based on the average value of customer reliability (VCR) for the AusNet distribution network.

These benefits have all been modelled in the economic assessment of identified options based on the consistent set of assumptions set out in Table 8 below.[9]

[9] Refer AusNet EDPR 2027-31 Digital Program NPV Model

Table 8 Key assumptions

Assumption	Value	Comments
WACC	5.45%	Based on EDPR WACC
Improved business efficiency	[CIC]	Efficiency gains from improving the asset management systems, data, and tools that enable more efficient work and decision-making.
Value of customer reliability ($ per hour)	[CIC]	Modelled average VCR for AusNets network.
Reduction in asset failure CMOS	[CIC]	Reduction of asset failures through improved analysis and decision making enabling condition and risk based replacement of assets prior to failure.
Asset maintenance cost efficiency	Calculated based on historical trend.	Avoided increase in opex as a result of setting implementation condition and risk-based maintenance

In addition to the benefits that have been quantified and included in our cost benefit analysis, we have identified the following benefits we were unable to quantify at this time:

- Safety improvements
- Efficiency through works planning (better scheduling of works to outages)
- Compliance such as ESV General Duties

4.2. Options analysis

We identified and assessed three options for the asset management program. Two options see the identified needs addressed by improving our systems and functionality through different system architecture approaches. These options have been assessed relative to the counterfactual option of maintaining existing capabilities with no further investment.

Table 9 below outlines the options considered by this business case. For Options 2 and 3, the resulting asset management functionality is forecast to provide the same benefits, however the differing system architectures result in differing implementation costs and risks.

Table 9 Options considered

OPTION	SUMMARY
Option 1: Maintain existing capability (counterfactual)	Business-as-usual case that maintains the existing systems and processes. This is not considered a viable option but is used to measure the benefits of the alternative options.
Option 2: Leverage and augment existing systems	This option proposes to extend our existing suite of software systems and improve asset management systems to address the identified needs.
Option 3: Deploy a new platform / system architecture	This option proposes to retire our existing suite of software systems and replace them with a new comprehensive platform – or suite of systems – that will meet the identified needs.

4.2.1. Option 1: Maintain existing capability (counterfactual)

This option sees our asset management systems remain at their current level of maturity, with the existing systems and processes remaining in place. This option sets out the base case (counterfactual) for assessing the value of the alternative options 2 and 3. It is not considered a credible option by AusNet as it will not enable the improved performance of our electricity services or meet our customers' expectations.

Under this option, no new functionality will be added and there will not be any dedicated asset data improvement program. This will result in increasing risk to the service levels we can provide, particularly related to network performance and safety. Our maintenance program will remain predominantly time-based, with the likelihood of progressively increasing cost and customer outages due to asset failures. In addition, we will retain the existing manual processes and continue to undertake our asset management analysis using spreadsheets rather than an integrated system, which will continue to impact productivity.

Our assessment of this option found that it does not address any of the identified system and capability gaps, results in an ongoing elevated level of risk and is not consistent with AusNet's Asset Management Objectives.

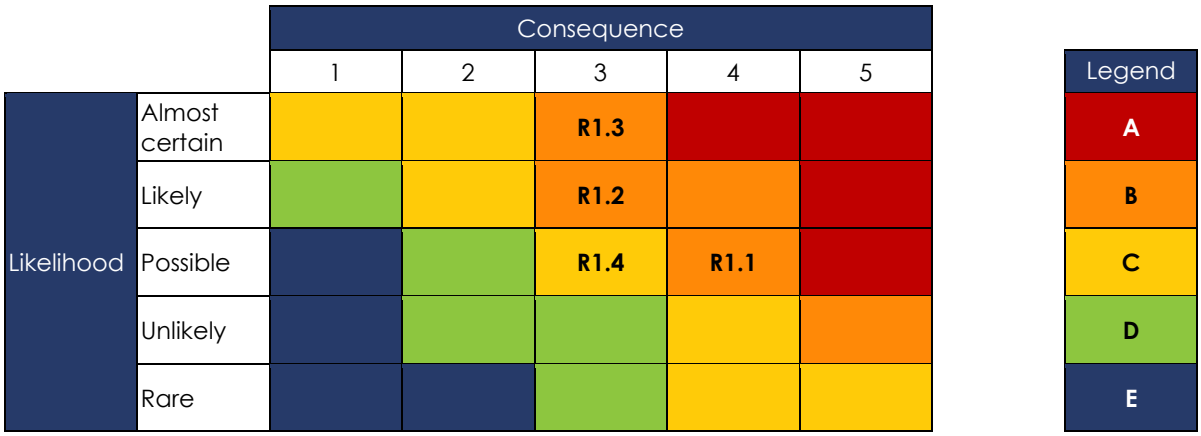
Table 10 Summary of Option 1's ability to meet identified capability gaps

Identified capability gap	Addressed?
Asset data	No
Risk framework, modelling and investment planning	No
Maintenance management	No
Knowledge and skills	No

The risk profile of this option has been assessed using our Enterprise Risk Management Framework and the key risks are presented in Figure 2. Risks of highest concern are rated red, whereas those of lowest concern are rated blue.

This option presents elevated risk, with the gaps in asset management capabilities having the potential to manifest as increasing outages and costs for customers, and regulatory impacts for AusNet.

Figure 2 – Option 1 risk assessment



	RISK	CONSEQUENCE	LIKELIHOOD	RISK RATING
R1.1	Risk of non-compliance and regulatory intervention due to unforecast asset failures	Level 4: Potential for major litigation and punitive fines with likely additional audit and reporting requirements imposed	Possible	B
R1.2	Customers experience increasing outages from unforecast asset failures due to non-optimised condition monitoring and	Level 3: Repeated localised service impacts result in increased customer complaints, with potential regulatory impacts	Likely	B

	maintenance for ageing assets also experiencing pressures from external factors such as climate change			
R1.3	Escalating asset maintenance cost due to non-optimised maintenance plans for ageing assets also experiencing pressures from external factors such as climate change	Level 3: Incremental cost in excess of $2m per year experienced due to non-optimised maintenance works	Almost certain	**B**
R1.4	Sub-optimal network planning results in increased cost, due to limitations and lack of integration of current tools, and challenges retaining and sharing expert staff knowledge	Level 3: financial impact of poor decision making resulting in increased expenditure >$2m	Possible	**C**

Overall, we do not consider Option 1 as a viable option as it sees ongoing elevated risk, exposing customers to increasing outages and costs as our network ages and complexity increases, This option does not enable AusNet to achieve our asset management objectives and, as a result, this option is not recommended.

4.2.2. Option 2: Fully leverage and augment existing systems

This option proposes to upgrade the existing systems and process to improve our asset management practices. This will include adding new modules and integrations to [CIC] that will enable risk and condition-based maintenance, and assessment of asset risk using data stored within [CIC], hence improving overall platform capability.

Adding new functionality to our existing platform will provide new and enhanced capability for our asset management team. This approach will maximise the value of the investment in our existing systems (such as [CIC]) and minimise the risk to delivery and integration as the existing systems and their integration within AusNet's ICT environment are already established. This will increase certainty of delivery of the systems to the proposed schedule and budget to enable AusNet to continue to provide services to the level that our customers expect.

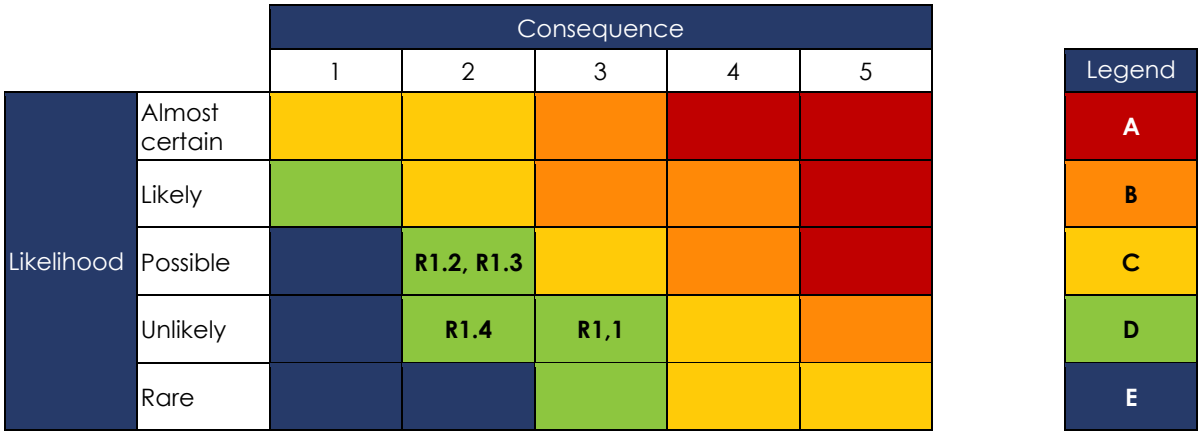
The full program of initiatives to be implemented under this option is as detailed in Section 4.1, Table 7. This option addresses all of the identified system and capability gaps, as shown in Table 11.

Table 11 Summary of Option 2's ability to meet identified capability gaps

Identified capability gap	Addressed?
Asset data	Yes
Risk framework, modelling and investment planning	Yes
Maintenance management	Yes
Knowledge and skills	Yes

We have assessed the key risks following implementation of Option 2 using the Enterprise Risk Management Framework. Our analysis shows that the risks under this option are reduced relative to Option 1, as reflected in Figure 3 below. The enhanced asset management functionality sees both risk consequence and likelihood decrease, as impacts are forecast to be less frequent and have reduced magnitude of cost and customer impact. The enhanced functionality and delivery of AusNet's asset management objectives sees risks reduced to as low as reasonably practical.

Figure 3 – Option 2 risk assessment



	RISK	CONSEQUENCE	LIKELIHOOD	RISK RATING
R1.1	Risk of non-compliance and regulatory intervention due to unforecast asset failures	Level 3: Potential regulatory impact diminished by demonstratable 'best industry practice' asset management practices	Unlikely	**D**
R1.2	Customers experience increasing outages from unforecast asset failures due to non-optimised condition monitoring and maintenance for ageing assets also experiencing pressures from external factors such as climate change	Level 2: Reduced frequency of asset outages reduces magnitude of customer impact and escalation consequence of complaints and potential regulatory impacts	Possible	**D**
R1.3	Escalating asset maintenance cost due to non-optimised maintenance plans for ageing assets also experiencing pressures from external factors such as climate change	Level 2: New functionality diminishes potential for cost growth relative to optimal program, with only a residual optimisation potential remaining (consequence level $500k per year)	Possible	**D**
R1.4	Sub-optimal network planning results in increased cost, due to limitations and lack of integration of current tools, and challenges retaining and sharing expert staff knowledge	Level 2: New functionality diminishes potential for sub-optimal network planning, with only a residual optimisation potential remaining (consequence level $500k per year)	Unlikely	**D**

The total cost of this option is $71.5 million capex and $3.2 million opex, as set out in Table 12. The opex included in this business case is only for the additional ongoing opex directly required by this project, such as licencing and vendor support for new functionality. Opex for existing system licences and support is not included, so there is not double counting of this expenditure.

The Net Present Value (NPV) of this option is $0.1million[10], demonstrating the value of implementing this option compared to retaining existing systems. As highlighted in Section 4.1, this positive NPV does not include additional identified benefits that were unable to be quantified, including safety improvement and compliance risk costs.

Table 12 Option 2 expenditure forecast ($'million real FY24)

Item	FY27	FY28	FY29	FY30	FY31	Total
Capex	$3.1	$17.1	$15.6	$19.9	$15.8	**$71.5**
Opex	$0	$0	$0.45	$1.36	$1.36	**$3.17**
Total	**$3.1**	**$17.1**	**$16.05**	**$22.26**	**$17.16**	**$74.67**

[10] Refer AusNet EDPR 2027-31 Digital Program NPV Model

We consider that overall, this option realises AusNet's target risk profile, is consistent with our asset management objectives, and has low deliverability risk. The NPV is positive and higher than Option 3, hence this option is recommended.

4.2.3. Option 3: Deploy a new platform / system architecture

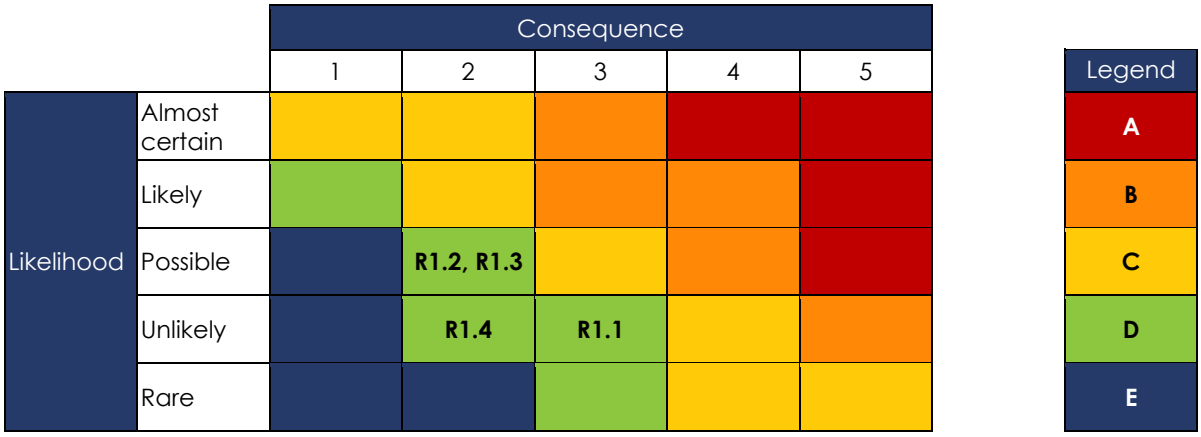
This option proposes to replace our asset management systems with a new platform and architecture. This approach would use [CIC] and some of our existing core enterprise systems as the foundations for data storage but would deploy a new platform for undertaking analysis and planning rather than using the inbuilt functionalities of our current core systems.

Consistent with Option 2, this new platform would deliver all the required functionality, address the capability gaps and minimize residual risk as shown in Table 13 and Figure 4.

Table 13 Summary of Option 3's ability to meet identified capability gaps

Identified capability gap	Addressed?
Asset data	Yes
Risk framework, modelling and investment planning	Yes
Maintenance management	Yes
Knowledge and skills	Yes

Figure 4 – Option 3 risk assessment



	RISK	CONSEQUENCE	LIKELIHOOD	RISK RATING
R1.1	Risk of non-compliance and regulatory intervention due to unforecast asset failures	Level 3: Potential regulatory impact diminished by demonstratable 'best industry practice' asset management practices	Unlikely	**D**
R1.2	Customers experience increasing outages from unforecast asset failures due to non-optimised condition monitoring and maintenance for ageing assets also experiencing pressures from external factors such as climate change	Level 2: Reduced frequency of asset outages reduces magnitude of customer impact and escalation consequence of complaints and potential regulatory impacts	Possible	**D**
R1.3	Escalating asset maintenance cost due to non-optimised maintenance plans for ageing assets also experiencing pressures from external factors such as climate change	Level 2: New functionality diminishes potential for cost growth relative to optimal program, with only a residual optimisation potential remaining (consequence level $500k per year)	Possible	**D**

R1.4	Sub-optimal network planning results in increased cost, due to limitations and lack of integration of current tools, and challenges retaining and sharing expert staff knowledge	Level 2: New functionality diminishes potential for sub-optimal network planning, with only a residual optimisation potential remaining (consequence level $500k per year)	Unlikely	**D**

One key assumption of this option is that the new platform will deliver many of the new capabilities which would require augmentation of the existing systems under Option 2. As a result, there is a higher upfront cost related to the implementation of the new platform and a reduced cost, compared to option 2, in the final three years.

This approach requires additional integration with multiple enterprise systems compared to Option 2 and therefore presents and increased risk to successful deployment of the systems and to the timeframes for delivery. This option will also require additional licensing costs and implementation costs. To enable delivery within the regulatory period, implementation costs are also accelerated relative to Option 2. Therefore, while this option will address the identified need, it comes with a higher risk and capital cost.

The total cost of this option is $78.0 million capex and $4.0 million opex for additional licences and vendor support, as set out in Table 14. The Net Present Value (NPV) of this option is -$7.6 million[11], demonstrating that this option is not economic.

Table 14 Option 3 expenditure forecast ($'million real FY24)

Item	FY27	FY28	FY29	FY30	FY31	Total
Capex	$12.0	$24.0	$12.5	$16.8	$12.7	**$78.0**
Opex	$0.5	$0.6	$0.4	$1.3	$1.3	**$4.0**
Total	**$12.5**	**$24.6**	**$12.9**	**$18.1**	**$14.0**	**$82.0**

Our assessment of this option found that while this option addresses all of the identified system and capability gaps, it results in an ongoing elevated level of risk and is not consistent with AusNet's Asset Management objectives.

[11] Refer AusNet EDPR 2027-31 Digital Program NPV Model

5. Preferred option

Our analysis has found that Option 2 provides the highest and only positive NPV and will result in reduced cost to our customers while meeting customer expectations.

Option 2 presents the least cost and deliverability risk option to support the achievement of AusNet's customer commitments of improving resilience and service outcomes, and managing our network asset risk and cost effectiveness. The conclusions of this assessment are shown by Table 15 below.

Table 15 Summary of options assessment against assessment criteria

Criteria	Option 1	Option 2	Option 3
NPV ($'000, real FY24)	$ -	$0.1 million	-$7.6 million
Capex ($'000, real FY24)	$ -	$71.5 million	$78.4 million
Opex ($'000, real FY24)	$ -	$3.17 million	$3.97 million
Technically feasible	✓	✓	✓
Addresses identified need	×	✓	✓
Meets customer expectations	×	✓	✓
Deliverable within timeframe	n/a	✓	✓ **(Risk of delay)**
Delivery risk	n/a	**Low**	**Moderate**
Preferred option	×	✓	×

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