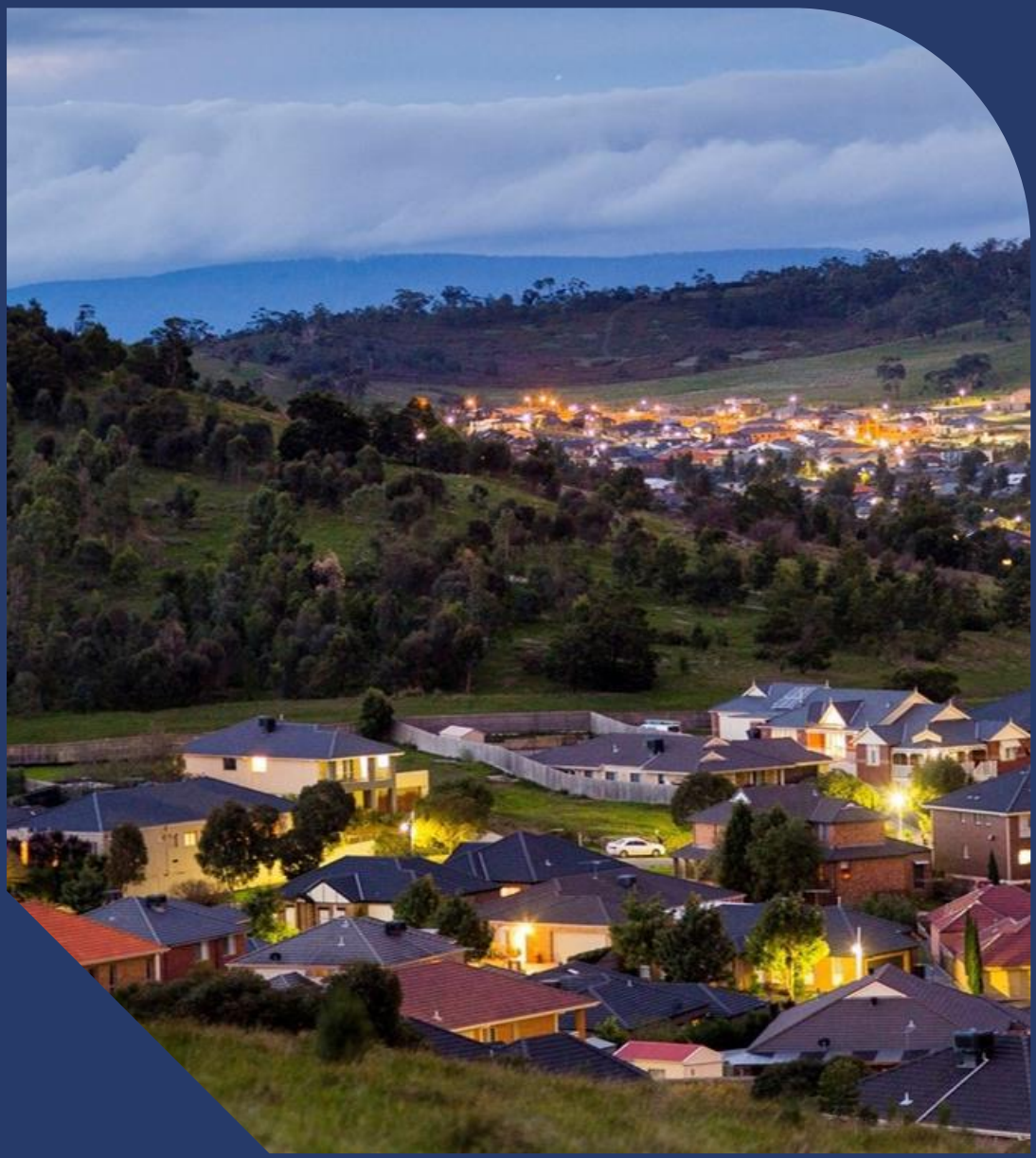
AusNet

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

Business case: Field Enablement

Date: January 2025



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Document history

DATE	VERSION	COMMENT
07/10/2024	V1.0	Initial draft business case for review
29/10/2024	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
Advanced Distribution Management System (ADMS) Business Case	V4.0	AusNet Services
Technology Strategy and Investment Plan	V3.0	AusNet Services
AusNet EDPR 2027-31 Digital Program NPV model	V3.0	AusNet Services
AusNet Resilience Strategy	V3.0	AusNet Services

Approvals

POSITION	DATE
Digital & Technology – Strategy, Regulatory and Partner Management	December 2024
Digital & Technology – Architecture	December 2024
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1. Executive summary

The way that field crews are managed and the digital tools available to them are critical to the way they operate and can materially impact on our network performance, customer experience, and maintenance costs.

A continued focus on these aspects of field crew operations will be important as our network continues to grow and change. During the 2027-31 regulatory control period, AusNet intends on investing $17.1 million in capex and $10.2 million opex to implement field enablement initiatives.

Our growing network, customer expectations and extreme weather events increase the expectations on our field crews to efficiently and effectively complete repair and maintenance works. As we continue to pursue reliability and resilience improvements, and improve and adapt our asset management practices, this will place greater demands on our scheduling and planning teams to ensure effective work order packaging to utilise resources efficiently and minimise customer disruptions.

The increasing frequency and severity of extreme weather events experienced during the 2021-2026 regulatory control period is also driving increased demand on our field crews and driving of the need for investment in digital enablers to support more efficient and coordinated field work delivery.

Currently, AusNet's field crews and fault location visibility solutions are primarily outsourced and driven by our delivery partner, with additional parties known as field service providers (FSPs) engaged when further support is required such as during major events. Recent State Government reviews[1] aimed at examining network performance in the wake of severe weather events and AusNet's own independent post implementation review (PIR) by Nous on our response to the 2024 February storms have highlighted deficiencies in our field management practices that need to be addressed to improve our outage management capability, reduce restoration timeframes, and improve customer outcomes.

To ensure we have the necessary capability to manage the network effectively, AusNet has identified the following gaps in our existing systems' capabilities and functionalities that require addressing:

- Multiple different systems and process used to manage different FSPs.
- Inefficient systems for making changes so new data can be collected by field crew.
- Low degree of 'data richness'.
- Lack of visibility in relation to field crew location, fatigue limits (hours worked), capability or progress on task.
- Reliance on manual process by the controllers due to lack of system integration.
- Inefficient process for prioritisation and reprioritisation of work orders, particularly between different FSPs.
- Difficult to engage additional FSPs for the purpose of surge capacity support during major events.
- Field crew lack of real-time access to the same information as the Control Room at all times, and vice versa giving rise to the potential for miscommunication between field crews and controllers.

To address the above identified needs, we have developed the following initiatives to be undertaken during the FY27-31 regulatory control period.

- **Field crew mobile solutions (energy-related activities)**: Provides real-time faults management including damage assessment during storms to enable seamless interactions between the control room and the field.
- **Field crew mobile solutions (non-energy activities)**: Provides real-time network management information related to network activities that are not related to unplanned outages. This can include vegetation management activities, asset inspections and work orders related to asset replacements.
- **Field crew and fault location visibility**: Enables planners and schedulers to precisely locate both faults/worksites and field crews to optimise work packaging and dispatch. This will also provide management level visualisation of where crews are currently located on a network map for strategic review and assessment of how field crews are being deployed, how fatigue is being managed, if overflow crew support is needed and if there are any network hot spots that may indicate an emerging issue. This tool is not intended to be used to manage individual crews and tasks.

[1] See Victoria State Government, Electricity Distribution Network Resilience Review, Final Recommendations Report, May 2022; and Victoria State Government, Network Outage Review, Independent review of Transmission and Distribution Businesses Operational Response, Final report, September 2024.

- **Delegated switching**: Provides delegation to field crews for switching in specific emergency scenarios using SCADA capabilities to more rapidly begin field works and reduce restoration times. This will save time by avoiding creating a bottle neck with the controllers under high workload conditions.

Undertaking these initiatives will drive more resource-efficient planning and scheduling, more efficient usage of field crews, better engagement with our delivery partners, reduced restoration timeframes and more accurate estimations for when power will be restored, and avoidance of increased planned and unplanned outages. Ultimately, these investments will enable us to maintain our customer experience in the years to come despite increasing challenges and complexities facing our network from the transition to renewables, increasing uptake of customer energy resources (CER), and the increase frequency and severity of extreme weather events from climate change.

We examined three options for delivering the above initiatives which are summarised in the Table 1 below.

Table 1 - Summary of options considered

OPTION	SUMMARY
Option 1: Maintain existing systems, augment with task specific applications	Retain the existing system and deploy task specific software solutions to address the identified deficiencies, incorporate new functionality and resolve manual processes.
Option 2: Fully leverage and augment existing systems	Address the identified deficiencies and develop new functionalities by augmenting and upgrading the existing system to retain all functionality within the same software environment.
Option 3: Deploy a new platform / system architecture	Replace the existing systems with a new platform that will provide all functionality within a single software environment.

Each of the options assessed meet the identified need. However, the degree to which the options prudently and efficiently meet the identified need and address identified capability gaps varies. Consequently, options have been assessed based on the extent to which they address identified capability gaps in addition to cost benefit analysis findings and risk assessment findings from applying AusNet's Enterprise Risk Management Framework.

A qualitative assessment was also undertaken to assess the extent wo which each of the options aligned with AusNet's technology strategy and whether it met customer expectations and supported the achievement of AusNet's customer commitments.

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, as shown by table 2 below.

Table 2- Options analysis summary

Criteria	Option 1	Option 2	Option 3
NPV ($'000, real FY24)	-$5,928	$385	-$3,265
Capex ($'000, real FY24)	$19,071	$17,121	$20,121
Opex ($'000, real FY24)	$11,100	$10,170	$10,970
Technically feasible	✓	✓	✓
Addresses identified need	× (Partial)	✓	✓
Deliverable within timeframe	✓	✓	× (Risk of delay)
Delivery risk	Moderate	Low	Moderate
Preferred option	×	✓	×

Option 2 is considered the preferred option as it has the highest, and only positive, NPV of the options considered. It is also the only option that fully addresses all the capability gaps identified with our field operations, exposes AusNet to the least risk, best supports the achievement of AusNet's customer commitments of improving resilience, service outcomes and enhancing customer experience, and is the most aligned to AusNet's technology strategy of the options considered.

2. Context

AusNet manages and maintains a physical asset base of approximately 38,000 km of overhead lines, 8,000 km underground lines, 837,000 poles, and 9,200 km of vegetation maintenance spans. Field crews contracted by AusNet maintain the performance of these assets each year to manage the safe operation of the network, enabling us to provide a resilient and reliable service to our customers.

These works are broadly split into two areas:

- "Energy" related works are primarily related to fault response and are therefore focused on switching and works to restore supply or reconfigure the network for the purpose of minimising interruptions to customers.
- "Non-Energy" works are focused on planned works and cover maintenance of assets, replacement of assets, installing new assets and non-asset activities such as vegetation inspections. For these work orders, switching may be required to isolate an asset, but is not the primary objective.

The approach to managing field crews and the digital tools that are available to them are critical to the way they operate, and therefore can have a material impact on our network performance, customer experience, and operational and maintenance costs.

2.1. Current field crew management practices

During the current regulatory period (2021-26), our field crew and fault location visibility solutions are primarily outsourced and driven by our delivery partner Downer. Through this relationship additional parties known as field service providers (FSPs) are engaged when further support is required, such as during major events.

Under these arrangements FSPs use their own digital solutions within their organisations to manage operations and individual crews. Their systems communicate with AusNet's systems through an Application Programming Interface (API) that enables data sharing between AusNet's and the FSP organisation's systems. These APIs were purpose built through 2021 and 2022 for the incumbent FSPs.

While the API enables efficient and timely communications between the businesses, it is not considered by AusNet to be a 'data rich' environment as it does not provide visibility to AusNet of important attributes needed for managing field crews such as field crew locations, allocated tasks and status of current tasks.

It is also not an 'agile' system in that when additional data is required to be captured, the process involves AusNet updating their systems and the API, then the FSPs separately updating their systems to connect to the API. The two separate process creates implementation risk and potential delays. This means that both AusNet and the FSPs need to invest to obtain new capabilities. In addition, if a new FSP is to be engaged in a permanent or substantial role, then a new API interface would need to be created.

Other FSPs that are contracted from time to time are managed through a range of different methods and systems depending on the primary tasks, extent of the engagement and technology employed by the FSP.

As a result, the current approach has resulted in a 'patchwork' of communications methods, data flows and capture, protocols and practices that are not consistent. These issues, and the resulting loss of visibility and control, became apparent during the 2024 storm events.

2.2. Poor customer outcomes

AusNet has found that while the systems and practices used for managing field works are functional, recent events have demonstrated that when under pressure there are material deficiencies in the current practices that lead to poor outcomes for our customers. Further, we have identified that there are inefficiencies that could be addressed to improve overall operational performance and reduce operating cost. Our engagement with customers and communities in the aftermath of the February 2024 storms has confirmed the levels of service that our customers expect from us in these circumstances and their willingness to pay for them[2].

[2] Refer AusNet Resilience Strategy

Adverse impacts on customer service levels are most notable during major events, such as the February 2024 storms, where FSPs must ramp up to meet demand and AusNet's systems and controllers are at peak capacity in seeking to restore supply quickly and safely. Poor service outcomes that were experienced include:

- Prolonged outage times that would be avoidable through improved visibility, control and prioritisation of outage restoration.
- Inefficient field operations through lack of visibility and control of crews, and therefore increased costs.
- Potential for real or perceived public safety hazards, such as downed lines or other faulted assets are not effectively prioritised for remediation. Examples were cited in the Nous Post Implementation Review where downed lines were not fixed for several days.

The following sections describe the current state of how the network is managed, recent reviews that have identified deficiencies in the service outcomes, and actions currently being implemented to start addressing the issues.

2.3. Recent reviews

Since 2022 the Victorian Government has undertaken two detailed reviews into network performance, with a focus on major events and resilience. The two key reviews were the Network Resilience Review[3] and Network Outage Review[4]. Findings from these reviews have highlighted opportunities to improve how we manage outages to ensure efficient restoration of electricity services. These reviews have shown that AusNet needs to do more to improve network management.

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.

The **Network Resilience Review** made 8 recommendations to improve network resilience and management of network outages. These recommendations are primarily focused on actions that should be undertaken by the electricity businesses and include improved use of geospatial data, improved collaboration with other emergency support agencies, improved communications with customers and sharing data with other agencies.

In addition, an independent **Post-Implementation Review (PIR)** commissioned by AusNet was conducted by Nous[5] on our response to the February 2024 storms. This report identified several shortcomings with how the network was managed during the major event and identified the lack of visibility and control over field crews as a contributing factor to long restoration timeframes. Key recommendations from the reports that are relevant to the improved management of field crews include:

- Action 2.2: Implement process and technology changes to reduce call traffic and allow greater time for restoration effort
- Action 3.1: Improve the functionality and capacity of ADMS during storm events where it is related to capturing full job information, including the location of field crews, to gain visibility of field operations during unplanned outage events.
- Action 3.2: Upgrade system access and functionality for critical staff to improve visibility of damage, assets and resources

A number of these actions are recommended to be completed prior to the FY27-31 regulatory period. AusNet has initiated action to give effect to these recommendations, including developing a resilience strategy and progressing work to improve field crew management.

[3] Victoria State Government, Electricity Distribution Network Resilience Review, Final Recommendations Report, May 2022
[4] Victoria State Government, Network Outage Review, Independent review of Transmission and Distribution Businesses Operational Response, Final report, September 2024.
[5] Post Incident Review into AusNet's response to the February 2024 outage event, Nous, May 2024

2.4. Resilience Strategy

In response to the described reviews, AusNet has developed a Resilience Strategy for detailing planned performance improvements. 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.[6]

While this resilience strategy formalises our approach to improving resilience for the first time, 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. This includes systems that improve the functioning of field crews through improved and streamlined communications with the control room and improved data availability through field devices and systems. Also important are common systems and processes applicable across all FSPs to streamline engagement and coordination of additional FSPs as needed to address surges in demand, such as during major events.

These solutions have been collectively termed "field enablement", with key functionality areas being:

- Asset inspection and maintenance mobile solution
- Field crew and fault location visibility platforms
- Energy mobile solution and delegated switching

An additional advantage of this approach is that it will provide management a view of where field crews are, their status and capabilities in a dashboard style view to enable more informed and rapid decision-making during major events reduce restoration timeframes to avoid extended outages.

The Field Enablement program is aligned with the ADMS program, which also addresses actions from recent reviews and is highlighted in the Resilience Strategy.

2.5. Investments in the 2021-26 regulatory period

Nous's PIR of the February 2024 storms, identified issues with the prioritisation, control, and visibility of fieldwork that needed near term action during the current regulatory period. Given the criticality of this work, and consistent with expectations of our customers, AusNet is commencing work within the 2021-26 regulatory period for digital upgrades to field crew management systems and processes. These works will continue into the 2027-31 period, as detailed in this business case.

Key investments commencing in the current period include:

- Commencing work on mobile switching software – [CIC] – that will provide the platform for developing the further required capabilities during the 2027-31 regulatory period.
- As part of [CIC] upgrade, we are implementing the [CIC] Mobility Solution to enable non-energy field work for some smaller work groups. This system will form a platform to expand across capabilities and work groups in the next period.

[6] Refer AusNet Resilience Strategy

3. Identified need

We have considered the recommendations of the Nous report, the Government reviews, experience of our controllers and customer feedback in identifying the shortcomings of our field work management systems and practices. We have identified that further improvements to our management systems and tools are required, particularly during major events to improve customer experience, drive efficiency in our operations, and more effectively manage increased workload and demand for field services.

3.1. System shortcomings

Our experience with operating the network and our observations regarding the increasing complexity of operating and maintaining our network has exposed deficiencies in our current approach to managing field works. These shortcomings are summarised in the sections below and reflect observations from the Network Resilience Review and Network Outage Review and an independent review commissioned by AusNet[7].

Controllers

There was a lack of clarity on how to incorporate reported safety hazards into the prioritization framework, especially for low-priority faults affecting single customers. This led to downed wires remaining near homes or roads for extended periods, posing safety risks.

Differences in governance and reporting lines between the primary delivery partner, surge capacity field crews, and vegetation management reduced visibility and control for the Incident Management Team (IMT) and the Central Emergency Operations Team (CEOT). This impacted the effectiveness of the in-field response.

Additionally, the CEOT faced challenges due to limited specialist resources, such as dispatchers and controllers. Ramping up the workforce required rostering less experienced surge capacity resources, which was problematic during high-pressure situations. The planning and scheduling team within the primary service provider also faced constraints in processing the volume of work, delaying restoration efforts.

Overall, these issues highlight the need for better integration of systems, improved field communications and data capture systems, and clearer guidelines to improve the effectiveness of controllers during emergency response efforts.

Field crews

There were inefficiencies due to the lack of integration between different systems used by primary and surge capacity field crews, leading to downtime and miscommunication. Field crews often had to manually update job statuses via phone or email, which delayed restoration efforts. The CEOT was overwhelmed with phone calls, causing significant wait times for field crews needing instructions or updates, further delaying their work.

Additionally, there were problems with the handover processes during shift changes, resulting in lost time as new staff had to catch up on the situation. The use of two separate methods for dispatching work to field crews created inefficiencies, as Field Delivery Leads could not access a single integrated view of faults, priorities, and workforce status. This hindered optimal decision-making and reduced workforce efficiency, leading to longer outage durations.

Overall, these issues highlight the need for better integration of systems, clearer communication channels, improved field communications and data capture systems to improve the effectiveness of field crews during emergency response efforts.

Systems

One major problem was the lack of integration between different technology systems used by primary and surge capacity field crews, which led to inefficiencies and delays.

The Advanced Distribution Management System (ADMS)[8] experienced slowdowns due to high demand, and its integration with other systems was not optimal. This caused delays in dispatching work orders and hindered the ability

[7] Post Incident Review into AusNet's response to the February 2024 outage event, Nous, May 2024
[8] Upgrades to ADMS are being progressed to address these issues. Refer to EDPR 2027-31 ADMS business case for details.

to get a comprehensive view of the network status. Additionally, the system's capacity and functionality were not sufficient to handle the scale of the event, leading to further inefficiencies.

Field crews faced challenges with updating job statuses and receiving instructions due to these system limitations. The lack of a single, integrated dashboard for CEOT operators to access all necessary information also slowed down the restoration process. Furthermore, the manual processes implemented during the event to prioritize restoration work were prone to errors and inefficiencies.

Overall, these system issues highlight the need for better integration, increased capacity, and improved functionality of technology systems including work visibility at an aggregated level to management to enhance the efficiency and effectiveness of emergency response efforts.

3.2. Increasing workload

The demand on our field crew and controllers is expected to continue to increase due to our increasing network capex program and the growth of our network with respect to the number of connections, maximum demand, complexity caused by increasing penetrations of Distributed Energy Resources (DER), including electric vehicles, battery systems and solar PV and increasing frequency and severity of extreme weather events. As an example, the February 2024 storms impacted over 300k unique NMIs and with associated work orders across this volume of faults.

These drivers will lead to increases in the volume of work that will be generated for our crews to deliver. In addition, as we continue to pursue reliability and resilience improvements, and continue to improve and adapt our asset management practices, we will require more effort from our scheduling and planning teams to ensure effective packaging of work orders that minimise disruptions to customers and make prudent use of our resources.

This reinforces the need for an efficient, integrated and effective system for managing our field crew to avoid overloading our controllers with work and stress, particularly during times of major events, and delivering the level of reliability our customers expect from us.

3.3. Summary of key gaps in current capabilities

Sections 2, 3.1 and 3.2 above describe the challenges and existing gaps in our capabilities to most efficiently and effectively manage the range of field works across our network, with the associated impact on customer experience and workload for our operators. The findings from the Victorian State Government reviews and from our internal independent review have also identified a number of areas where our existing systems are no longer adequate to manage the network effectively, particularly during major events.

To ensure we have the capabilities to most effectively manage our network, we need to address the following gaps in our existing systems' capabilities and functionalities:

- Multiple different systems and process used to manage different FSPs.
- Inefficient system for making changes so that new data can be collected by field crew.
- Low degree of 'data richness'.
- Lack of visibility in relation to field crew location, fatigue limits (hours worked), capability or progress on task.
- Reliance on manual process by the controllers due to lack of system integration.
- Inefficient process for prioritisation and reprioritisation of work orders, particularly between different FSPs.
- Difficult to engage additional FSPs for short duration surge capacity support during major events.
- Field crew lack of real-time access to the same information as the Control Room at all times, and vice versa giving rise to the potential for miscommunication between field crews and controllers.

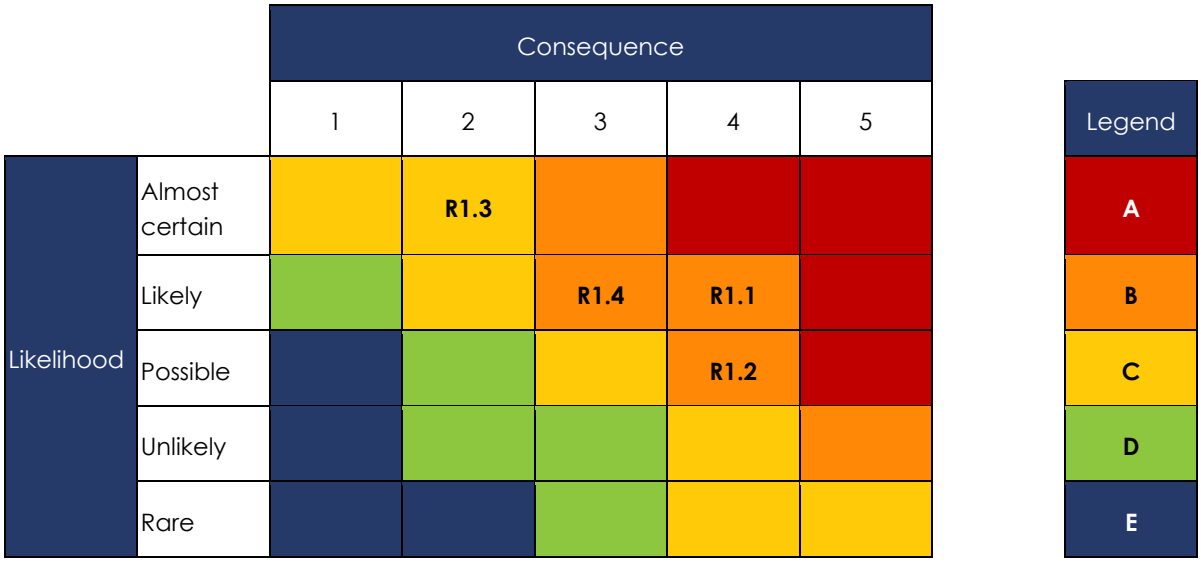
These limitations will result in deteriorating service outcomes as network complexity and frequency of storm events increases, as evidenced by the poor performance of existing systems during the February 2024 major event. It is also creating business process inefficiencies, and a reduced ability to respond quickly to customer requests for information and events on our network. Further, our current systems no longer align with our vision of delivering digital capabilities that support network stability and growth, while driving efficiencies for our customers and business.

3.4. Risk analysis

We assessed the key risks to our network using the Enterprise Risk Management Framework. Our risk assessment has considered the cumulative impact of gaps identified in section 3.3 above on our ability to provide safe and reliable electricity services to our customers.

Figure 1 shows our assessment of the network risk with the current systems and platforms in place. These risks are reassessed to determine the residual risk under each option. Risks of highest concern are rated red, whereas those of lowest concern are rated blue.

Figure 1 – Risk assessment of current state



	RISK	CONSEQUENCE	LIKELIHOOD	RISK RATING
R1.1	Inadequate visibility of field crews, work status and faults on the network. Lack of real time data, prioritisation and inefficient expansion of field crew capability to provide additional support to controllers during peak response events	Level 4: Major impact to customer service levels with regulatory implications	Likely	**B**
R1.2	In-adequate data and communications to effectively manage and coordinate field crews leads to miscommunication of work instructions	Level 4: Potential safety incident for field crew or customer impact due to incorrect operation	Possible	**B**
R1.3	Manual processes resulting in excessive workload and stress on controllers	Level 2: Health and safety impacts to controllers due to workload and stress	Almost Certain	**C**
R1.4	Insufficient data acquisition capability and inefficient processes limit ability to fully assess asset performance and optimise maintenance and work processes	Level 3: Escalating cost over time and poorer customer outcomes	Likely	**B**

4. Options assessed

This section provides an overview of the options identified that may feasibly enable AusNet to address the limitations with our existing systems identified in Section 3. In developing these options, we considered alternative approaches for addressing the issues and gaps identified. Each option considers a different approach to implementation that will achieve the outcomes required for the future sustainability of the network, using a different system architecture 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 have examined credible options for delivery of the field enablement proposal. We examined whether the requirements could be met prudently and efficiently through using discrete task specific software solutions to augment one or more existing systems, whether the existing systems could be leveraged and upgraded to fully address the identified needs, or if a new system/platform would be appropriate.

4.1. Quantifying benefits

Each of the options assessed meet the identified need. However, the degree to which the options meet the identified need and address identified capability gaps varies. Consequently, options have been assessed based on the extent to which they address identified capability gaps in addition to cost benefit analysis findings and risk assessment findings from applying AusNet's Enterprise Risk Management Framework.

The benefits to AusNet of the proposed changes were calculated based on review of the systems and process for each of the key task types and an estimation of potential savings. Analysis of historical data related to outages and safety incidents has been undertaken to assess improvements in reliability and network safety. Workshops with members of the impacted teams were undertaken to calculate the total potential time savings if new systems and/or functionalities are implemented.

A qualitative assessment was also undertaken to assess the extent with which each of the options aligned with AusNet's technology strategy and whether it met customer expectations and supported the achievement of AusNet's customer commitments.

We also considered the strong quantitative and qualitative feedback received through our customer engagement and research programs in respect of resilience. This includes our Quantifying Customer Values research project, which demonstrated that our customers place a high value on avoiding long-duration outages relative to other service level propositions put to them.

Each of the three investment options considers the investment required to implement the proposed system architecture, the residual risks and ability to address the identified need. Benefits expected to be achieved through enhanced field enablement and included in the cost benefit model were:

- Reduction of safety incidents on the network.
- Reduction in the expected outage duration, on average, for affected customers.
- Efficiency improvements during outages resulting in a reduction of emergency opex.
- Improved employee productivity.

These benefits have all been modelled in the economic assessment of identified options based on the consistent set of assumptions set out in Table 4 -below. [9]

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

Table 4 - Key assumptions

Assumption	Value	Comments
Average hourly cost ($ per hour)	[CIC]	Average staff rate applied for calculating cost savings
Value of customer reliability ($ per hour)	[CIC]	Modelled average VCR for AusNet's network
Network reliability improvement – reduction in CMOS	[CIC]	Based on recent historical data, indicating a major storm at least once every two to three years that impacts 100,000 customers. Valued using AusNet's weighted average VCR
Annual reduction in emergency opex	[CIC]	Reduction of historical average emergency opex costs (FY23 RIN, DOPEX0103).
Safety incidence avoidance	2 per year	[CIC] per incident based on obligations in AusNet's Enterprise Agreement.

Source: AusNet analysis

4.2. Options analysis

We identified three credible options that addressed the identified needs by improving our systems and/or functionality. Each option considered a different system architecture approach to address the identified need and achieve the desired outcomes required for the future sustainability of the network.

The resulting system functionality is forecast to provide the same benefits, however the system architectures to achieve the functionality is different, and each have different costs and risks. Each of the options will deliver the following initiatives:

- **Field crew mobile solutions (energy-related activities)**: Provides real-time faults management including damage assessment during storms to enable seamless interactions between the control room and the field.
- **Field crew mobile solutions (non-energy activities)**: Provides real-time network management information related to network activities and switching that are not related to unplanned outages. This can include vegetation management activities and switching for work orders related to asset replacement.
- **Field crew and fault location visibility**: Enables planners and schedulers to precisely locate both faults/worksites and field crews to optimise work packaging and dispatch. This will also provide management level visualisation of where crews are currently located on a network map for strategic review and assessment of how field crews are being deployed, how fatigue is being managed, if overflow crew support is needed and if there are any network hot spots that may indicate an emerging issue. This tool is not intended to be used to manage individual crews and tasks.
- **Delegated switching**: Provides delegation to field crews for switching in specific emergency scenarios using SCADA capabilities to more rapidly begin field works and reduce restoration times. This will save time by avoiding creating a bottle neck with the controllers under high workload conditions.

As detailed in Section 2.5, due to the timing of the need identification, some elements of these initiatives have been commenced during the 2021-26 regulatory period.

Table 5 below outlines the options considered by this business case.

Table 5 Options summary

OPTION	SUMMARY
Option 1: Maintain existing systems, augment with task specific applications	Retain the existing system and deploy task specific software solutions to address the identified deficiencies, incorporate new functionality and resolve manual processes.
Option 2: Fully leverage and augment existing systems	Address the identified deficiencies and develop new functionalities by augmenting and upgrading the existing system to retain all functionality within the same software environment.
Option 3: Deploy a new platform / system architecture	Replace the existing system with a new platform that will provide all functionality within a single software environment.

4.2.1. Option 1: Maintain existing systems, augment with task specific applications

This option proposes to complete projects commenced during the 2021-26 regulatory period and then address remaining system deficiencies and additional functionality through task specific software. This would specifically see AusNet complete implementation of [CIC] mobility solutions, but then look at other task specific applications to provide the desired functionality for delegated switching and crew visibility.

This option will provide the required functionality, but will result in higher risk to AusNet through:

- More separate systems requiring higher effort to achieve integration or retaining manual processes where systems cannot be integrated.
- Increased cost and challenges managing licences and vendor support resulting in higher risk to system performance if there are any errors.
- Increased delivery risk as each system will need to be selected through a tender process, be assess for security and compliance with AusNet's cyber security requirements and then deployed. Each of these steps will take time and increase costs.

Table 5 below summarises the extent to which Option 1 addresses the identified capability gaps.

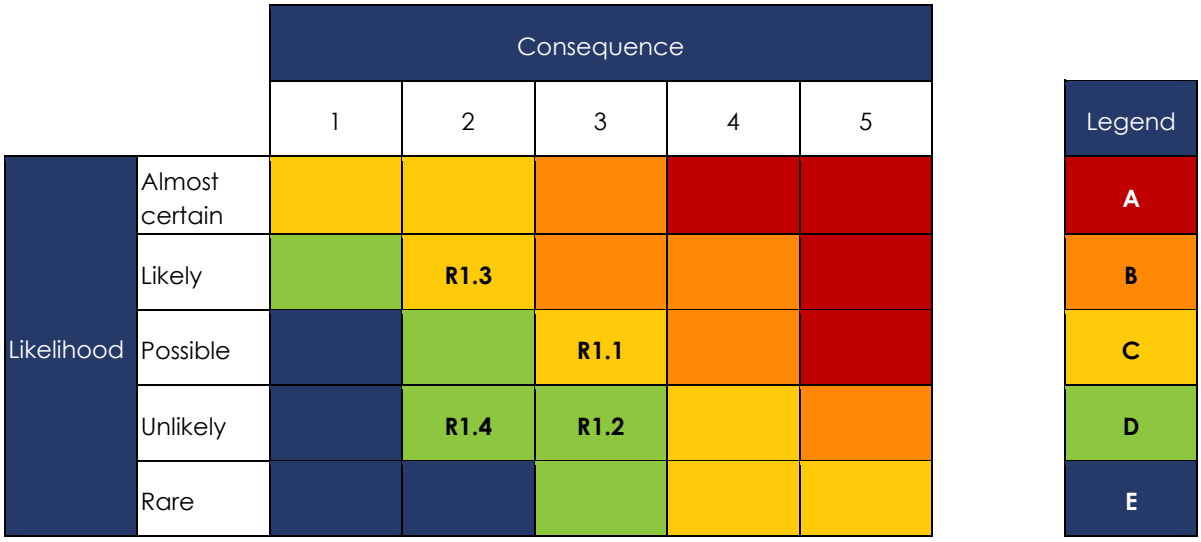
Table 5 - Summary of Option 1's ability to meet identified capability gaps

Identified capability gap	Achieved?
Consistent integrated solution that will be managed by AusNet and used by all FSPs	Partial
Flexibility to enable changes to be implemented and deployed by AusNet for use by field crew	Yes
High degree of 'data richness'	Yes
No dependency on other parties for developing the system and setting data requirements	Yes
Visibility provided to AusNet for strategic planning	Yes
Automated processes to minimise workload and stress on controllers.	Partial
Efficient processes for prioritisation and reprioritisation of work orders, including between FSPs	Yes
Easy process for onboarding new FSPs for ad-hoc (surge capacity) through to permanent roles	Partial
Mitigates risk of poor communication between field crews and controllers	Yes
Real-time access to the same information for field crews and the Control Room at all times.	Yes

This option fully addresses the majority of the identified capability gaps, however due to the complexity of integration and requirement for multiple applications to be utilised by the broad workforce, we have assessed that it will only partially addresses three of the capability gaps.

We have assessed the key risks following implementation of Option 1 using the Enterprise Risk Management Framework. Our analysis shows that the risks under this option remain elevated compared to Options 2 and 3 due to the complexity of operating multiple systems across a broad workforce, and the higher degree of systems integration complexity.

Figure 2 – Option 1 risk assessment



	RISK	CONSEQUENCE	LIKELIHOOD	RISK RATING
R1.1	Inadequate visibility of field crews, work status and faults on the network. Lack of real time data, prioritisation and inefficient expansion of field crew capability to provide additional support to controllers during peak response events	Level 3: Multiple systems and integrations still inhibit response to peak events, resulting in customer and regulatory impacts	Possible	**C**
R1.2	In-adequate data and communications to effectively manage and coordinate field crews leads to miscommunication of work instructions	Level 3: Reduced potential and lower severity of incidents with improved information flow systems	Unlikely	**D**
R1.3	Manual processes resulting in excessive workload and stress on controllers	Level 2: Complexity of multiple systems results in health and safety impacts to controllers due to workload and stress	Likely	**C**
R1.4	Insufficient data acquisition capability and inefficient processes limit ability to fully assess asset performance and optimise maintenance and work processes	Level 2: Field data flows enable optimisation of maintenance programs, limiting future cost impact	Possible	**D**

While this option provides an approach for obtaining improved functionality, the implementation approach requires integration across multiple different vendors which is complex and carries material risk. The costs for this additional integration work, plus incremental licence and support costs for additional software applications, are reflected in the cost estimate for this option (shown in **Table 6** below). The overall cost is estimated to be $19.1 million capex and $11.1 million opex and our analysis has found that it has an NPV of -$5.9 million. [10]

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

Table 6 Forecast expenditure for Option 1 ($'million, real FY24)

Cost item	FY27	FY28	FY29	FY30	FY31	Total
Capex	$9.66	$2.96	$2.25	$4.20	$0.00	**$19.07**
Opex	$1.83	$2.07	$2.22	$2.47	$2.51	**$11.10**
Total	**$11.49**	**$5.03**	**$4.47**	**$6.67**	**$2.51**	**$30.17**

Our analysis of the option has found that there are some material risks with implementing this solution and maintaining the systems to remain integrated over the lifetime of the system. However, it is likely that it is technically feasible and can be implemented within the required timeframe.

The NPV is lower than that of Option 2 and the overall risk profile is higher, hence this option is not recommended.

4.2.2. Option 2: Fully leverage and augment existing systems

This option proposes to fully implement the proposed digital solution for managing the field crews. This involves bringing the technology back in house and fully under the control of AusNet. All field crews / FSPs will be required to utilise the AusNet application on their own devices or use mobile devices provided by AusNet. There are two systems required to enable this solution to be implemented. These are:

- [CIC] for network control and system and switching
- [CIC] for asset and work order management

AusNet will retain full control of the applications which will provide a simple process for modifying the data collected or steps undertaken for a given task so that AusNet can gather the data required to manage its assets and network. The applications will be implemented within the [CIC] environments to provide seamless integration into AusNet's systems. This will improve long term management of the systems and provide efficiencies.

This option will provide Ausnet with visibility of field crew location, status and task progress and provide a high-level view of where fault crews are to enable strategic planning and management oversight. The application-based approach will facilitate onboarding of field crews and make obtaining surge capacity simple with immediate integration into the systems.

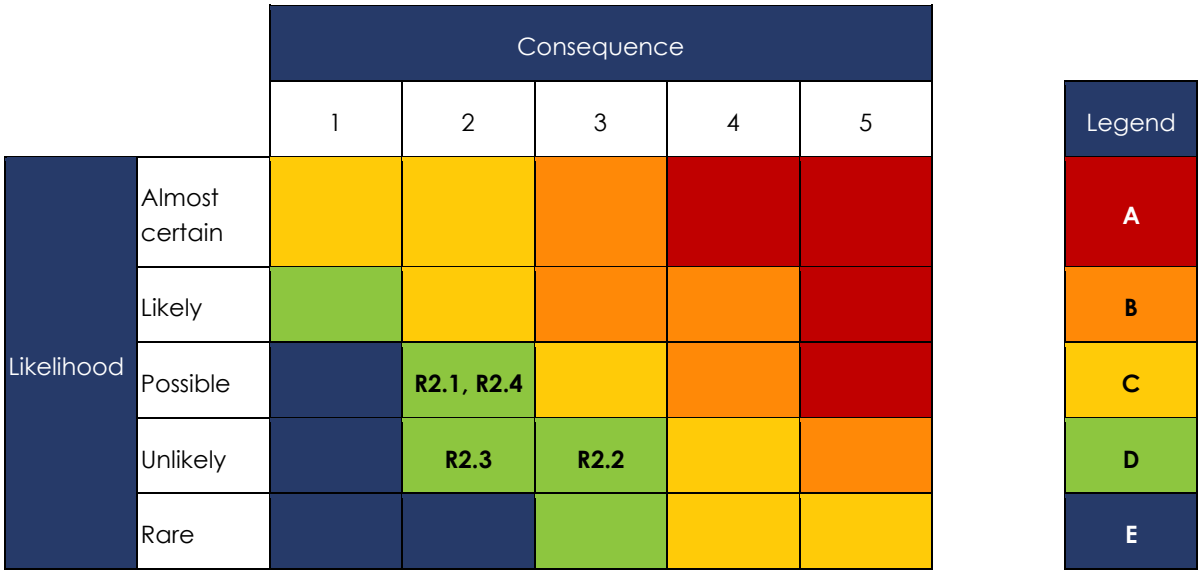
Table 7 below summarises the extent to which Option 2 addresses the identified capability gaps.

Table 7 - Summary of Option 2's ability to meet identified capability gaps

Identified capability gap	Achieved?
Consistent integrated solution that will be managed by AusNet and used by all FSPs	Yes
Flexibility to enable changes to be implemented and deployed by AusNet for use by field crew	Yes
High degree of 'data richness'	Yes
No dependency on other parties for developing the system and setting data requirements	Yes
Visibility provided to AusNet for strategic planning	Yes
Automated processes to minimise workload and stress on controllers.	Yes
Efficient processes for prioritisation and reprioritisation of work orders, including between FSPs	Yes
Easy process for onboarding new FSPs for ad hoc (surge capacity) through to permanent roles	Yes
Mitigates risk of poor communication between field crews and controllers	Yes
Real-time access to the same information for field crews and the Control Room at all times.	Yes

We have assessed the key risks following implementation of Option 2 using the Enterprise Risk Management Framework. Our analysis shows that this option will materially reduce the risk to AusNet as shown in Figure 3 below. The planned degree of integration of these systems and ability to bring the system fully in house to enable rapid development of new functionality reduces the risk compared to the current risk profile and Option 1.

Figure 3 – Option 2 risk assessment



	RISK	CONSEQUENCE	LIKELIHOOD	RISK RATING
R2.1	Inadequate visibility of field crews, work status and faults on the network. Lack of real time data, prioritisation and inefficient expansion of field crew capability to provide additional support to controllers during peak response events	Level 2: Improved systems provide greater field coordination and improved outage response, limiting customer impact during peak events	Possible	**D**
R2.2	In-adequate data and communications to effectively manage and coordinate field crews leads miscommunication of work instructions	Level 3: Reduced potential and lower severity of incidents with improved information flow systems	Unlikely	**D**
R2.3	Manual processes resulting in excessive workload and stress on controllers	Level 2: Health and safety impacts to controllers due to workload and stress	Unlikely	**D**
R2.4	Insufficient data acquisition capability and inefficient processes limit ability to fully assess asset performance and optimise maintenance and work processes	Level 2: Field data flows enable optimisation of maintenance programs, limiting future cost impact	Possible	**D**

While this option requires further investment in the systems the additional investment will provide improved functionality, integration and will result in improved service outcomes for customers, particularly during major events through better control of field crew, prioritisation of work and an efficient approach to onboard surge FSP capacity. This aligns with our corporate objectives, customer feedback, and recommendations provided in the Victorian Government and Nous reviews.

The overall cost is estimated to be $17.1 million capex and $10.2 million opex, as shown in **Table 8**. These costs reflect implementation of the required new capabilities and opex for ongoing licences, maintenance and support. Our analysis has found that it has an NPV of $0.4 million. [11]

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

Table 8 Forecast expenditure for Option 2 ($'million, real FY24)

Cost item	FY27	FY28	FY29	FY30	FY31	Total
Capex	$9.66	$2.96	$1.50	$3.00	$0.00	**$17.12**
Opex	$1.83	$2.07	$2.07	$2.09	$2.12	**$10.17**
Total	**$11.49**	**$5.03**	**$3.57**	**$5.09**	**$2.12**	**$27.29**

Our analysis of the option has also found that the material risks identified will be addressed through implementing this solution. It is also technically feasible and can be implemented within the required timeframe.

The NPV is higher than that of Options 1 and 3 and the overall risk profile is lower, hence this option is recommended.

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

This option proposes to replace the existing systems with a new platform / system that will provide all the functionality required within a single software environment, or a well-integrated suite of software products, that is proven in the electricity industry. The [CIC] mobility platform would be potential option that could consolidate the [CIC] solutions into one system. Some complex functions such as switching may need to remain with the [CIC] mobility solution, therefore 100% consolidation may not be achievable and negate any ability to realise opex licence and support savings.

The outcomes and advantages will be the same as for Option 2 but will be achieved through a solution that is independent of the existing ADMS [CIC] and enterprise systems [CIC]. Therefore, it will require ongoing management to ensure integration is maintained as software patches, updates and upgrades are deployed to other systems. It also requires AusNet to accept the significant sunk cost on investment in the systems currently being developed within the ADMS and enterprise systems.

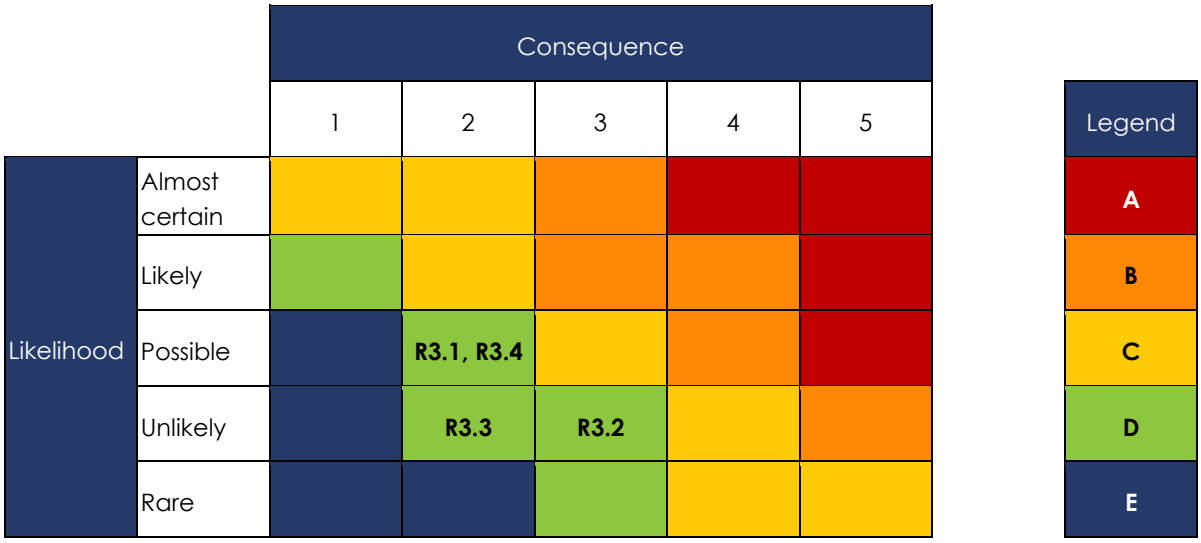
Table 9 below summarises the extent to which Option 3 addresses the identified capability gaps.

Table 9 - Summary of Option 3's ability to meet identified capability gaps

Identified capability gap	Achieved?
Consistent integrated solution that will be managed by AusNet and used by all FSPs	Yes
Flexibility to enable changes to be implemented and deployed by AusNet for use by field crew	Yes
High degree of 'data richness'	Yes
No dependency on other parties for developing the system and setting data requirements	Yes
Visibility provided to AusNet for strategic planning	Yes
Automated processes to minimise workload and stress on controllers.	Yes
Efficient processes for prioritisation and reprioritisation of work orders, including between FSPs	Yes
Easy process for onboarding new FSPs for ad hoc (surge capacity) through to permanent roles	Yes
Mitigates risk of poor communication between field crews and controllers	Yes
Real-time access to the same information for field crews and the Control Room at all times.	Yes

We have assessed the key risks following implementation of Option 3 using the Enterprise Risk Management Framework. Our analysis shows that this option will materially reduce the risk to AusNet as shown in **Figure 4** below. The implementation of a proven systems that will remain within AusNet's control is consistent with Option 2, and reduces the risk compared to the current risk profile and Option 1.

Figure 4 – Option 3 risk assessment



	RISK	CONSEQUENCE	LIKELIHOOD	RISK RATING
R3.1	Inadequate visibility of field crews, work status and faults on the network. Lack of real time data, prioritisation and inefficient expansion of field crew capability to provide additional support to controllers during peak response events	Level 2: Improved systems provide greater field coordination and improved outage response, limiting customer impact during peak events	Possible	**D**
R3.2	In-adequate data and communications to effectively manage and coordinate field crews leads miscommunication of work instructions	Level 3: Reduced potential and lower severity of incidents with improved information flow systems	Unlikely	**D**
R3.3	Manual processes resulting in excessive workload and stress on controllers	Level 2: Health and safety impacts to controllers due to workload and stress	Unlikely	**D**
R3.4	Insufficient data acquisition capability and inefficient processes limit ability to fully assess asset performance and optimise maintenance and work processes	Level 2: Field data flows enable optimisation of maintenance programs, limiting future cost impact	Possible	**D**

This option requires further investment in systems and accepting the sunk cost of work currently in progress. This option delivers against the full digital solution outlined in the identified need. It will provide improved functionality and service outcomes for our customers, particularly during major events through better control of field crew, prioritisation of work and an efficient approach to bring onboard surge FSP capacity. Consequently, this option aligns with our corporate objectives and with customer feedback and the recommendations provided in the Victorian Government reviews.

However, it will not be fully integrated into the ADMS and Enterprise System environments which creates some level of risk and ongoing work to ensure data transfer, particularly following patches, updates or upgrades to other systems.

There is also a higher deliverability risk as this option will require a tender process to select the preferred vendor and then be assessed for security and compliance with AusNet's cyber security requirements. Hence there is risk that this solution may take longer to be implemented compared to Option 2.

The overall cost is estimated to be $20.1 million capex and $11.0 million opex, as shown in **Table 10**. The implementation estimate is materially higher than Options 1 and 2, given the need to rebuild existing functionality and integrations into a new software platform. Our analysis has found that that this option has an NPV of -$3.3 million. [12]

Table 10 Forecast expenditure for Option 3 ($'million, real FY24)

Cost item	FY27	FY28	FY29	FY30	FY31	Total
Capex	$9.66	$5.96	$1.50	$3.00	$0.00	**$20.12**
Opex	$1.83	$2.57	$2.17	$2.19	$2.22	**$10.97**
Total	**$11.49**	**$8.53**	**$3.67**	**$5.19**	**$2.22**	**$31.09**

Our analysis of the option has found that the material risks identified have been addressed through implementing this solution, but it retains as higher level of risk than Option 2. While it is also technically feasible and can be implemented within the required timeframe, it has a higher risk of potential delay due to integration issues and has a higher overall cost due to initial integration and ongoing management.

This option is not recommended for the following reasons:

- It would entail significant sunk costs caused by cancelling the existing work when approximately 80% complete,
- Potential integration issues and increased long term management
- Higher risk profile.
- The solution would require a full market tender to obtain suitably accurate pricing which has not been undertaken
- Unlike Option 2, the solution is not economic.

[12] 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 deliver on our customers' expectations for improved service and resilience.

Additionally, Option 2 is the only option that fully addresses all the capability gaps identified with our field operations, exposes AusNet to the least risk, best supports the achievement of AusNet's customer commitments of improving resilience, service outcomes and enhancing customer experience, and is the most aligned to AusNet's technology strategy of the options considered. The conclusions of this assessment are shown by **Table 11** below.

Table 11 - Options analysis summary

Criteria	Option 1	Option 2	Option 3
NPV ($'000, real FY24)	-$5,928	$385	-$3,265
Capex ($'000, real FY24)	$19,071	$17,121	$20,121
Opex ($'000, real FY24)	$11,100	$10,170	$10,970
Technically feasible	✓	✓	✓
Addresses identified need	× (Partial)	✓	✓
Deliverable within timeframe	✓	✓	× (Risk of delay)
Delivery risk	Moderate	Low	Moderate
Preferred option	×	✓	×

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