Technology program GAAR 2024-2028

Corporate Communications

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1. Document Background

1.1 Purpose of this document

The purpose of this document is to outline a business case for a proposed program of work that will form part of AusNet's Technology GAAR submission.

1.2 References

Document	Version	Author
AusNet Services FY19-FY23 Technology Plan	V1.0	AusNet Digital
2021 Gas Business Plan	V1.0	Joanne Soysa
GAAR Technology Strategy 2024-2028	V1.0	Ausnet Digital

1.3 Document History

Date	Version	Comment	Person
17/02/2022	V0.1	Initial document	Mathew Abraham
01/04/2022	V0.2	Amendments	Mathew Abraham
05/06/2022	V0.3	Draft review	Mathew Abraham
17/06/2022	V0.4	Post review adjustments	Mathew Abraham

1.4 Approvals

Position
Technology Leadership Team

2. Executive summary

2.1 Program summary

The table below provides a summary of the Corporate Communications program. Additional information is provided throughout this brief.

Table 2-1 – Summary table

Key objective(s) of the program	To enable operational efficiency, reliability, safety and growth by connecting employees, customers and applications with a secured, cost-effective communications network. This will, in turn, enable the delivery of safe and reliable energy services with the least possible disruption to meet regulatory compliance and strategic business objectives.						
Key benefits to customers	• Improves network resilience to deliver efficient, reliable and safe energy services to customers. • Mitigates operational and security risks. • Increases AusNets' ability to respond to market demand, technology and regulatory requirements to ensure efficient service delivery of services to customers. • Delivery of value for money delivery of technology services at an acceptable level of risk over the life of the assets.						
Cost allocation	Electricity Distribution	49%	Electricity Transmission	30%			
	Gas Distribution	21%					
Program type	**Recurrent**	☒					
	Non-Recurrent	☐					
Program timings	Program duration:	5 years					
Expenditure forecast	**($m)**	**FY2024**	**FY2025**	**FY2026**	**FY2027**	**FY2028**	**Total**
	CAPEX	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	$4.58
	OPEX	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	$0.18
	Gas Distribution Cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	**$4.75**
	Total program cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	$22.30

Program Brief

Estimated life of system	The estimated life of the implementation is 5-7 years with a refresh, which is typical for this type of system.
Customer Engagement	This program was proposed (and approved) as part of AusNet's Electricity Distribution Price Reset (EDPR) and Transmission Revenue Review (TRR) submissions. This brief pertains to the Gas Access Arrangement (GAAR) allocation of these costs. We have undertaken significant stakeholder engagement. As part of the EDPR process, we held deep dive workshops with stakeholders on ICT. In that engagement, we described the importance and need for ICT expenditure to meet our customers' evolving needs and to support compliance with regulatory and legal obligations. We acknowledge the feedback received from both sessions and have taken it into consideration when proposing the most appropriate option for this business case. This brief has also taken into consideration: • The challenge we received from stakeholders as part of the GAAR engagement process to minimise discretionary IT spend where possible – a challenge consistent with the broader feedback we received on our capital investments. • Recent customer engagement studies conducted by AusNet, including the Energy Sentiments Survey (2021) and the AusNet Listening Report "Engaging Victorians on the Future of the Gas Networks" (2021).

AusNet's communications include Voice, Corporate, Operational Information Technology (OT) and other metering infrastructure networks, which provide wireless and wireline communications capabilities to all areas of the AusNet business. Our communications networks ensure the efficient and timely operation of our business and therefore the efficient and timely delivery of services to our customers.

AusNet has an obligation to deliver safe and reliable energy services with the least possible disruption to meet regulatory compliance and strategic business objectives. This program looks to do this by refreshing our corporate communications infrastructure as it ages, which will mitigate risks and address operational issues.

Under this program AusNet is proposing to:

- Replace network equipment and voice gateway to mitigate the risk of system failure.
- Simplify corporate communications by using Skype for Business.
- Repurpose Cisco Voice Platform to OT, including hardware, software and licenses.
- Refresh Riverbed asset and link (WAN accelerators).
- Increase capacity for carrier VPNs for remote offices due to increased demand for video services.
- Increase capacity for internet services to accommodate the forecasted traffic demand.
- Replace IP Core routers.
- Formalise gateway consolidation with business and replace consolidated gateway IP routers.
- Implement Quality of Service (QoS) strategy.
- Increase capacity and performing lifecycle replacement for high-speed interconnection between Richmond and Rowville Data Centres.
- Enhance role-based access security.

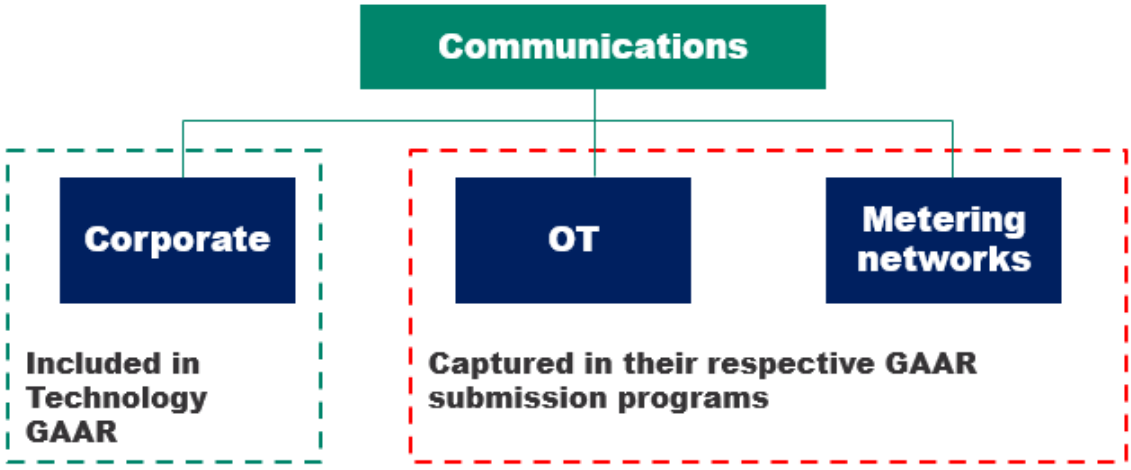
Program Brief

- Replace contact centre communications.
- Type approval, Reference Designs and New Technology Integration Development.

Three options have been considered to undertake this program and these options are explored in section 4.

For clarity, the initiatives in this brief are only concerned with Corporate Information and Technology communication networks. These are the networks that support the enterprise applications and services used by corporate employees, customers and other participants (e.g., contractors, suppliers, and regulators). OT and other technology investments are captured in other GAAR program briefs as illustrated in Figure 2-1 below.

Figure 2-1 Structure of Communications included in this program



Alignment with AER ICT expenditure assessment framework

AusNet have categorised this program as recurrent expenditure, on the basis that it relates to ongoing refresh of AusNet's corporate communications infrastructure, a cost that must be incurred periodically. Consistent with AusNet's internal practices, we have developed a detailed business case that supports our chosen option.

3. Context

3.1 Background

There are many drivers and considerations that influence our decisions around technologies changes as outlined below:

- AEMO Data Comms Standard defines the standards which networks, customers, generators and others must use when communicating with AEMO.
- Customers are demanding information, participation and choice, prompting more notifications, monitoring & control.
- As more connected devices become commercially available, integrating them adds complexity to managing the network, with a resulting need for new security capability to manage risks and cyber threats.
- Operational cost reduction and business financial performance is a key driver across all AusNet businesses. Capacity Lifecycle and Operational Enhancements (CLCOE) is a proven successful practice at AusNet , in the effort of replacing aged assets & obsolescence required by technology spending in a controlled manner.
- Technology maintenance costs increase over time due to hardware and software failure rates increasing when equipment ages beyond vendor end of life recommendation.

For AusNet to meet existing requirements and prepare for the future, the distribution network relies on availability of our IT Network, which also plays a critical role in supporting the OT Networks. High reliability and availability drive the need of a flexible and healthily maintained communication platform and components, with adequate levels of vendor support.

In the forthcoming regulatory period, AusNet will be continuing the successful track record of like-for-like replacement to refresh the hardware and software assets related to IT communication networks.

3.2 Proposal Drivers

Our policy is to refresh for network and communication assets on average every 5-7 years to manage risks to the business caused on by ageing assets in alignment with our asset and capacity policies. Without such lifecycle refreshes, the recovery time from hardware, firmware and software failures are likely to increase, with the result that Service Level Agreements may not be met.

In line with global ICT industry norms and vendor recommendations, the life span of IT networking infrastructure (Routers and Switches) is 5 to 7 years. Equipment is expected to require replacement across ~130 service sites while the expected life of the appliances is 5 years, which AusNet plan to refresh in the forthcoming period. This continues the lifecycle refresh practice described in our previous regulatory proposal.

AusNet currently has multiple gateways for various applications and services. The network equipment and devices compromising these gateways will reach their end of life and require a replacement. The aim of this program is also to utilise the replacement opportunity to consolidate and upgrade the capability to ensure service levels and performance levels can be maintained throughout the next regulatory period.

3.3 Objective(s)

The objectives of this program include:

- Mitigating operational and security risks to communication networks and resulting impacts on the ability to deliver reliable energy services.
- Improved network resilience to ensure operational efficiency, reliability, safety to energy supply in an increasingly complex environment.
- Controlling cost of maintaining corporate communications services at an acceptable level.
- Maintain ability to respond to market demand, technology and regulatory change.

3.4 Technology risk drivers

All expenditure initiatives identified and proposed by AusNet will have linkages to cost avoidance benefits, and will enable a safe and reliable network, by mitigating one or more of these following risk drivers:

1. **Technology risk increases over time.** Hardware failures follow a pattern of fail in the first months of operation, stable operation for a number of years, and exponential increase in failures after the end of life as defined by the manufacturer. This failure curve is known as the 'bathtub curve'[1]. Extending the life of technology after the vendor end of life date increases business risk, as the likelihood of failure increases, and in turn can impact on AusNet's ability to operate and maintain a safe and reliable network.

2. **As technology ages the cost of maintenance increases.** Equipment vendors will provide cost effective support until a point is reached where their costs increase. Vendors need to provide internal capability to support both old and new products where the old products are used by a decreasing customer base. This cost is passed on to the customer and often exceeds the cost of deploying and maintaining new technology.

3. **Spare parts become unavailable.** Technology relies on a supply chain of components and suppliers which are subject to component lifecycle management. After a number of years, a manufacturer will be unable to source component parts making it impossible to produce spare parts. Reliable access to spare parts is then compromised and the risk of unserviceable outages increases.

4. **The price-performance of communications technology continues to improve over time, lowering the total cost of delivering like-for-like services**. Failing to refresh infrastructure locks in higher costs and lower service capabilities.

5. **Security.** Technology is under ongoing attack from hackers. Ongoing patching is required to remove vulnerabilities which allow for unauthorised access leading to major business disruption or loss of critical information. When technology is no longer supported by a manufacturer no new patches are made available to address security vulnerabilities. The risk of unauthorised access leading to data loss, loss of service, or non-compliance with regulatory requirements, increases over time.

[1] *Basic terms and models used for reliability evaluation*, National Institute of Standards and Technology at https://itl.nist.gov/div898/handbook/apr/section1/apr124.htm and *Software Reliability,* Jiantao Pan (Carnegie Mellon University) at https://users.ece.cmu.edu/~koopman/des_s99/sw_reliability/

3.5 Business drivers

In the face of significant industry disruption resulting in a period of substantial uncertainty and increasing complexity across the industry, AusNet has selected three key business drivers which set the direction for the business.

These business drivers are:

- Lead energy transformation, embracing change.
- Drive efficiency and effectiveness throughout the portfolio.
- Generate trust and respect with customers and partners.

All expenditure programs identified and proposed by AusNet will have regard to the business drivers and can be directly linked to at least one of these initiatives. This research has been also further validated through the ICT deep drive presented to the customer forum.

AusNet consider this program of work is most relevant to 'lead energy transformation, embracing change' as it will drive efficiency throughout the business. This is explored in more detail in the discussions of each of the options we have identified.

4. Options

This chapter provides an overview of the options we have considered and then explores the in more detail the specifics of each of our options.

4.1 Overview

This section provides an overview of the options that may alleviate current corporate communications limitations.

Table 4-1 Brief overview of the options

Brief overview of each of the options	
Option 1	BAU: Sweat IT Network Assets and Perform Mandatory Patches. This would encompass: • Hardware support & maintenance, e.g., router, switch, wireless infrastructure, voice platform and varies Cisco ASA firewall. • Provide support for running the environment.
Option 2 (Recommended)	Perform Capacity Management and Like-for-Like Replacement: • Replacing network equipment and voice gateway to mitigate the risk of system failure. • Simplify corporate communications, moving to Skype for Business. • Repurpose Cisco Voice Platform to OT, including hardware, software and licenses. • Refresh Riverbed asset and link (WAN accelerators). • Increase capacity for carrier Virtual Private Networks (VPNs) for remote offices due to increased demand for video services. • Increase capacity for internet services to accommodate the forecasted traffic demand. • Replace IP Core routers. • Formalise gateway consolidation with business and replace consolidated gateway IP routers. • Implement QoS strategy. • Lifecycle and capacity increase for high-speed interconnection between Richmond and Rowville Data Centres. • Role based access security enhancement. • Replacing the contact centre replacement. • Type approval, Reference Designs and New Technology Integration Development.
Option 3	Strategically implement the consolidation of multiple IP Networks • Review and design Enterprise Telecommunications strategy • Telecommunication network standardization and optimization • Communications security continuous improvement • Consolidate multiple IP Networks, including Corporate and AMI onto IP/MPLS (Multiple Protocol Label Switching)

	• Establish a foundation to allow future policy and security enhancement adopting Software Defined WAN (SD-WAN).

4.2 Option #1 Sweat IT network assets

This option proposes AusNet to sweat current IT network assets with mandatory patches applied where security or high priority risks are identified. No improvement made to the network, rather this approach looks to mitigate the risks we are increasingly being exposed to. This option is not recommended due to increased customer and business risks associated with ageing assets and lack of technical vendor support.

The probable consequences of this option include:

- Increasing frequency of IT communication network outages and downtime, resulting in increased costs.
- Limited ability to communicate with customers and meet end user service requirements.
- Growing resolution times when system faults ultimately occur.

Given these consequences, there is an increased likelihood of experiencing system performance, stability, data and quality issues. This leads to increased risk of failing to meet business, operational and regulatory requirements.

This option is not recommended because the price-performance of technology infrastructure continues to improve over time, lowering the total cost of delivering like-for-like services. Failing to refresh infrastructure locks in higher costs and lower service capabilities, leading to potentially worse outcomes for customers, including higher prices.

Alignment to objectives

AusNet does not consider that Option 1 achieves all of the intended objectives of this program of work, as shown in Table 4-2 below.

Table 4-2 Objectives analysis of Option 1

Objective		Comments
Mitigate operational and security risks to communication networks impacting the ability to deliver reliable energy services.	X	• Risk of running aged or unsupported end-of-life (EOL) equipment that could impact the communication capabilities. • Do not gain access to the expertise required from vendor to resolve incidents.
Improved network resilience to ensure operational efficiency, reliability, safety to energy supply.	X	• Reliance of cyber threats to network, business and customer data is not improved.
Reduce cost and increase effectiveness of business decision making to utility.	X	• Continuing sweating assets represents a cost saving in an upfront investment. However, assets due for lifecycle refresh presents a risk to communication networks which could lead to significant risk in increasing opex costs related
Increase ability to respond to market demand, technology and regulatory change.	X	

		to safety obligations, regulatory, compliance and/or reputational costs.

Costs

Table 4-3 Costs of option 1

($m)	FY2024	FY2025	FY2026	FY2027	FY2028	Total
Capex	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	$0.65
Opex	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	$3.38
Gas distribution cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	**$4.04**
Total program cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	$8.25

Benefits

While Option 1 is cheaper than either Option 2 or 3, it significantly increases the risk of the communication operations, especially in an event of hardware failure. Therefore, this is not a recommended option.

The table below summarises the benefits associated with this option and quantifies them where appropriate data is available or reasonable assumptions can be applied.

Table 4-4 Benefits of Option 1

Benefit
Minimal investment compared to recommended option. Although this reduces initial cost, as outlined above it introduces significant risk and potentially additional spend down the line to resolve issues, as such it is not a recommended option.

Risks

There are several risks associated with the implementation of this option, as highlighted in the table below. Based on the consequence and likelihood of each risk, AusNet have rated each of the individual risks blue, green, yellow, orange or red (in order of severity). See Appendices Attachment 1 – Risk level matrix for additional information on this rating system.

Table 4-5 Risks of Option 1

	Risks	Consequence	Likelihood	Risk rating
R1.1	Aging assets causing increased business risk e.g., CISCO Switches & Routers.	Level 3. Increases system failures, outages and downtime causing delays, inefficiencies and inability to operate and meet customers' expectations from the business Potential increases in maintenance/support cost.	Likely	B
R1.2	The performance of the network may degrade, introducing risk to the business.	Level 2. Security intrusion in to the system due to absence of patches and bug fixes on later versions of software.	Likely	C

R1.3	The capacity of the internet may become insufficient due to data volume growth around it.	Level 1. Reduced network performance and productivity otherwise would have been optimised.	Likely	D
R1.4	Not able to introduce new capabilities due to old technologies being in place	Level 1. Delay in the development of new technology, this may negatively impact our revenue or require unforeseen capital investment to replace obsolete technology. In addition, as with all new business solutions, there are risks associated with solution design, implementation, budgeting, planning, integration, future maintenance, upgrades and support	Possible	E

Overall AusNet consider this option is rated High.

Alignment to mitigation of key risk drivers

As discussed in Section 3.4, there would no material reduction in risk profile as the key risks are not addressed by this option.

Table 4-6 Risks drivers of option 1

Risk Driver		Achieved by
Technology risk increases over time	X	N/A
Cost of maintenance increases as technology ages	X	N/A
Spare parts unavailable	X	N/A
Availability of new technology	X	N/A
Security	X	Only partial alignment by implementing mandatory security patches. Does not fully mitigate risk as some patches will not be available for equipment at end of support.

Business related drivers of expenditure

As discussed in Section **Error! Reference source not found.**, there are three business drivers that AusNet has identified, and is focusing on over the next regulatory period. The table below highlights how this option will input into the initiatives where relevant. Where AusNet consider that a business driver is not directly relevant to the option, 'N/A' is applied.

Table 4-7 Business related drivers of Option 1

Business drivers	How this program achieves this
Lead energy transformation, embracing change.	N/A
Drive efficiency and effectiveness throughout the portfolio.	N/A
Generate trust and respect with customers and partners.	N/A

4.3 Option #2 Capacity management and like-for-like replacement (RECOMMENDED)

This option aims to manage capacity while replacing the existing IT assets in a 'like-for-like' (to the maximum extent possible given changes in technology) approach.

Alignment to objectives

AusNet consider that this option achieves all of the intended objectives of this program of work, as shown in Table 4-8 below.

Table 4-8 Objectives analysis of Option 2

Objective		Comments
Mitigate operational and security risks to communication networks impacting the ability to deliver reliable energy services.	✔	Risk of running aged or unsupported EOL equipment that could affect the communication capabilities is mitigated. Expertise required to resolve incidents in security vulnerabilities is regained.
Improved network resilience to ensure operational efficiency, reliability, safety to energy supply.	✔	Enhanced reliance of cyber threats to network, business and customer data.
Reduce cost and increase effectiveness of business decision making to utility.	✔	Like-for-Like replacement controls the profile of technology expenditure.
Increase ability to respond to market demand, technology and regulatory change.	✔	Additional internet data transfer capacity supports increased bandwidth demand in the communication network, driven by service capability and an increased amount of connected devices, e.g., video capability.

Costs

Table 4-9 Costs of Option 2

($m)	FY2024	FY2025	FY2026	FY2027	FY2028	Total
Capex	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	$4.58
Opex	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	$0.18
Gas distribution cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	**$4.75**
Total program cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	$22.30

This solution also involves a small increase to our ongoing telecommunications costs which results in a $14,000 per annum step change in opex.

Benefits

The table below summarises the benefits associated with this option and quantifies them where appropriate data is available or reasonable assumptions can be applied.

Table 4-10 Benefits of Option 2

Benefits
• The price-performance of technology infrastructure continues to improve over time, lowering the total cost of delivering like-for-like services, and therefore, translating to efficient prices for customers. This is an important consideration in an environment which has increasingly complex and challenging requirements with increasing and evolving customer demands to maintain sustainable costs. • Customers can experience increased grid stability and reliability through increased communications network reliability at efficient costs. • Customer data is safe and secure from exploitation as a result of having a secure IT communication networks AusNet will be ready for future cloud-based technology architectures, ensuring future integration/migration disruptions are minimised.

Risks

There are risks associated with the implementation of this option, as highlighted in the table below. Based on the consequence and likelihood of each risk, AusNet have rated each of the individual risks blue, green, yellow, orange or red (order of severity). See Appendices Attachment 1 – Risk level matrix for additional information on this rating system.

Table 4-11 Risks of Option 2

	Risks	Consequence	Likelihood	Risk rating
R2.1	Lower operational risk due to system failure	Level 3. Reduced possibility of system failures, outages and downtime causing delays, inefficiencies and inability to operate and meet customers' expectations from the business.	Possible	C

R2.2	Not able to introduce new capabilities due to limited capacity	Level 2. Delay in the development of new technology may negatively impact our revenue or require unforeseen capital investment to replace obsolete technology.	Likely	C

AusNet consider overall this option is rated Medium.

Alignment to mitigation of key risk drivers

As discussed in Section 3.4, this option is fully aligned to reducing technology risk and providing a stable network for AusNet customers.

Table 4-12 Risks drivers of option 2

Risk Driver		Achieved by
Technology risk increases over time.	✓	By maintaining critical systems in line with their supplier lifecycle maintenance requirements.
Cost of maintenance increases as technology ages.	✓	Staying in Vendor support window is more efficient and cost effective than getting customised vendor support.
Spare parts unavailable.	✓	Maintaining infrastructure assets in line with its lifecycle ensures spare parts availability reducing down time.
Availability of new technology.	✓	Obtain efficiency by replacing obsolete technology.
Security.	✓	Critical lifecycle refresh remedies the vulnerabilities and ensure the security and reliability of the network.

Alignment to business related drivers of expenditure

As discussed in Section **Error! Reference source not found.**, there are three business drivers that A usNet has identified and is focussing on over the next regulatory period. The table below highlights how this option will input into the initiatives where relevant. Where AusNet consider that a business driver is not directly relevant to the option, 'N/A' is applied.

Table 4-13 Business related drivers of option 2

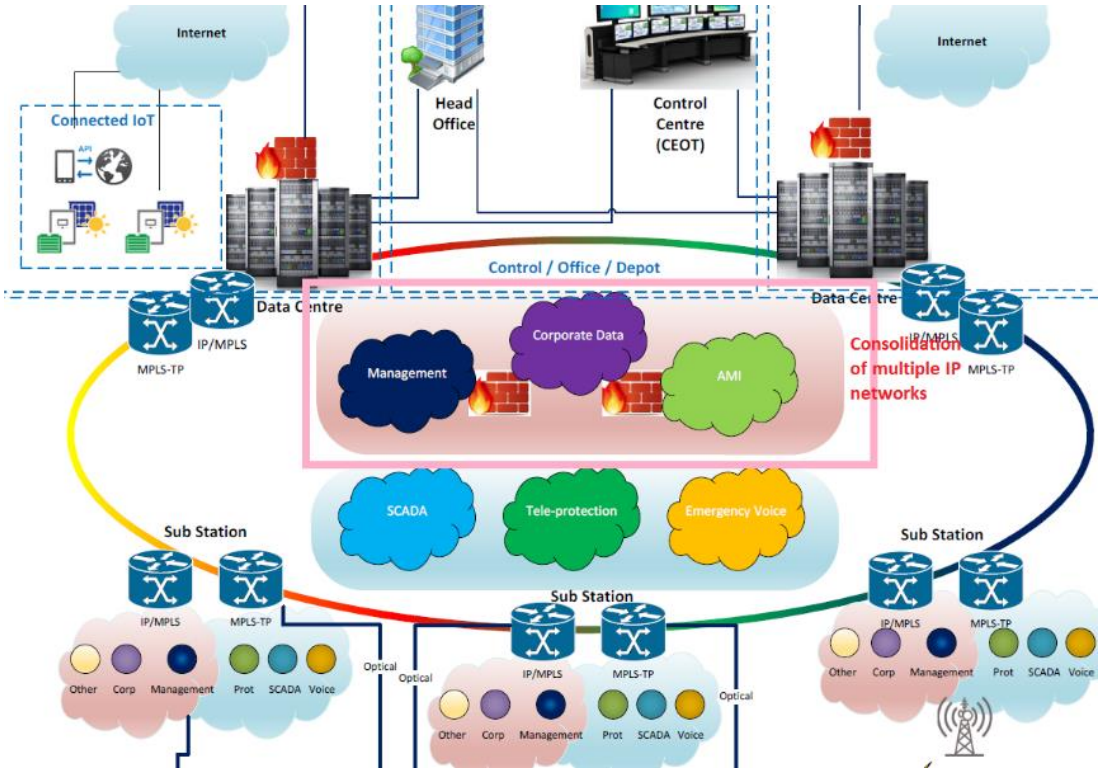
Business drivers		How this program achieves this
Lead energy transformation, embracing change.	✔	Increased capacity supporting new corporate tools e.g., collaboration.
Drive efficiency and effectiveness throughout the portfolio.	✔	Maintaining infrastructure assets in line with its lifecycle allows the business to continue to operate efficiently and limit communications network failure. Network failures cause delays and increase the cost of operating the business. Managing and addressing network issues

		and risks contributes to sustainable, quality network services to AusNet customers.
Generate trust and respect with customers and partners.	✔	Enhanced risk management capability enables the organization to be compliant with AEMO and an industry safety leader to advocate regulatory development.

4.4 Option #3 Strategically implement the consolidation of multiple IP networks

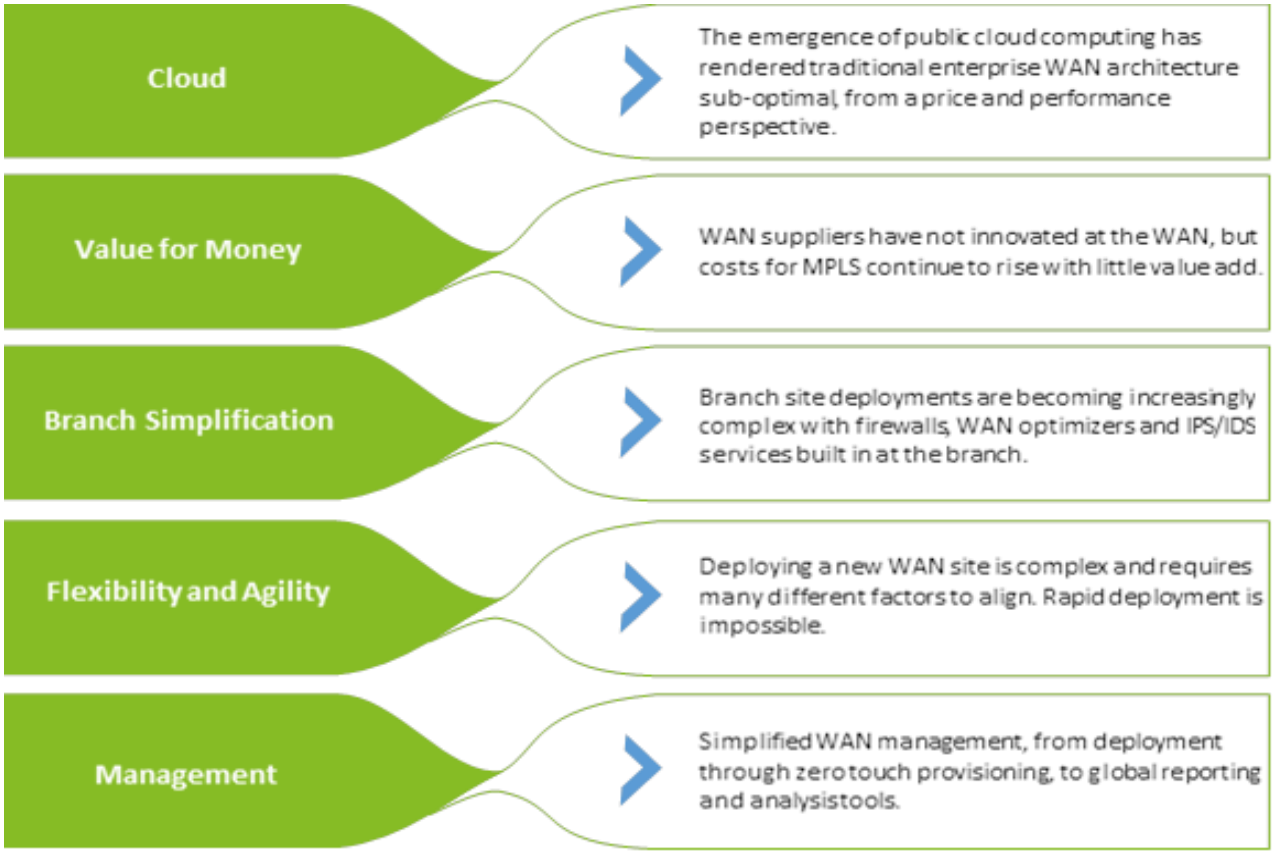
This option involves the consolidation of the currently physically separated Corporate, AMI and Management IP networks (highlighted in pink), with the optional adoption of SD-WAN solution for all the ~130 remote sites. Benefits and risks of this option are discussed in the following sections.

Figure 4-1 AusNet's Communications Network Vision



A consolidated network provides AusNet with an opportunity to move to a more standardised, cost-effective, service-oriented communications platform. Physical separation is replaced by logical segmentation, enabled by IP/MPLS (Multiple Protocol Label Switching) technology. Therefore, Logical Network segmentation provides the same level of network security (through separation) and further separation by Logical Network may be desirable from a traffic management perspective.

Software Defined Networking WAN solution (SD-WAN) represents an emerging technology that can provide cost effective WAN services where low cost Internet connections are available. Despite "value for money" being one of the drivers for companies who choose to adopt SD-WAN, as illustrated below, it offers limited cost reduction opportunities to AusNet communication environment in the 2024-2028 regulatory period because the majority of our costs relate to infrastructure that AusNet already owns. As this infrastructure is replaced in future periods AusNet expects to be able to realise this benefit more fully. This figure below illustrates this point further.



Alignment to objectives

AusNet consider that this option achieves all the intended objectives of this program of work as per Option 2 (and as shown in the table below). However, implementation risks are relatively higher due to the need for major design change and adoption of new technology.

Table 4-14 Objectives analysis of Option 3

Objective		Comments
Mitigate operational and security risks to communication networks impacting the ability to deliver reliable energy services.	✔	Mitigate the risk of running aged equipment that could impact the communication capabilities. Access to the expertise required to resolve incidents.
Improved network resilience to ensure operational efficiency, reliability, safety to energy supply.	✔	Enables the ability to segment the network (access control) through the user's network login as opposed to requiring a separate SOE device for different networks (significantly reducing productivity losses).
Reduce cost and increase effectiveness of business decision making to utility.	✔	Strategic standardising of the currently IT networks reduces complexity and support effort whilst adhering both current and future requirements of the applications and services to the communication networks demand. Improved collaboration contributes to effective business decision making to utility.

Increase ability to respond to market demand, technology and regulatory change	✔	Allows the tailoring of the network characteristics to the specific use case / application.

Costs

Table 4-15 Costs of option 3

($m)	FY2024	FY2025	FY2026	FY2027	FY2028	Total
Capex	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	$6.27
Opex	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	$0.31
Gas distribution cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	**$6.58**
Total program cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	$13.30

Benefits

The table below summarises the benefits associated with this option and quantifies them where appropriate data is available or reasonable assumptions can be applied.

Table 4-165 Benefits of Option 3

Benefits
• Avoiding the costs of refreshing aging communications infrastructure using modern communications technologies and simplified configuration. • Avoiding the costs of refreshing aging communications infrastructure through consolidation of multiple physical networks, forgoing individual initiatives required, e.g., QoS. • Reduction in total number of devices across enterprise networks, including Corporate Communications, AMI & OT. This also reduces the required future maintenance & ongoing lifecycle replacement. E.g., a proportion of estimation to Corporate Communication network devices. • “Simplification” - Reduces the complexity of the support and management of the network. • Logical rather than physical “Segregation” - Enables the ability to segment the network (access control) through the user’s network login as opposed to requiring a separate SOE device for different networks (significantly reducing productivity losses). • “Fit for Purpose” - Allows the tailoring of the network characteristics to the specific use case / application. • Adoption of new technology, future requirements considered, connection to cloud based applications.

Risks

There are a number of risks associated with the implementation of this option, as highlighted in the table below. Based on the consequence and likelihood of each risk, AusNet have rated each of the individual risks blue, green, yellow, orange or red (in order of severity). See Appendices for additional information on this rating system.

Table 4-176 Risks of Option 3

	Risks	Consequence	Likelihood	Risk rating
R3.1	Lower operational risk due to system failure.	Level 3. Reduced possibility of system failures, outages and downtime causing delays, inefficiencies and inability to operate and meet customers' expectations from the business.	Likely	B
R3.2	Risks associated with new capability requirement.	Level 2. Consolidation of IP/MPLS, SD-WAN introduces capability requirement to management of the network. It also introduces risks associated with new implementation. Delay in the adoption of new technology may negatively impact our revenue or require unforeseen capital investment to replace obsolete technology. In addition, as with all new business solutions, there are risks associated with solution design, implementation, budgeting, planning, integration, future maintenance, upgrades and support.	Likely	C
R3.3	New solution implementation may not be compatible to the topology, e.g., limited degree of overall consolidation due to geographic alignment of service delivery points.		Likely	C

Alignment to mitigation of key risk drivers

As discussed in Section 3.4, this option is fully aligned in respect to reducing operational technology risk and providing a stable environment. However, implementation risks are higher due to major design change and adoption of new technology as previously explained.

Table 4-18 Risks drivers of Option 3

Risk Driver		Achieved by
Technology risk increases over time.	✓	By maintaining critical systems in line with their supplier lifecycle maintenance requirements.
Cost of maintenance increases as technology ages.	✓	Staying in vendor support is more efficient and cost effective than requiring customised vendor support.
Spare parts unavailable.	✓	Maintaining infrastructure assets in line with their lifecycle requirements ensures spare parts availability reducing down time.

Availability of new technology.	✓	Obtain efficiency by replacing obsolete technology.
Security.	✓	Critical lifecycle refresh remedy vulnerabilities and ensure the security and reliability of the network.

Overall AusNet consider overall this option is rated High.

Alignment to business related drivers of expenditure

As discussed in Section **Error! Reference source not found.**, there are three business drivers that AusNet has identified, and is focussing on over the next regulatory period. The table below highlights how this option will input into the initiatives where relevant. Where AusNet consider that a business driver is not directly relevant to the option, N/A is applied.

Table 4-19 Business related drivers of option 3

Business drivers		How this program achieves this
Lead energy transformation, embracing change.	✔	Establishing a simplified, cost-effective and consolidated communication platform to prepare for the future need of scalability and flexibility, allowing introducing the opportunities associated with mobility and collaboration.
Drive efficiency and effectiveness throughout the portfolio.	✔	Maintaining infrastructure assets in line with its lifecycle allows the business to continue to operate efficiently and limit communications network failure. Network failures cause delays and increase the cost of operating the business. Managing and addressing network issues and risks contributes to sustainable, quality network services to AusNet customers.
Generate trust and respect with customers and partners.	✔	Enhanced risk management capability enables the organisation to be complied with AEMO and an industry safety leader to advocate regulatory development.

5. Assessment and recommended option

5.1 Assessment of the options

For this recurrent ICT expenditure, AusNet have selected a number of criteria to assess each of our identified options. AusNet consider that these criteria represent a comprehensive view of each option, in achieving AusNet's customer and business objectives as well as requirements of the AER in ensuring that any expenditure is both prudent and efficient.

The table below summarises our assessment of each of the options against the criteria.

Table 5-1 Summary table of the assessment of the options

	Option 1	Option 2	Option 3
Alignment to objective	Not aligned to objectives	Aligned with program objectives	Aligned with program objectives
Costs	$4.04M	$4.75	$6.58M
Overall risk rating	High	Medium	High
Alignment to technology risk cost avoidance drivers	No alignment	High alignment	High alignment
Alignment to business related drivers of expenditure	No alignment	High alignment	High alignment

Although Option 3 and Option 1 both have lower costs than Option 2, both have significant risks.

Option 1 has a much higher likelihood of experiencing system performance, stability, data and quality issues than Option 2. This leads to increased risk of failing to meet business, operational and regulatory requirements.

In relation to Option 3, currently the transition risk and lower reliability of IP based communications makes it an unacceptably risky path for a mission critical service such as corporate communications. AusNet would expect to transition to this type of communication solution as the technology matures which is likely to be part of our proposal for the 2029-2034 regulatory period.

5.2 Recommended option

Based on this assessment, Option 2 is the recommended option as it is highly aligned with objectives in a cost effective and risk controlled manner.

Table 5 confirms what is in scope and out of scope for this program of work, as well as the other programs of work on which the successful delivery of this program is dependent on.

Table 5-3 Confirmation of scope of recommended option

In scope	Out of scope	Dependencies
Comms hardware (including associated software) such as Routers, Switches, IT Wireless Infrastructure.	Excluding hardware refresh associated with OT and technology investments (captured in respective GAAR briefs) .	Customer Information Management.
	User Role based Access System security appliances.	Security.

In Table 5-4 below, AusNet have identified techniques or actions to mitigate the risks identified for this option.

Table 5-4 Option 2 risks and mitigating actions

	Risk	Rating	Mitigation
R2.1	Lower operational risk due to system failure	C	Refresh device fleet and upgrade firmware
R2.2	Not able to introduce new capabilities due to old technologies being in place	C	Hardware replacement and capacity increase

6. Appendices

6.1 Attachment 1 – Risk level matrix

The figure below shows the risk level matrix to which AusNet have assessed each of risks within the options. Risks of highest concern are rated red, whereas those of lowest concern are rated blue.

Figure 6-1

Likelihood	Consequence 1	2	3	4	5
Almost Certain	C	C	B	A	A
Likely	D	C	B	B	A
Possible	E	D	C	B	A
Unlikely	E	D	D	C	B
Rare	E	E	D	C	C

Consequence Rating	
5	Catastrophic
4	Major
3	Moderate
2	Minor
1	Insignificant

Overall Risk Rating	
A	Extreme
B	High
C	Medium
D	Low
E	Very Low