

ICT Asset Strategy 2024 - 2029

Investment Brief

Providing a resilient network for the community adapting to
changing climate and external hazards

Document Version: V2.0

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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 Endeavour Energy’s ICT Asset Strategy 2024-2029.

1.2 References

Document	Version	Author
Future Investment Scenario Planning	Final report – March 2022	Endeavour Energy
Business Narrative Regulatory Reset 2024-29	Draft V2 – February 2022	Endeavour Energy
DER Integration Strategy and Business Case	Version 1.0 September 2022	Endeavour Energy
Endeavour Energy Data Strategy	28 January 2022	Endeavour Energy
ICT Asset Strategy 2024-2029	Draft V0.1 – June 2022	Endeavour Energy
SEC Newgate Research Focus Group Outcome Report	December 2021	Endeavour Energy

1.3 Document History

Date	Version	Comment	Author
29 August 2022	0.1	Initial Draft	
14 September 2022	0.2	Updated initiatives, costs and structure as per feedback from Barry Pendle	
30 September 2022	1.0	Updated with feedback from Rod Howard and Barry Pendle	
02 November 2022	1.2	Refreshed financial details	
20 December 2022	2.0	Final Version	

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1.4 Approvals

Position	Date
Head of Technology	21/12/2022

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2 Strategic Context

There are four priority themes that underpin Endeavour Energy’s Purpose, Vision and Strategic Goals which will inform development of our expenditure plans and forecasts for the 2024 - 2029 regulatory period.

This investment brief addresses the non-system ICT investment required to support the priority theme “Providing a resilient network for the community adapting to changing climate and external hazards”.

This investment theme links closely to our strategic goals: “Health, safety & environment”, “Performance” and “Growth through innovation”. Additionally, it supports our vision to be among the best performing networks in Australia as measured by safety, customer engagement and financial performance metrics and ensure overall cost of providing electricity services is efficient. These can only be achieved through robust strategic planning due to the changing nature of the energy sector. Extreme weather events will continue to increase in frequency and intensity. Governments, businesses and communities are setting increasingly ambitious emissions reduction targets to limit the impacts of climate change. Our investments focus on providing a resilient network by supporting delivery of network services through enhanced platforms and services for increased protection against cyber security threats and to comply with regulatory obligations such as the Security of Critical Infrastructure Act; and to enhance data and analytics to make better informed enterprise decisions and information sharing requirements. Endeavour is investing in ensuring resilient network for customers despite the changing nature of the energy sector, including extreme weather events which are increasing in frequency and intensity, and increasingly ambitious emissions reduction targets set by governments, businesses and communities to limit the impacts of climate change.

In developing our non-system ICT programs, we also consider the National Electricity Objective “to promote efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers of electricity with respect to:

- price, quality, safety and reliability and security of supply of electricity
- the reliability, safety and security of the national electricity system.”

It is anticipated that the National Electricity Objective will be updated within the following regulatory period to incorporate an emissions objective which will be accounted for in the delivery of our non-system ICT programs.

In a Customer Panel conducted with Endeavour Energy customers, the participants highlighted the importance of providing a resilient network for the community adapting to changing climate and external hazards through the following verbatim responses:

- “Rapid or accelerated technology risks incurring excessive costs, while stalling means that constraints will tighten and eventually the technology will be too advanced to catch up on.” – *Residential, ATSI, Innovator, South Coast*
- “I believe a rapid transition is the best choice as the network is at present in a critical situation which needs urgent attention. The increases will always affect all customers but the long-term effect will have peace of mind.” – *SME, high-energy user, South Coast*

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Endeavour Energy’s priority themes underpin our Purpose, Vision and Strategic Goals from 2024 – 2029 as identified in **Figure 1**. The priority themes are reliant on investment in information technology to deliver the information, infrastructure, and capability across the breadth of our customer base, and to support the ecosystems of employees, contractors and suppliers who deliver the services that customers expect.





Purpose	Powering communities for a brighter future				
Vision	To be amongst the best performing networks in Australia as measured by safety, customer engagement and financial performance metrics				
Strategic Goals	1. Health, safety & environment	2. Employee engagement	3. Customer & communities	4. Performance	5. Growth through innovation
	<ul style="list-style-type: none"> Establish an organisation-wide culture of safety Establish streamlined systems and processes 	<ul style="list-style-type: none"> Lift Performance through clear expectations and performance-oriented mindsets Build leadership capability 	<ul style="list-style-type: none"> Establish easy connection with customers Enhance recognition by customers through valued interactions and relationships 	<ul style="list-style-type: none"> Optimise work program and risk allocation Improve quality, speed and cost to deliver 	<ul style="list-style-type: none"> Leverage existing asset base to create value Augment network with smart investments and new technology
Priority Themes	 Safe, affordable & reliable		 Resilience		 Sustainable growth
					 Future Energy Choice

Figure 1: Priority Themes

This investment brief addresses several initiatives required to provide a resilient network for the community including, though not limited to, several critical initiatives related to the delivery of cyber security controls to protect critical assets. It is important to note that the purpose of these investments is to maintain current cyber security capabilities. Investments necessary to meet requirements by the Federal Government in response to the changes made on 22 November 2021 to the Security of Critical Infrastructure Act 2018 are currently being determined. However, as this analysis has not yet been finalised, a separate investment brief will be prepared to address the requirements from changes to the Security of Critical Infrastructure Act 2018. Please refer to Appendix – Limitations of proposed cyber security investments for a review of limitations of proposed cyber security investments.

This investment brief, illustrated in Figure 2, identifies four key drivers and challenges for investment, the benefits that can be realised, and how these benefits will be delivered through strategic responses (i.e. programs). The rationale and narrative supporting the investment logic is outlined in the following sections.

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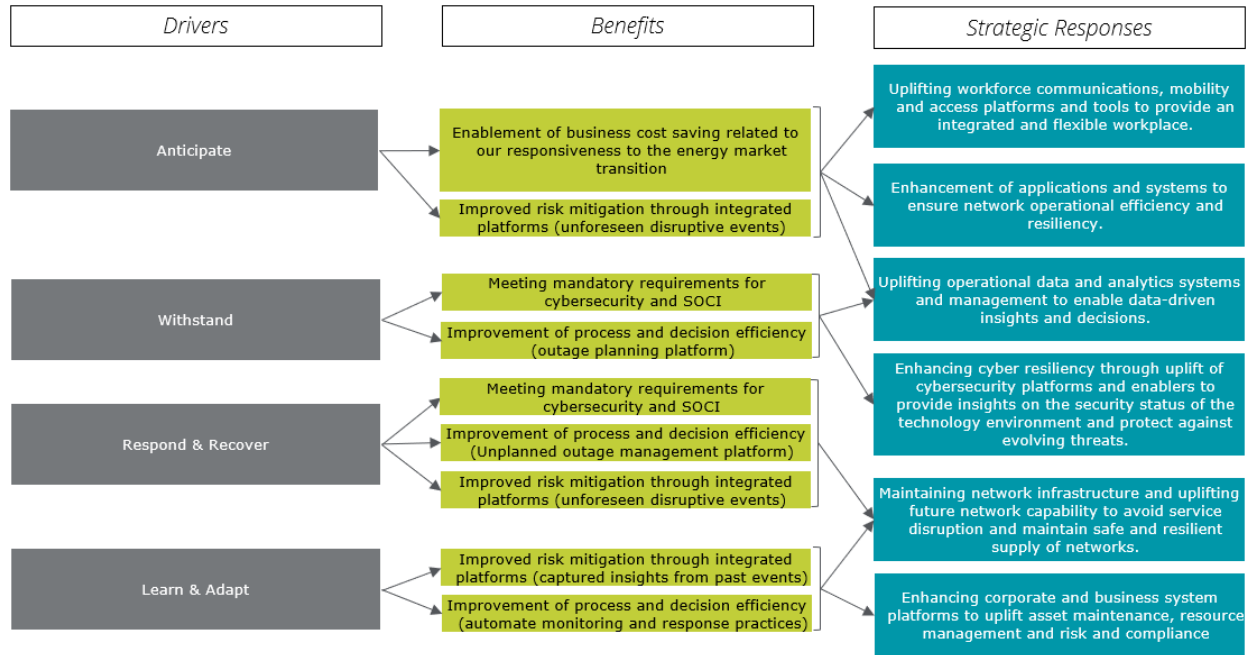


Figure 2: Investment Logic Map

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2.1 Drivers and challenges

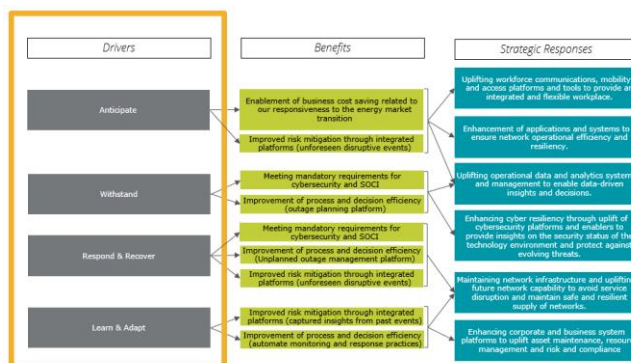


Figure 3: Investment Logic Map identifying four key drivers of anticipate, withstand, respond & recover and learn & adapt.

The four key drivers for investment for this priority theme are:

- Anticipate.** Climate change has become an important global development priority. As climate change related extreme weather events such as bushfires, heat waves and severe storms continue to increase in frequency and intensity, it is critical to ensure that the network can provide a high level of reliability. Furthermore, investments will need to accommodate the evolving nature of the energy sector over the long term. The ability to accurately forecast the future energy market transition has become an essential function for all energy companies. This applies to the long-term business planning, medium-term strategy and short-term response initiatives related to the future energy market.

There are several challenges associated with ensuring our ICT capabilities are aligned with the energy market transition. Our current state of technology will not allow us to sufficiently accommodate future customer growth related to data sharing, changes in workforce practices related to future grid monitoring and long-term scenario projections related to future energy market transition. Investments in the next regulatory period will uplift these capabilities to ensure better price outcomes for customers in the long term.

Endeavour Energy is facing medium-term challenges of building the capability to provide early intervention of the network grid and enhance its responsiveness to the identified threats as it becomes increasingly difficult to predict the impacts from major events like floods and bushfires. Scenario projections have become an integral part of how we are able to anticipate the trajectory of climate change. This function will need to be supported by accurate data and insights generated by Endeavour Energy through its interactions with various stakeholders. ICT investments in this area will enable and enhance our ability to monitor and share data across different areas of the grid in the most efficient way possible.

High Distributed Energy Resources (DER) penetration will lead to high network variability on both the supply and demand side, with the potential for large peaks and troughs in net demand, especially during peak periods. This can lead to increased network stress which Endeavour Energy must

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anticipate and plan for and nudge customer behaviours. This can only be done if we have the right capability to collect and process large volumes of data and extract insights from these.

- **Withstand.** As electricity networks are critical assets, it is important they are secure and resilient against a wide range of threats including cyber security and physical threats. Two avenues to manage these threats are ensuring these networks can predict and detect security threats for early intervention and are flexible in ensuring compliance with changing regulatory requirements. In addition, the current methods of planning outages for maintenance and resolving issues cannot cope with a more complex energy market because of the changing nature of future network capability and new form of data insights driven by increased number of energy sources.

Challenges related to this area primarily relate to the increasing volume and richness of information from zone substations and the IoT sensors on the network. With greater complexities in new information and data, it becomes increasingly important for us to integrate OT and IT data to deliver accurate and timely insights for us. By providing adequate bandwidth for data sharing, accurate insights can translate to reliable supply of electricity and improved outage planning and response. It is also important we ensure customers' data is secure and our infrastructure is protected because of the increasing scale of the incidents and the value customers place on avoiding disruptions and system failure.

Within the next regulatory period, Endeavour Energy will implement new ways of analysing and extracting insights from a wide range of data. These insights will allow us to understand and capture the issues at the most critical time. Advancements in technology catalyse a need to invest in new ICT capabilities to respond to uncertainties and changes in the risk level of new security threats. This is important to guarantee the reliability of the electricity network for our customers. Improved outage planning platforms and tools will also minimise any potential disruptions from network issues to deliver safe and reliable electricity supply to customers.

As the energy sector continues to evolve, rules and regulations will also change. We will need to be flexible in terms of how we can respond to these changes and ensure we can justify our compliance with substantive evidence.

- **Respond & Recover.** Customers expect a consistent level of service in terms of reliable electricity supply during periods of any disruptions in the face of external threats. The role of renewable electricity in the energy sector is expanding as the costs of delivering new renewable technologies continue to decrease in the long term. This means management of unplanned outages, incident responses and business continuity related to disruptive events will require a dynamic solution.

As businesses and communities are increasingly becoming more connected in terms of energy and data sources, it becomes challenging for Endeavour Energy to respond and recover from incidents. Therefore, we need to enhance the internal process and culture of our workforce to ensure employees are not susceptible to risks and the changing nature of these risks and are equipped with the right knowledge and tools to respond effectively to these risks. We are focused on maintaining and enhancing existing infrastructure to align our risk profiles with the potential impacts of new security threats from the changing environment of the energy sector. Investments in the next regulatory period also aim to support the digital capability of internal collaboration of our workforce. This helps promote efficiency of internal process and embed risk management framework across different teams.

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- **Learn & Adapt.** New ways of working can be developed based on insights from previous security threats and disruptive events. To ensure we can successfully capture and properly incorporate these insights into future decisions and planning process, information systems from across the business need to work together seamlessly.

Endeavour Energy has proposed new investments to ensure we are able to capture these insights for the benefit of the customers and communities as we are continually adapting to the uncertainties of the new environment. We will also automate some of our processes to ensure monitoring and response practices can be optimised to allow for quicker response time.

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2.2 Way forward benefits

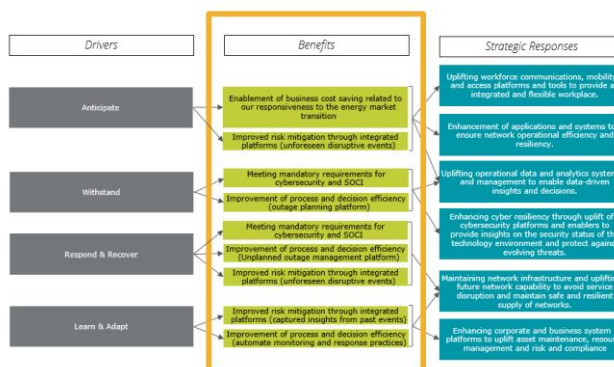


Figure 4: Investment Logic Map identifying four benefits that can be realised.

Endeavour Energy is focused on identifying solutions aligned to the priorities and expectations of our customers through our plans to invest in, operate and provide electricity services. By addressing new challenges identified by our customers and stakeholders, there are opportunities to derive different types of benefits. For example, through enhanced technology capabilities, we can integrate data insights collected from customers and businesses with our internal system to improve our short-term and long-term forecasts. These benefits can either be quantitative or qualitative.

We have identified the following benefit categories for this investment brief. Please refer to sections 4.4 and 5.5 for an analysis of the quantifiable and qualitative benefits associated with the investment:

- **Enablement of business cost saving related to our responsiveness to the energy market transition.** Endeavour Energy can benefit from increased digitisation of the workplace through improved productivity, cost savings, workforce agility and flexibility. Technology enables business cost saving within the field worker function through uplift in workforce communications, mobility and access to platforms and tools. The ageing workforce can also benefit from these investments, which lead to better retention of employees in the long-term. These business cost savings enable us to achieve better price outcomes for customers.

These benefits can only be realised if we are able to successfully *anticipate* and manage uncertainties related to the future energy market transition. This will be a challenge as a forecast is simply one representation of the future and informed decisions should be based on quality data. These insights offer flexibility and contribute to the building block of future business operation that will provide future cost saving.

The table below provides information on the benefits and their measures.

Endeavour Energy Benefits:

- Attract and retain new and older employees

Main Benefit Measures:

- Productivity improvements – workforce collaboration, planning and customer interactions

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Endeavour Energy Benefits:

- Increased flexibility and adaptability of employees in a complex energy market
- Improved productivity through uplift in workforce communications and platforms.

Main Benefit Measures:

- Customer and agent time savings benefit
- Time to competency
- Data collection, sharing and reuse

- **Meeting mandatory requirements for cybersecurity and SOCI.** Increased focus on security will be required as cyber-attacks become more frequent and sophisticated. Investments in cyber security ensure we follow existing regulatory frameworks and have the flexibility to respond to any future changes to this framework. This allows us to better protect critical assets and data associated with customers and operations. This also supports the development of new capabilities so cyber-attacks can be monitored and handled appropriately.

These benefits are realised by *withstanding* uncertainties related to the evolving trends of the energy market transition and the new regulatory landscape. Investment in capabilities in accordance with Federal Government frameworks also allows Endeavour Energy to *respond and recover* from cybercrime more efficiently. By making informed decisions to plan the future of critical assets using short-term, medium-term and long-term projections, we can optimise and achieve the different benefits obtained from these investments. While anticipation of these risks is important, the benefits from investments can only be guaranteed if our critical assets can withstand potential disruptive events as required by regulation.

The table below provides information on the benefits and their measures.

Endeavour Energy Benefits:

- Maintain compliance with existing regulatory frameworks related to cyber security
- Minimise the risk related to cyber-attacks
- Establish and support the development of internal culture and processes focusing on cyber security risks.

Main Benefit Measures:

- Productivity losses
- Avoided loss from cyber-attacks
- Avoided system failure costs

- **Improvement of process and decision efficiency for outage management and response.** Information and data collected can be used to support and strengthen effective decision-making processes. As the amount of data available continues to increase, investments in the next regulatory period provide us with the right capabilities to manage this data and draw insights related to predictive and condition-based maintenance. This allows us to manage planned outages and ensure customer experience has not been affected.

Investments in the next regulatory period also aim to improve the efficiency of response to potential disruptions that can lead to unplanned outages. Insights from collected data at the network and customer levels allow us to efficiently and effectively respond to disruptions and external threats. This can be done through a combination of automation and enhanced integration between IT and OT infrastructure. Digital capability enables decision-making to be informed by real-time data.

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Past events provide valuable information for future planning of the network and customer strategy. Enhanced automation of monitoring and response practices for the internal workforce ensures we can efficiently and effectively integrate insights from these events to the internal process.

In combination with the uplift in our workforce capability, culture and process, we will need to *withstand*, *respond* and *recover* from potential disruptive events to realise the above benefits. There are also benefits derived from insights from previous decisions and process, which can provide cost reduction and future productivity. Greater benefits can be achieved by allowing us to continue *learning* and *adapting* to future challenges.

The table below provides information on the benefits and their measures.

Endeavour Energy Benefits:

- Improved efficiency of outage planning platform
- Improved efficiency of unplanned outage management platform
- Enhance the automation of monitoring and response practices
- Optimisation of decisions on Capital Expenditure

Main Benefit Measures:

- Avoided system failure costs
- Improved employee productivity – workforce collaboration, planning and customer interactions
- Time to competency
- Data Reuse benefit
- Reduction in cancelled maintenance works
- REPEX and AUGEX benefit

- **Improved risk mitigation through integrated platforms.** It is vital we address risks related to the changing climate and external hazards. New insights into the impacts of climate change and extreme weather disruptions on the network grid can improve the risk profile of the network. This helps address threats that disrupt the functioning of core operations. Additionally, investments in the next regulatory period can promote a culture that is conducive to effective risk management. This may also provide the needed support for our workforce to respond effectively to disruptions.

These benefits are realised by addressing the fundamental process of risk management related to security threats and climate change risks. To retain these benefits in the long term, supporting investments are needed to establish and encourage risk culture and encourage workers to *learn* from past events and *adapt* to changes. In the short term, we can control and minimise the costs related to these risks by providing the right support to the business to *anticipate*, *respond* and *recover* quickly from any potential disruptions.

The table below provides information on the benefits and their measures.

Endeavour Energy Benefits:

- Improved risk mitigation against unforeseen disruptive events
- Improved risk mitigation through captured insights from past events

Main Benefit Measures:

- Reduction in cancelled maintenance works
- Customer value of outage inconvenience
- Avoided system failure costs

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Endeavour Energy Benefits:

Main Benefit Measures:

- Customer time savings
- Agent time savings

In addition to the quantitative benefits provided related to risk reduction and safety improvement, these areas can also provide qualitative benefits related to risk and safety culture for the internal workforce. This may improve employee experience and attract and retain talent.

Other qualitative benefits include:

- Stronger positive reputation and brand related to the establishment of quality standard for the products and services offered to customers
- Community productivity gains to build trust and strengthen relationships with customers and stakeholders in the management of their data and information.

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2.3 Objectives and outcomes

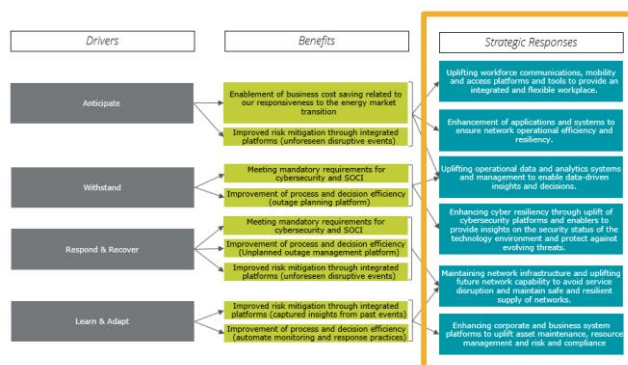


Figure 5: Investment Logic Map identifying six strategic responses to deliver against the investment drivers and realise benefits identified.

The following strategic responses are proposed to meet our investment drivers, address the development challenges, and realise the benefits identified.

- **Strategic Response 1. Uplifting workforce communications, mobility and access platforms and tools to provide an integrated and flexible workplace.**

This strategic response will provide staff with a modernised experience through enhanced workforce applications and devices, connectivity, access to platforms and locations. This program addresses the *anticipate* driver.

Key objectives and outcomes in this strategic response include:

- Enable staff biometric and mobile access to internal platforms and locations. Implementation of biometric sign-in capability to internal portals and platforms, as well as biometric access control and mobile device access to Endeavour Energy locations.
- Uplifted field worker mobility and connectivity. Extending digital services, implementing smart cars and trucks to enable field workers with enhanced communications and connectivity.
- Uplifted workforce communications platforms. Implementation of a common unified communications platform for staff to informally connect with peers, and uplift of a business video streaming platform to enable increased linkage between workers, jobs and inventory platform.
- Enhanced and modernised workforce applications and devices. Enhancement of workforce applications, uplift of simplified device build capability, deployment of Windows as a Service and refresh of workforce devices to provide staff with a modernised digital experience.
- **Strategic Response 2. Enhancement of applications and systems to ensure network operational efficiency and resiliency.**

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This strategic response will enhance systems to improve operational efficiency and resiliency through uplifted workforce scheduling management and Operation Technology systems. This program addresses the *anticipate* driver.

Key objectives and outcomes in this strategic response include:

- Enhanced workforce scheduling. Implement a modern cloud-based subscription workforce scheduling system with micro-services enabled enterprise integration.
- Advanced operational efficiency. Maintain and enhance Operation Technology systems to improve operational efficiency, including implementing artificial intelligence and machine learning capabilities.
- **Strategic Response 3. Uplifting operational data and analytics systems and management to enable data-driven insights and decisions.**

This strategic response will design and implement enhancements to records management, data platforms and analytics capabilities to enable modelling of business events (including emerging needs, incidences, and planned outages), predictive and prescriptive asset management, and controlled data sharing with internal and external stakeholders in compliance with regulations. This program addresses the *anticipate* and *withstand* drivers.

Key objectives and outcomes in this strategic response include:

- Uplifted response to business events and needs. Development of data platforms, tools and analytics capabilities to support business event information modelling, enabling insights into incidences and outages, and address emerging needs.
- Controlled and secured data sharing. Design and govern integrated, searchable and secure records management to support controlled data sharing with internal and external stakeholders ensuring security, classification and management at record level and in compliance with regulations.
- Enhanced predictive and prescriptive asset management capabilities. Design and implementation of data architecture and enhancement of Industrial Internet of Things operational data management to support the adoption of modern predictive and prescriptive asset management capabilities.

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- **Strategic Response 4. Enhancing cyber resiliency through the uplift of cybersecurity platforms and enablers to provide insights on the security status of the technology environment and protect against evolving threats.**

This strategic response will review and uplift cyber security platforms and enablers, insights and exposures, and cultivate a cyber safety culture for staff and partners. This program addresses the *withstand* driver.

Key objectives and outcomes in this strategic response include:

- Uplifted cybersecurity platforms and enablers. Build resilience to the ever-changing cyber threat environment and strengthen the protection of information used to authorise access to systems, protecting critical data in accordance with risk, regulatory and legislative requirements.
- Enhanced cybersecurity insights and exposures. Ensure cyber and information security foundations are in place to support technology rollout and business systems changes. Underpin information security with strong governance and standards to align to international best practices.
- Enable cyber security culture and organisational resilience. Cultivate a cyber safety culture for staff and partners, where people and providers understand their responsibilities, leaders take accountability and information security is embedded into the processes of selection, procurement and management of products and services.
- **Strategic Response 5. Maintaining network infrastructure and uplifting future network capability to avoid service disruption and maintain safe and resilient supply of networks.**

This strategic response will uplift network infrastructure to ensure integration and connectivity, enable self-healing and self-scaling and enhance security. This program addresses the *respond & recover* and *learn & adapt* drivers.

Key objectives and outcomes in this strategic response include:

- Enhanced security to applications, data and services. Transform application zero-trust network and enhance identity access management tools to enforce appropriate access control and secure remote access to applications, data and services.
- Integrated network to support connectivity capabilities. Maintenance, consolidation, and rationalisation of IT/OT network to ensure integration with core platforms, uplifted connectivity and communication capabilities.
- Enable self-healing and self-scaling networks. Implement future network capability to allow for AI-driven monitoring capacity that supports the ability for networks to self-heal and self-scale to improve responsiveness to critical events.

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- **Strategic Response 6. Enhancing corporate and business system platforms to uplift asset maintenance, resource management and risk and compliance.**

This strategic response will enhance corporate and business system platforms to uplift asset and resource management, enable integrated identity management and identity authentication service (IDM/IAS) and business platforms, and enhance governance risk and compliance. This program addresses the *learn & adapt* driver.

Key objectives and outcomes in this strategic response include:

- Integrated IDM/IAS. Uplifting and integrating identity management and identity authentication management (IDM/IAM) capability to enable single sign-on across corporate platforms.
- Uplifted and integrated business platforms. Uplift of business platforms to align with process restructures and integration with corporate platforms to ensure seamless junctions between systems.
- Enhanced governance risk and compliance. Implement an enterprise Governance, Risk and Compliance (GRC) solution for risk and compliance across Endeavour Energy.
- Enhanced asset and resource management platforms. Uplift of asset management system to enable, fleet management system to provide automation, warranty management system to uplift supplier contract and asset lifecycle management, human resource, enterprise resource planning and employee expense management.

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3 Investment Options

3.1 Options Description

Three options were considered to address the drivers and challenges outlined and deliver the benefits described above.

3.1.1 Option 1: Ensure regulatory changes and improved response to vulnerable customers

The focus of Option 1 is to *ensure cyber, business continuity and network resilience* and an *active response to regulatory changes and to vulnerable customers*.

This option addresses two drivers:

- **Withstand.** Endeavour Energy needs to ensure it maintains network resilience through capabilities which predict and detect security threats for early intervention, as well as effective response. Network resilience includes cyber resilience in response to cyber threats and the flexibility in ensuring compliance with changing regulatory requirements.
- **Respond & Recover (for vulnerable customers).** Endeavour Energy needs to maintain its operations to provide vulnerable customers with consistent service and notice of any disruptions in the electricity supply. Areas of focus are management of unplanned outages, incident response and business continuity related to disruptive events.

This option has a lack of initiatives supporting two of the key strategic external drivers which support the future network needs. Additionally, the investments insufficiently meet the needs and expectations of customers in how Endeavour Energy prioritises investments.

3.1.2 Option 2: Ensure regulatory changes, improved response and recovery to all customers, and improved anticipation of weather events and energy market transition

The focus of Option 2 is to *forecast weather events and energy market transition*, as well as *ensure network and business continuity/reliability*. This option specifically focuses on short term anticipation of network.

Option 2 builds upon the drivers that are the focus of Option 1 by addressing the evolving nature of the network in response to changing climate and external hazards. Endeavour Energy will need to build on its existing ICT capabilities to be able to predict and understand the short-term trends related to future uncertainties of the energy market transition.

In addition to the drivers addressed under Option 1, Option 2 addresses additional drivers for:

- **Anticipate (Real/Short Term).** Endeavour Energy needs to ensure it has the capability to forecast the future energy market transition and weather events to enable planning of the future grid in the short-term, enhance greater responsiveness to potential disruptions by leveraging insights from customer data and provide early intervention of the network grid.

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- **Respond & Recover (for all customers).** Endeavour Energy needs to maintain its operations to provide all customers with consistent service and notice of any disruptions in the electricity supply.

This option has a lack of initiatives to help Endeavour Energy to adapt to changing weather and market conditions, as well as learn from previous practices to inform future processes. Additionally, customer expectations for how Endeavour Energy provides a reliable electricity supply cannot be fulfilled without sufficient investment in pre-emptive platforms and capabilities.

3.1.3 Option 3: Ensure regulatory changes, improved anticipation, response and recovery, and improved learning and adaptation capabilities

The focus of Option 3 is *developing insights and understanding to improve processes through greater information sharing from implementation of new innovations and data sources*. This option specifically focuses on long-term view of the network. Option 3 builds upon the drivers that are the focus of Option 2.

In addition to the drivers addressed under Option 2, Option 3 addresses additional drivers for:

- **Learn & Adapt.** Endeavour Energy has undertaken work to uplift its analytics, AI and machine learning capabilities. As Endeavour Energy continues to evolve, it must ensure it maintains capabilities in data, analytics & insights and automation to respond to and learn from disruptive events. As the energy sector continues to evolve, insights from previous actions will allow Endeavour Energy to adapt better to the new environment over the long term.
- **Anticipate (Long Term).** Endeavour Energy needs to ensure it has the capability to forecast the future energy market transition and weather events to enable planning of the future grid in the long-term.

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3.2 Criteria Description

The three options were analysed across the following criteria to arrive at a balanced score for each option. These criteria were informed by the Endeavour Energy business case framework and tailored to the considerations and context of this specific investment brief.

- **Strategic alignment with Drivers:** The strategic alignment perspective assesses the extent to which the initiatives address the challenges in meeting four of the **external drivers** in the investment brief *Anticipate, Withstand, Respond & Recover and Learn & Adapt*.
- **Alignment with customer priorities:** The alignment with customer priorities perspective assesses the alignment with customer priority insights elicited from exploratory focus groups of mixed customer segments to gain insight into what’s important to them¹: Providing a reliable supply; Responding to emergencies; Prudent and efficient management of the network; Researching, trialing, and installing new technologies; and Keeping customers informed.
- **Risk mitigation associated with investment:** The risks perspective assesses the **qualitative** likelihood of mitigating Endeavour Energy corporate risks (corresponding low to high) associated with investment in each of the initiatives within the options.
- **Benefits associated with investment:** The benefits perspective assesses the **quantitative and qualitative** benefits to Endeavour Energy and the Customer community of the proposed option and how these will be realised.
- **Costs associated with investment:** The cost perspective assesses the **quantitative** project one-off and recurrent cost impacts of the proposed option. For this criterion the scores have been allocated as follows: a score of 3 for lowest cost option, 2 for middle cost option, and 1 for the highest cost option.

For each criterion, a score between 0 and 4 was awarded where 0 denotes very low alignment, 2 denotes some alignment, and 4 denotes very high alignment.

With the level of industry change to be expected in the next regulatory period, the weighting of the criteria reflects a priority for investment options that align with drivers for change and the customer priorities (30% across both criterion), mitigate Endeavour Energy’s corporate risks (25%), and provide a contribution to benefits and cost profile (45% across both criterion). **Table 1** provides a summary of these weightings across the three options to demonstrate the recommended option for investment.

¹ Endeavour Energy, “Business Narrative Regulatory Reset 2024 – 2029”, March 2022.

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3.3 Summary of Options Analysis

Table 1 summarises the analysis of the three options and the weighted score. Detailed analysis of each option against the criteria is in the Appendix.

	Weighting	Option 1 – Reactive investment	Score	Option 2 – Predictive investment	Score	Option 3 – Pre-emptive investment	Score
Strategic Alignment with Drivers	10%	This option invests in reactively responding to external threats and regulatory changes to ensure network resilience and cater for vulnerable customers.	1	This option focuses on predictively responding to external threats and regulatory changes through data platforms and asset management capabilities, as well as short-term anticipation.	2	This option enables a more longer-term focus on the network by focusing on investments which anticipate, learn and adapt to weather and market changes.	4
Alignment with customer priorities	20%	This option has a core focus on ensuring network resilience for vulnerable customers in adapting to cybersecurity threats and regulatory compliance.	1	This option demonstrates a stronger alignment with emergency responsiveness and keeping customers informed from investment in asset and scheduling capabilities, as well as greater investment in ensuring reliability of supply.	1	This option provides higher alignment with providing a reliable supply, which encompasses keeping customers informed, enhanced emergency response and seeking efficiencies in the management of the network.	2
Risk mitigation associated with investment	25%	There is a low mitigation of most corporate risk categories other than network reliability and resilience required to maintain cybersecurity and vulnerable customer requirements.	1	A slight increase in risk mitigation is achieved from operational and financial efficiencies, and enhancements in insights into incidents and outages to minimise environmental effects.	2	This option greatly mitigates against threats associated with network reliability and safety measures, as well as compliance with relevant regulation as a more pre-emptive lens is adopted.	3
Benefits associated with Investment <i>Note: the qualitative benefits are cumulative and quantitative benefits are based on a 10-year period</i>	30%	Quantitative Benefits: <ul style="list-style-type: none"> New Capital Expenditure: \$3.28M Comply Capital Expenditure: \$3.56M Recurrent Capital Expenditure: \$7.72M Qualitative Benefits: <ul style="list-style-type: none"> Improvement in risk culture for the workforce. Stronger positive reputation and brand. Build trust and strengthen relationships with customers and stakeholders in the management of their data and information. 	1	Quantitative Benefits: <ul style="list-style-type: none"> New Capital Expenditure: \$17.14M Comply Capital Expenditure: \$3.56M Recurrent Capital Expenditure: \$22.52M Qualitative Benefits: <ul style="list-style-type: none"> Improvement in safety culture for the workforce. Improve the working conditions and experience of the employees Attract and retain new talent. 	2	Quantitative Benefits: <ul style="list-style-type: none"> New Capital Expenditure: \$52.21M Comply Capital Expenditure: \$3.56M Recurrent Capital Expenditure: \$36.47M Qualitative Benefits: <ul style="list-style-type: none"> Community productivity gains. Improvement in risk and safety culture from past mistakes. 	3
Costs associated with investment <i>Note: this excludes non-project costs</i>	15%	<ul style="list-style-type: none"> New Capability Capital Expenditure: \$0.77M Compliance Capability Capital Expenditure: \$12.49M Recurrent Project Capital Expenditure: \$8.57M Operating Expenditure: \$12.98M 	3	<ul style="list-style-type: none"> New Capability Capital Expenditure: \$6.48M Compliance Capability Capital Expenditure: \$12.49M Recurrent Project Capital Expenditure: \$15.28M Operating Expenditure: \$19.85M 	2	<ul style="list-style-type: none"> New Capability Capital Expenditure: \$19.23M Compliance Capability Capital Expenditure: \$12.49M Recurrent Project Capital Expenditure: \$22.51M Operating Expenditure: \$26.87M 	1
WEIGHTED SCORE			1.30		2.10		2.80

Table 1: Summary of Options Analysis

Scored from 0 – 4. 0 = Very low alignment. 2 = Some. 4 = Very high alignment to Endeavour Energy desired outcomes.

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3.4 Recommended Option

Option 3 “Pre-emptive investment” is the most prudent and efficient option.

Option 1 “Reactive investment” does not permit proactive investment to anticipate and respond to external hazards and events, instead focusing on reactive responses to cyber and data threats. Additionally, the lower alignment with the suite of customer priorities demonstrates it does not sufficiently meet the expectations of customers in the forthcoming regulatory period.

Option 2 “Predictive investment” aims to anticipate short-term network performance against external threat; however, it does not enforce investments to learn and adapt to regulatory and weather event changes in the upcoming regulatory period. Additionally, this option does not provide a strong alignment with the customer priorities and has a lower contribution towards mitigating the corporate risks for Endeavour Energy.

In comparison to Option 1 and Option 2, Option 3 more strongly supports the external investment drivers and customer priorities identified as important to delivering the outcomes in this Investment Brief. Furthermore, the level of benefits achieved across the firm from investment under this option offsets the higher capital costs required to provide a resilient network.

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4 Implementation of the Recommended Option

To realise the significant planned benefits, the “Providing a resilient network for the community adapting to changing climate and external hazards” investment brief will require an appropriate approach to increase the likelihood the investment is delivered successfully on time and budget.

4.1 Delivery Roadmap

The implementation of the recommended option will be delivered through six programs of work, each program focused on the delivery of one strategic response, whose vision, objectives and outcomes are described in Section 3.3. The programs and the vision for each are described below:

1. **Uplift workforce communications, mobility and access.** Uplifting workforce communications, mobility and access platforms and tools to provide an integrated and flexible workplace. This strategic response will provide staff with a modernised experience through enhanced workforce applications and devices, connectivity, access to platforms and locations. This program addresses the *anticipate* driver.
2. **Ensure network operational efficiency and resiliency.** Enhancement of applications and systems to ensure network operational efficiency and resiliency. This strategic response will enhance systems to improve operational efficiency and resiliency through uplifted workforce scheduling management and Operation Technology systems. This program addresses the *anticipate* driver.
3. **Uplift operational data and analytics.** Uplifting operational data and analytics systems and management to enable data-driven insights and decisions. This strategic response will design and implement enhancements to records management, data platforms and analytics capabilities to enable modelling of business events (including emerging needs, incidences, and planned outages), predictive and prescriptive asset management, and controlled data sharing with internal and external stakeholders in compliance with regulations. This program addresses the *anticipate* and *withstand* drivers.
4. **Enhance cyber resiliency.** Enhancing cyber resiliency through the uplift of cybersecurity platforms and enablers to provide insights on the security status of the technology environment and protect against evolving threats. This strategic response will review and uplift cyber security platforms and enablers, insights and exposures, and cultivate a cyber safety culture for staff and partners. This program addresses the *withstand* driver.
5. **Uplift future network capability.** Maintaining network infrastructure and uplifting future network capability to avoid service disruption and maintain safe and resilient supply of networks. This strategic response will uplift network infrastructure to ensure integration and connectivity, enable self-healing and self-scaling and enhance security. This program addresses the *respond & recover* and *learn & adapt* drivers.
6. **Improve corporate platforms to uplift asset maintenance, resource management and risk and compliance.** Enhancing corporate and business system platforms to uplift asset maintenance, resource management and risk and compliance. This strategic response will build on the investments to 2024 to further enhance corporate and business system platforms to uplift asset and resource management, enable integrated identity management and identity authentication service (IDM/IAS) and business platforms, and enhance governance risk and compliance. This program addresses the *learn & adapt* driver.

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To support the delivery of the programs of work, it is proposed projects be split into two phases:

- **Plan.** The intent of the Plan phase is to establish the Project Management team, define the solution architecture, define the sourcing strategy and procure any solution components, and setup the development environment and practices for the following tranches.
- **Design, build, test and deploy.** The intent of this phase is to implement the solution for the project and decommission any legacy applications as appropriate.

The investment brief has two distinct phases:

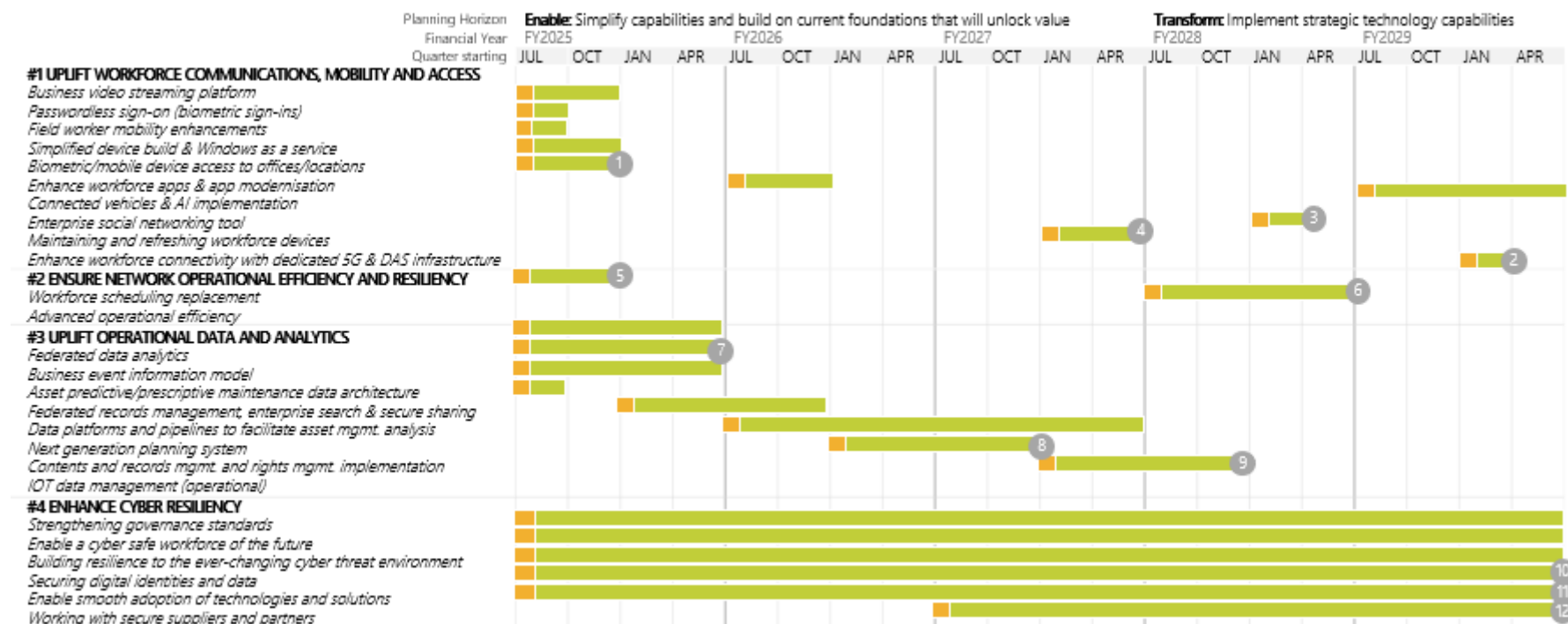
- **Enable (FY25-27).** Setting up Endeavour Energy to simplify capabilities and build on current foundations that will unlock value in the years to come. Target risk and compliance, with the key objectives aligning to protection against critical risks by targeting sophisticated attacks, reducing the cyberattack surface, and certification and compliance. The key objectives to be achieved for this phase include:
 - Enhanced workforce scheduling;
 - Uplifted response to business events and needs;
 - Controlled and secured data sharing;
 - Enable staff biometric and mobile access to internal platforms and locations;
 - Enhanced and modernised workforce applications and devices;
 - Enhanced security to applications, data and services;
 - Integrated network to support connectivity capabilities;
 - Integrated IDM/IAM;
 - Uplifted and integrated business platforms; and
 - Enhanced governance risk and compliance.
- **Transform (FY28-29).** Implementing strategic technology capabilities that will change the way things have been done previously to save time and equip Endeavour Energy with the best decision-making tools. Maturing the business integration of cyber security with an emphasis on agility and responsiveness to support resilience to change and realisation of opportunities. The key objectives to be achieved for this phase include:
 - Advanced operational efficiency;
 - Enhanced predictive and prescriptive asset management capabilities;
 - Uplifted cybersecurity platforms and enablers;
 - Enhanced cybersecurity insights and exposures

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- Enable cyber security culture and organisational resilience;
- Uplifted field worker mobility and connectivity;
- Uplifted workforce communications platforms;
- Enable self-healing and self-scaling networks;
- Enhanced asset and resource management platforms.

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A high-level roadmap for the investment brief is depicted below, showing the projects being delivered by each program and the delivery of benefits / outcomes throughout the regulatory period.



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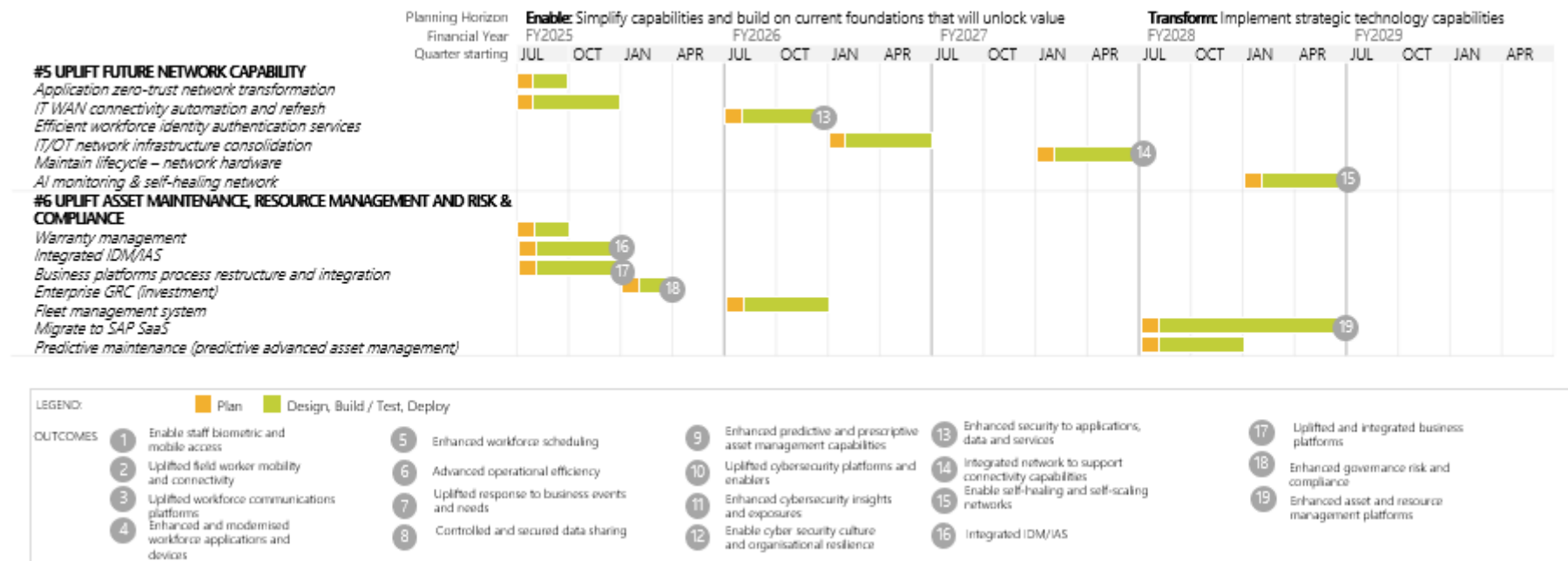


Figure 6: High level roadmap of the investment brief “Providing a resilient network for the community adapting to changing climate and external hazards”.

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4.2 Governance Arrangements

The programs will comply with Endeavour’s framework for program planning and delivery illustrated below.



Figure 7 Endeavour's Program Planning and Delivery Framework

Key governance arrangements from Endeavour’s delivery framework that are considered for this investment brief include Program Planning (Quarterly Review and Program Governance), Project Delivery (all governance arrangements), Project Completion and Business Benefit Realisation (project activities, approvals and acceptances). For further details, please refer to ICT Strategy 2024-2029.

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4.3 Program Resource Sourcing Strategy

The sourcing strategy for the investment brief is designed to complement and support the acquisition of the capabilities required to deliver the scope of the programs of work. Given this investment brief will involve the sourcing of multiple solutions throughout the regulatory period, it is proposed that a detailed procurement strategy be developed during the Program Planning phase for the rolling five-year ICT Capital Program.

The table below summarises the program capabilities that need to be sourced, and the sourcing options and the approach taken in the estimation of the costs. Endeavour Energy is proposing to go out to market for five of the six program capabilities to acquire the breadth of business and technology related capabilities required to deliver the investment brief.

Program Capability	Sourcing option
Strategic Program, Project, Deployment and Organisational Change Management Advice, expertise and capability across program, project, organisational change management and deployment	Augmentation: Endeavour Energy uses internal resources to deliver capability, but augments by contracting industry-leading specialists to leverage best practice, or to fill temporary gaps. In this investment case we have assumed these resources use contractor rates, based in Sydney.
Assurance Advice and quality assurance over aspects of program delivery.	Augmentation: Endeavour Energy uses internal resources to deliver capability, but augments by contracting industry-leading specialists to leverage best practice, or to fill temporary gaps. In this investment case we have assumed that these resources use contractor rates, based in Sydney.
Solution Architecture Solution architecture across programs of work under the investment brief.	In-house: Endeavour Energy uses internal resources to deliver. In this investment case we have assumed these resources use contractor rates, based in Sydney.
Data Management Provides industry-leading expertise to data.	Augmentation: Endeavour Energy augments by contracting industry-leading specialists to leverage best practice. In this investment case we have assumed these resources use contractor rates, based in Sydney.

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Program Capability	Sourcing option
Application Development <p>Vendor sources / provides the requisite hardware, software, application development for Software as a Service projects and industry-leading specialists provides application development capability for projects not involving Software as a Service.</p>	<p>Augmentation: Endeavour Energy augments by outsourcing to industry-leading specialists to leverage best practice</p> <p>In this investment case we have assumed these resources use contractor rates, based in Sydney.</p> <p>An alternative sourcing option considered for Application Development includes:</p> <p>Prime Integrator: Endeavour Energy engages a range of specialist industry-leading vendors to orchestrate delivery as a prime integrator for any projects.</p>
Systems and Network and testing <p>Provides industry-leading expertise for systems and network and testing capabilities.</p>	<p>Augmentation: Endeavour Energy augments by outsourcing to industry-leading specialists to leverage best practice.</p> <p>In this investment case we have assumed these resources use contractor rates, based in Sydney.</p>

Table 2: Sourcing options for Program Capabilities

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4.4 Investment Benefits

The recommended option delivers to all benefits described in the Section 3.3. These benefits have been categorised as Recurrent, Non-Recurrent – New Capability and Non-Recurrent Compliance benefits associated with the categorisation of the projects which deliver the benefits.

The quantitative benefits reaped from this investment include productivity improvements to enable workforce collaboration, planning and customer interactions, avoided losses from cybercrime and avoided system failure costs from enhanced cybersecurity protections and reduction in training and agent time delivered from improvements in process and decision efficiencies. These benefits are realised by addressing the challenges related to anticipate, withstand, respond & recover and learn & adapt from them.

Initiatives related to strengthening cybersecurity of Endeavour Energy will be developed across the 2024-2029 regulatory period. Therefore, the benefits generated from investment will be largely realised within the following regulatory period as shown in **Table 3**.

The qualitative benefits include improvement in risk and safety culture for the workforce and from past mistakes, stronger positive reputation and brand, enhanced trust and relationships with customers and stakeholders in the management of their data and information, improvement in the working conditions and experience of employees, attraction and retention of new talent and community productivity gains.

A summary of the quantitative benefits is provided in the table below.

	FY2025	FY2026	FY2027	FY2028	FY2029	Total 5 years	Total 10 years
Economic Benefits							
Non-Recurrent – New Capability projects	\$6.7M	\$8.3M	\$8.0M	\$7.6M	\$8.8M	\$39.3M	\$52.2M
Non-Recurrent – Compliance projects	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.1M	\$0.1M	\$3.6M
Recurrent projects	\$0.0M	\$3.9M	\$4.2M	\$4.9M	\$3.7M	\$16.6M	\$36.5M
Total Estimated Benefits	\$6.7M	\$12.1M	\$12.2M	\$12.4M	\$12.6M	\$55.9M	\$92.2M

Table 3: Quantitative Benefits for Investments

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4.5 Investment Costs

The categories of investment are shown in the tables below. Non-system ICT capex is categorised as Recurrent and Non-Recurrent expenditure. Further sub-categorisation of non-recurrent ICT investments are apportioned between:

- New or expanded ICT capability, functions and services
- Maintaining existing services, functionalities, capability and/or market benefits
- Complying with new / altered regulatory obligations / requirements

Endeavour Energy’s ICT costs have been assigned across these categories and split between capital expenditure and operating expenditure funded. The expenditure is estimated using a combination of existing costing models and input from subject matter experts. Further detail on how these costs have been developed and the assumptions that underpin them is provided in **Appendix 6**.

4.5.1 Investment Costs – definitions and key assumptions

The costs for ICT investments have been estimated based on the following definitions and assumptions:

- **Program Costs.** Costs related to the resources required to manage the Program including the running of the program, the management of strategic response projects, assurance and policy and legislative analysis. Considering the Program Capability sourcing approach, the costs have been calculated using a time and material allocation to individual program delivery schedules.
- **Other Program Costs.** Costs related to any travel and hotel accommodation requirements for project team members, the consumption of technology resources, and the office accommodation requirements. The costs have been calculated as a percentage of overall program costs.
- **Develop and Deploy.** Costs related to the resources required to support the planning, design, build, test and deployment of solution components under new capability projects. Considering the Program Capability sourcing approach, the costs have been calculated using a time and material allocation to individual project resource requirements and project delivery schedules.
- **Infrastructure Acquisition.** Costs related to the provision of solution components including compute power, digital storage, network devices, bandwidth equipment and rentals, software licences and security equipment. The costs have been calculated using a standard price per size of project.
- **Infrastructure Upgrades.** Where applicable, the costs associated with maintaining existing ICT services, functionalities, capability and/or market benefits, and occurs at least once every five years.
- **Contingency.** Costs related to the increases due to risks that are known, as well as unknown. The costs have been calculated as 19% of overall non-recurrent – new capability total expenditure costs
- **Infrastructure Maintenance.** Where applicable, a recurrent percentage of 5.78% of project costs has been applied to cover licence, break fix, and support calls for technology devices, digital storage, network devices, bandwidth equipment and rental, software licences and security equipment.
- **Service Management.** Costs related to an uplift in costs required to cover additional operational support, likely from additional capacity from ICT service providers.

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4.5.2 Non-Recurrent Project Costs – New capabilities expenditure

Non-Recurrent – New Capability costs are estimated to be the following:

	FY2025	FY2026	FY2027	FY2028	FY2029	Total 5 years
Non-Recurrent – New Capability Costs						
Program Costs	\$0.1M	\$0.1M	\$0.0M	\$0.0M	\$0.0M	\$0.2M
Other Program Costs	\$0.2M	\$0.2M	\$0.0M	\$0.3M	\$0.1M	\$0.8M
Develop and Deploy	\$3.8M	\$3.9M	\$0.9M	\$4.9M	\$3.0M	\$16.6M
Infrastructure Acquisition	\$0.0M	\$0.9M	\$0.1M	\$1.3M	\$0.3M	\$2.6M
Contingency	\$0.8M	\$1.1M	\$0.3M	\$2.2M	\$0.8M	\$5.2M
Total Capital Expenditure	\$4.8M	\$6.3M	\$1.3M	\$8.7M	\$4.2M	\$25.3M

Table 4: Non-Recurrent – New Capability projects’ investment costs funded through capital expenditure

	FY2025	FY2026	FY2027	FY2028	FY2029	Total 5 years
Non-Recurrent – New Capability Costs						
Program Costs	\$0.1M	\$0.2M	\$0.1M	\$0.2M	\$0.2M	\$0.8M
Other Program Costs	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M
Develop and Deploy	\$0.3M	\$0.4M	\$0.2M	\$5.0M	\$0.3M	\$6.2M
Infrastructure Acquisition	\$0.0M	\$0.0M	\$0.0M	\$0.1M	\$0.0M	\$0.1M
Contingency	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M
Total Capital Expenditure	\$0.4M	\$0.6M	\$0.3M	\$5.3M	\$0.5M	\$7.1M

Table 5: Non-Recurrent – New Capability projects’ investment costs funded through operating expenditure

A requirement for the Non-recurrent new capability expenditure is that it has a positive NPV. The table shows the quantifiable benefits and costs for this investment brief. Please refer to section 4.4 for a description of the quantifiable and qualitative benefits.

\$FY24M	New Benefit	New Cost	NPV
#3 Resilient Network	\$52.2M	\$25.3M	\$24.0M

Table 6 NPV Calculations

4.5.3 Non-Recurrent Project Costs – Maintaining existing capabilities expenditure

No projects under this investment brief are categorised as maintaining existing capabilities in the following regulatory period.

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4.5.4 Non-Recurrent Project Costs – Complying with regulatory obligations expenditure

Non-Recurrent – Compliance costs are estimated to be the following:

	FY2025	FY2026	FY2027	FY2028	FY2029	Total 5 years
Non-Recurrent – Compliance						
Program Costs	\$0.0M	\$0.1M	\$0.0M	\$0.0M	\$0.0M	\$0.1M
Other Program Costs	\$0.1M	\$0.1M	\$0.1M	\$0.1M	\$0.1M	\$0.5M
Develop and Deploy	\$2.5M	\$2.5M	\$2.5M	\$2.5M	\$2.5M	\$12.5M
Contingency	\$0.6M	\$0.7M	\$0.7M	\$0.6M	\$0.7M	\$3.2M
Total Capital Expenditure	\$3.3M	\$3.3M	\$3.3M	\$3.3M	\$3.2M	\$16.3M

Table 7: Non-Recurrent – Compliance projects’ investment costs funded through capital expenditure

	FY2025	FY2026	FY2027	FY2028	FY2029	Total 5 years
Non-Recurrent – Compliance						
Program Costs	\$0.1M	\$0.1M	\$0.1M	\$0.1M	\$0.1M	\$0.5M
Other Program Costs	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M
Develop and Deploy	\$0.8M	\$0.8M	\$0.8M	\$0.8M	\$0.8M	\$3.9M
Contingency	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M
Total Operating Expenditure	\$0.8M	\$0.9M	\$0.9M	\$0.9M	\$0.9M	\$4.4M

Table 8: Non-Recurrent – Compliance projects’ investment costs funded through operating expenditure

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4.5.5 Recurrent Project Costs

The uplift in capability to support the investment case will also result in an increase in recurrent costs related to maintenance and support for new technology. Recurring costs are estimated to be the following:

	FY2025	FY2026	FY2027	FY2028	FY2029	Total 5 years
Recurrent						
Program Costs	\$0.1M	\$0.1M	\$0.0M	\$0.0M	\$0.0M	\$0.2M
Other Program Costs	\$0.4M	\$0.1M	\$0.2M	\$0.1M	\$0.0M	\$0.9M
Infrastructure Upgrades	\$10.2M	\$3.1M	\$3.1M	\$2.1M	\$1.1M	\$19.5M
Infrastructure Acquisition	\$0.1M	\$0.4M	\$2.2M	\$0.3M	\$0.0M	\$3.0M
Contingency	\$3.3M	\$1.2M	\$1.5M	\$0.6M	\$0.3M	\$6.9M
Total Capital Expenditure	\$14.1M	\$4.9M	\$7.0M	\$3.1M	\$1.4M	\$30.5M

Table 9: Recurrent projects’ investment costs funded through capital expenditure

	FY2025	FY2026	FY2027	FY2028	FY2029	Total 5 years
Recurrent						
Program Costs	\$0.3M	\$0.1M	\$0.2M	\$0.1M	\$0.1M	\$0.8M
Other Program Costs	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M
Infrastructure Upgrades	\$6.3M	\$1.5M	\$2.2M	\$0.3M	\$0.3M	\$10.7M
Infrastructure Acquisition	\$0.0M	\$0.9M	\$0.0M	\$0.0M	\$0.0M	\$0.9M
Contingency	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M
Total Operating Expenditure	\$6.6M	\$2.6M	\$2.5M	\$0.4M	\$0.4M	\$12.4M

Table 10: Recurrent projects’ investment costs funded through operating expenditure

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4.5.6 Ongoing expenditure

The ongoing costs related to ongoing support and maintenance of ICT infrastructure for project related ICT investments. This is assumed to be completed funded by operating expenditure.

A summary of these costs is provided in the tables below.

	FY2025	FY2026	FY2027	FY2028	FY2029	Total 5 years
Ongoing						
Infrastructure Maintenance	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M
Service Management	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M
Contingency	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M
Total Capital Expenditure	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M

Table 11: Ongoing – New Capability investment costs funded by capital expenditure

	FY2025	FY2026	FY2027	FY2028	FY2029	Total 5 years
Ongoing						
Infrastructure Maintenance	\$0.4M	\$0.8M	\$0.7M	\$0.8M	\$0.5M	\$3.2M
Service Management	\$0.3M	\$0.5M	\$0.4M	\$0.5M	\$0.3M	\$1.9M
Contingency	\$0.1M	\$0.2M	\$0.2M	\$0.2M	\$0.1M	\$1.0M
Total Operating Expenditure	\$0.8M	\$1.5M	\$1.3M	\$1.5M	\$0.9M	\$6.0M

Table 12: Ongoing – New Capability investment costs funded by operating expenditure

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5 Appendix – Options Analysis

This section summarises the options and criteria against each option analysed in defining the investment proposed in this investment brief.

5.1 Initiatives within each Option

Table 13 outlines the initiatives included in each option against the strategic responses.

Strategic response	Option 1	Option 2	Option 3
Enhancing cyber resiliency through the uplift of cybersecurity platforms and enablers to provide insights on the security status of the technology environment and protect against evolving threats.	Option 1 invests in the following initiatives: <ul style="list-style-type: none"> Strengthening governance and standards Enable smooth adoption of technologies and solutions Building resilience to the ever-changing cyber threat environment Securing digital identities and data Enable a cyber safe workforce of the future Working with secure suppliers and partners 	No additional initiatives in this strategic response beyond those included in Option 1.	No additional initiatives in this strategic response beyond those included in Option 1.
Ensure network operational efficiency and resiliency. Enhancement of applications and systems to ensure network operational efficiency and resiliency.	No initiatives in this strategic option for Option 1.	Option 2 invests in the following initiatives: <ul style="list-style-type: none"> Workforce scheduling replacement Advanced operational efficiency 	No additional initiatives in this strategic response beyond those included in Option 2.
Maintaining network infrastructure and uplifting future network capability to avoid service disruption and maintain safe and resilient supply of networks. This strategic response will uplift network infrastructure to ensure integration and	Option 1 invests in the following initiatives: <ul style="list-style-type: none"> IT/OT network infrastructure consolidation Maintain lifecycle - network hardware 	In addition to initiatives in Option 1, there are the following additional initiatives: <ul style="list-style-type: none"> Efficient workforce identity authentication services 	In addition to initiatives in Option 2, there are the following additional initiatives: <ul style="list-style-type: none"> AI monitoring & self-healing network IT WAN connectivity automation & refresh Application zero-trust network transformation

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Strategic response	Option 1	Option 2	Option 3
connectivity, enable self-healing and self-scaling and enhance security.			
Uplift asset maintenance, resource management and risk and compliance. Enhancing corporate and business system platforms to uplift asset maintenance, resource management and risk and compliance.	No initiatives in this strategic option for Option 1.	No initiatives in this strategic option for Option 2.	In addition to initiatives in Option 2, there are the following additional initiatives: <ul style="list-style-type: none"> Fleet management system Warranty management Integrated IDM/IAS Migrate to SAP SaaS Enterprise GRC Predictive maintenance Business platforms process restructure and integration
Uplift operational data and analytics. Uplifting operational data and analytics systems and management to enable data-driven insights and decisions.	Option 1 invests in the following initiatives: <ul style="list-style-type: none"> Federated records management, enterprise search and secure sharing Contents and records management and rights management implementation 	In addition to initiatives in Option 1, there are the following additional initiatives: <ul style="list-style-type: none"> Federated Data Analytics Business Event Information Model IOT data management (operational) Asset predictive/prescriptive maintenance data architecture Data platforms and pipelines to facilitate Asset management analysis at an Asset Level 	In addition to initiatives in Option 2, there are the following additional initiatives: <ul style="list-style-type: none"> Next Generation Planning System

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Strategic response	Option 1	Option 2	Option 3
Uplift workforce communications, mobility and access. Uplifting workforce communications, mobility and access platforms and tools to provide an integrated and flexible workplace.	Option 1 invests in the following initiative: <ul style="list-style-type: none"> Enterprise Social Networking tool 	<ul style="list-style-type: none"> Business Video Streaming platform Passwordless Sign-on (Biometric Sign-Ins) Fieldworker Mobility enhancements Enhance workforce connectivity with dedicated 5G & DAS infrastructure Biometric/mobile device access to EE offices/locations 	<ul style="list-style-type: none"> Connected Vehicles & AI implementation Simplified Device Build & Windows as a Service and Windows 11 Update Enhance workforce apps & app modernisation (ongoing) Maintaining and refreshing workforce devices

Table 13: Initiatives within each option

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5.2 Strategic Alignment with Drivers

Table 14 conveys the strategic alignment with the four key drivers against the three options.













Driver	Option 1	Score	Option 2	Score	Option 3	Score
Anticipate	Very Low Alignment Option 1 lacks initiatives that are aligned with anticipating future energy market transition and enhancing responsiveness.		Some Alignment Option 2 investments support anticipation of short-term forecasting of future energy market transition and weather events.		Very High Alignment Option 3 is focused on developing insights and understanding to anticipate weather events and enhance responsiveness.	
Withstand	Very High Alignment Option 1 investments ensure network and business resilience, including through cyber and changing regulatory requirements.		Very High Alignment Option 2 investments ensure network and business resilience, including through cyber and changing regulatory requirements.		Very High Alignment Option 3 investments ensure network and business resilience, including through cyber and changing regulatory requirements.	
Respond & Recover	Some Alignment Option 1 investments ensure active response to regulatory changes and vulnerable customers.		Very High Alignment Option 2 investments ensures consistency for all customers and focuses on maintaining incident responses.		Very High Alignment Option 3 investments enhances data capabilities and asset management to ensure business continuity and respond & recover to incidents.	
Learn & Adapt	Very Low Alignment Option 1 lacks initiatives aligned with learning and adapting to events and the new energy market.		Very Low Alignment Option 1 lacks initiatives aligned with learning and adapting to events and the new energy market.		Very High Alignment Option 3 investments ensure network and business resilience, including through cyber and changing regulatory requirements.	
SCORE	Investment in reactive responses to cyber, business continuity and regulatory changes, as well as communication tools and security of assets to ensure resilience of the network and cater for vulnerable customers.	1	Investments which more predictively respond to external threats and regulatory changes through data platforms and asset management capabilities forecasting incidents and rapid market changes. Additionally, short-term anticipation of market and weather changes are addressed.	2	Enables a longer-term focus through investments which anticipate, learn and adapt to weather and market changes expected to face Endeavour Energy in future.	4

Table 14: Alignment of options against external drivers

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5.3 Alignment with Customer Priorities

Table 15 conveys the alignment to the five customer insights.

Customer Priority	Option 1	Score	Option 2	Score	Option 3	Score
Providing a reliable supply	Medium Alignment Option 1 investments are focused on security of infrastructure, particularly cybersecurity, to maintain network resilience.		High Alignment In addition to Option 1, Option 2 invests in accessibility and communication with field workers to ensure resilience during disruptive events or outages.		Very High Alignment In addition to Option 2, Option 3 invests in adapting from disruptive events through enhancing asset and warranty management systems.	
Responding to emergencies	Low Alignment Option 1 includes minimal investment aligned with responding to emergencies from communications tools.		Medium Alignment In addition to Option 1, Option 2 invests in developing insights and anticipating/recovering from weather events/future energy transitional requirements.		High Alignment In addition to Option 2, Option 3 invests to enhance asset management capabilities.	
Prudent and efficient management of the network	Low Alignment Option 1 includes investment in rationalising and consolidating systems to manage the network more efficiently.		Low Alignment In addition to Option 1, Option 2 invests in systems to improve asset management capabilities and efficiencies.		Medium Alignment In addition to Option 2, there are investments to drive operational efficiencies by upgrading systems.	
Researching, trialling and installing new technologies	Very Low Alignment Option 1 includes no investment aligned to researching, trialling and installing new technologies.		Low Alignment Option 2 invests in new technologies to support field workers and staff and data structures.		Low Alignment In addition to Option 2, Option 3 includes further investment in smart vehicles.	
Keeping customers informed	Very Low Alignment Option 1 includes no investment aligned to keeping customers informed.		Very Low Alignment Option 2 has some investment in controlling sharing of customer data with external third parties.		Low Alignment Option 3 lacks further alignment from Option 2 with the customer priority.	
SCORE	Low alignment with most customer priorities, however there is greater adherence to the reliable supply priority. This is because of a focus on addressing vulnerable customer requirements and enhanced security of infrastructure.	1	Higher alignment with emergency responsiveness and keeping customers informed through greater asset and data capabilities, as well as maintaining reliability of electricity supply from field work mobility and communications.	1	Higher alignment with providing a reliable supply and prudence and efficiency of the network from greater investment in adaptive technologies and upgrade of systems to produce greater operational efficiencies.	2













Table 15: Alignment of options against customer priorities

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5.4 Risk mitigation associated with investment

Table 16 assesses the contribution of the three options to mitigation of the five corporate risks associated with this investment brief.

Risks	Option 1	Score	Option 2	Score	Option 3	Score
R1.1 Safety Fostering a workplace culture where leaders, employees, contractors and service providers are safety-focused, biased towards the identification and control of operational risk to ensure minimisation of injuries, work-related illnesses and fatalities.	Very low contribution to risk mitigation No investments within this option to specifically address safety risk.		Medium contribution to risk mitigation Investment in enabling communication and access to information for field workers, as well as biometric and mobile device access to locations for staff.		High contribution to risk mitigation In addition to Option 2, there is further investment in connected vehicles and artificial intelligence to improve field worker safety.	
R1.2 Network Maintaining network reliability and capacity, health, currency and sustainability of assets to ensure timely provision of infrastructure or solutions to service customers whilst considering future energy consumption. This includes building and maintaining a set of security capabilities that meet critical infrastructure obligations and minimise the threats arising from malicious attacks and/or risks to the availability and integrity of network or systems which support critical business functions.	Medium contribution to risk mitigation Investments in maintaining and reviewing network hardware and platforms to ensure network resiliency, and security of customer and network information.		High contribution to risk mitigation In addition to Option 1, this option also invests in predictive services and field worker support to ensure linkage to the network and insights into business events.		Very high contribution to risk mitigation In addition to Option 2, this option also invests in platforms and enablers to enhance asset management capabilities and support data-driven insights and decision making.	
R1.3 Customer Maintaining a customer-centred and performance-driven culture to act to resolve customer complaints promptly and fairly, analyse trends to drive continuous improvement.	Low contribution to risk mitigation Investments in building cyber resiliency and securing digital identities and data.		Medium contribution to risk mitigation In addition to Option 1, this option also invests in data platforms and tools to identify, mitigate and recover from events and emerging needs.		High contribution to risk mitigation In addition to Option 2, this option also invests in enhancing systems and platforms to enable predictive maintenance.	
R1.4 Finance Maintaining a predictable revenue stream whilst pursuing opportunities to deliver new	Very low contribution to risk mitigation		Low contribution to risk mitigation Investment in enhancing OT systems and drive operational efficiencies.		Medium contribution to risk mitigation	

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Risks	Option 1	Score	Option 2	Score	Option 3	Score
revenue streams. This includes interest rate risk, liquidity risk, capital expenditure funding, financial flexibility, refinancing risk, foreign exchange rate risk, counterparty credit risk, operational risk, compliance risk.	No investments within this option to specifically address finance risk.				In addition to Option 2, investments in updating and enhancing human resource, enterprise resource planning and employee expense management to drive further efficiencies.	
R1.5 Environment Minimising adversely affecting the environment (including ecosystems, heritage items and environmentally sensitive areas) whether biologically or physically, both short-term and long-term.	Very Low contribution to risk mitigation No investments within this option to specifically address environment risk.		Medium contribution to risk mitigation Investments to enable asset management capabilities and insights from incidents and outages to minimise environmental incidents.		Medium contribution to risk mitigation No additional investments from Option 1 & 2.	
R1.6 Compliance Ensuring a high level of compliance with relevant legislation, regulation, industry codes and standards, as well as internal policies and corporate governance principles.	Medium contribution to risk mitigation Investments to uplift cybersecurity measures and enhance cyber resiliency in line with legislative obligations.		High contribution to risk mitigation In addition to investments made in Option 1, this option also invests in controlled data sharing and identity access management.		High contribution to risk mitigation In addition to Option 2, this option also invests in applications and devices to improve mitigation against cybersecurity risks and threats.	
SCORE	Low alignment across most risk categories as there is a narrow focus on network resilience in response to cybersecurity and vulnerable customer requirements and threats.	1	Minimal difference in the risk mitigation across the five corporate categories, with an increase in finance and environment risks driven from operational efficiencies and insights into incidents.	2	Increase in mitigation of safety, environment and compliance risks as more pre-emptive investments are pursued which support the safety of customers and mitigate against potential cyber threats.	3

Table 16: Mitigation of risks across Options

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5.5 Benefits associated with investment

Table 17 and **Table 18** highlights the quantitative and qualitative benefits associated with the investment in the three options. It should be noted that the quantitative benefits are based on a 10-year period.

Driver	Option 1	Score	Option 2	Score	Option 3	Score
Anticipate <i>Benefits related to driver:</i> <ul style="list-style-type: none"> Customer value of outage inconvenience Avoided system failure costs Time to Competency Reduction in cancelled maintenance works Data collection, sharing and reuse Improved employee productivity – workforce collaboration, planning and customer interactions Opex reduction and STIPIS benefit Customer time savings benefit Agent time savings benefit 	<ul style="list-style-type: none"> New Capability projects: \$0.00M Recurrent projects: \$0.00M 	N/A	<ul style="list-style-type: none"> New Capability projects: \$13.86M Recurrent projects: \$13.35M 	N/A	<ul style="list-style-type: none"> New Capability projects: \$15.29M Recurrent projects: \$19.25M 	N/A
Withstand <i>Benefits related to driver:</i> <ul style="list-style-type: none"> Productivity losses Avoided loss from cybercrime Time to Competency Reduction in cancelled maintenance works Avoided system failure costs 	<ul style="list-style-type: none"> New Capability projects: \$2.95M Compliance projects: \$3.56M Recurrent projects: \$3.80M 	N/A	<ul style="list-style-type: none"> New Capability projects: \$2.95M Compliance projects: \$3.56M Recurrent projects: \$3.80M 	N/A	<ul style="list-style-type: none"> New Capability projects: \$2.95M Compliance projects: \$3.56M Recurrent projects: \$3.80M 	N/A

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Driver	Option 1	Score	Option 2	Score	Option 3	Score
Respond & Recover <i>Benefits related to driver:</i> <ul style="list-style-type: none"> Productivity losses Avoided loss from cybercrime Time to Competency Reduction in cancelled maintenance works Avoided system failure costs Customer value of outage inconvenience Data collection, sharing and reuse Improved employee productivity – workforce collaboration, planning and customer interactions 	<ul style="list-style-type: none"> New Capability projects: \$0.33M Recurrent projects: \$3.92M 	N/A	<ul style="list-style-type: none"> New Capability projects: \$0.33M Recurrent projects: \$5.37M 	N/A	<ul style="list-style-type: none"> New Capability projects: \$0.33M Recurrent projects: \$5.37M 	N/A
Learn & Adapt <i>Benefits related to driver:</i> <ul style="list-style-type: none"> Avoided system failure costs Productivity improvements Time to Competency Customer time savings benefit Agent time savings benefit REPEX and AUGEX benefit 	<ul style="list-style-type: none"> New Capability projects: \$0.00M Recurrent projects: \$0.00M 	N/A	<ul style="list-style-type: none"> New Capability projects: \$0.00M Recurrent projects: \$0.00M 	N/A	<ul style="list-style-type: none"> New Capability projects: \$33.63M Recurrent projects: \$8.05M 	N/A
SCORE	New Capital Benefits: \$3.28M Comply Capital Benefits: \$3.56M Recurrent Capital Benefits: \$7.72M	1	New Capital Benefits: \$17.14M Comply Capital Benefits: \$3.56M Recurrent Capital Benefits: \$22.52M	2	New Capital Benefits: \$52.21M Comply Capital Benefits: \$3.56M Recurrent Capital Benefits: \$36.47M	3

Table 17: Quantitative Benefits associated with investment in the three options

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Benefit category	Option 1	Score	Option 2	Score	Option 3	Score
Improved workforce culture	<ul style="list-style-type: none"> Improvement in risk culture for the workforce 	N/A	<ul style="list-style-type: none"> Improvement in safety culture for the workforce Improve the working conditions and experience of the employees Attract and retain new talent. 	N/A	No further investments in this Option which provide benefits under this benefit category	N/A
Improved societal outcomes	<ul style="list-style-type: none"> Stronger positive reputation and brand Build trust and strengthen relationships with customers and stakeholders in the management of their data and information. 	N/A	No further investments in this Option which provide benefits under this benefit category.	N/A	<ul style="list-style-type: none"> . Community productivity gains. 	N/A
SCORE	<ul style="list-style-type: none"> Improvement in risk culture for the workforce. Stronger positive reputation and brand. Build trust and strengthen relationships with customers and stakeholders in the management of their data and information. 	1	<ul style="list-style-type: none"> Improvement in safety culture for the workforce. Improve the working conditions and experience of the employees Attract and retain new talent. 	2	<ul style="list-style-type: none"> Community productivity gains. Stronger positive reputation and brand. Improvement in risk and safety culture from past mistakes. 	3

Table 18: Qualitative Benefits associated with investment in the three options

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5.6 Costs associated with investment

Table 19 illustrates the estimated project expenditure over the regulatory period across the three options.

Driver	Option 1	Score	Option 2	Score	Option 3	Score
Anticipate	<ul style="list-style-type: none"> New Capability: \$0.00M Recurrent: \$0.00M Operating Expenditure: \$0.00M 	N/A	<ul style="list-style-type: none"> New Capability: \$5.71M Recurrent: \$5.49M Operating Expenditure: \$6.76M 	N/A	<ul style="list-style-type: none"> New Capability: \$9.84M Recurrent: \$7.64M Operating Expenditure: \$8.94M 	N/A
Withstand	<ul style="list-style-type: none"> New Capability: \$0.77M Comply Capability: \$12.49M Recurrent: \$5.35M Operating Expenditure: \$12.22M 	N/A	<ul style="list-style-type: none"> New Capability: \$0.77M Comply Capability: \$12.49M Recurrent: \$5.35M Operating Expenditure: \$12.22M 	N/A	<ul style="list-style-type: none"> New Capability: \$0.77M Comply Capability: \$12.49M Recurrent: \$5.35M Operating Expenditure: \$12.22M 	N/A
Respond & Recover	<ul style="list-style-type: none"> New Capability: \$0.0M Recurrent: \$3.21M Operating Expenditure: \$0.77M 	N/A	<ul style="list-style-type: none"> New Capability: \$0.0M Recurrent: \$4.44M Operating Expenditure: \$0.88M 	N/A	<ul style="list-style-type: none"> New Capability: \$0.0M Recurrent: \$4.44M Operating Expenditure: \$0.88M 	N/A
Learn & Adapt	<ul style="list-style-type: none"> New Capability: \$0.00M Recurrent: \$0.00M Operating Expenditure: \$0.00M 	N/A	<ul style="list-style-type: none"> New Capability: \$0.00M Recurrent: \$0.00M Operating Expenditure: \$0.00M 	N/A	<ul style="list-style-type: none"> New Capability: \$8.62M Recurrent: \$5.08M Operating Expenditure: \$4.83M 	N/A
SCORE	New Capital Expenditure: \$0.77M Comply Capital Expenditure: \$12.49M Recurrent Capital Expenditure: \$8.57M Operating Expenditure: \$12.98M	3	New Capital Expenditure: \$6.48M Comply Capital Expenditure: \$12.49M Recurrent Capital Expenditure: \$15.28M Operating Expenditure: \$19.85M	2	New Capital Expenditure: \$19.23M Comply Capital Expenditure: \$12.49M Recurrent Capital Expenditure: \$22.51M Operating Expenditure: \$26.87M	1

This excludes the Contingency and Other Program Costs associated with investment.

Table 19: Costs associated with investment in the three options

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6 Appendix – Project Summaries

Table 20 provides summaries of the projects within this investment brief. Projects within an Option are cumulative, so that each option also contains the projects within the prior option.

Driver	Proj #	Project	Description
Option 1			
Withstand	48	Federated records management, enterprise search and secure sharing (ongoing)	Design and governance of practices for integrated and easy to use federated records management systems, enterprise searchable records (current and historical) and secure sharing of documents with internal and external stakeholders to comply with regulations
	49	Contents and records management + rights management implementation	Implementation of content and data management strategy and policies to ensure records security and classification, content rendition management and ring-fence enforcement at record level
	164	Strengthening governance and standards	Underpin information security with strong governance and standards to align to international best practices and effective expenditure aligned to business risks.
	165	Enable a cyber safe workforce of the future	Cultivate a cyber safety culture where trusted people and providers understand their responsibilities, and leaders take accountability for the cyber safety performance of their team and their supporting supply chain.
	166	Working with secure suppliers and partners	Information security is embedded into the processes of selection, procurement, and management of products and services. Hold supply chain partners accountable to security standards commensurate with risk exposure.

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Driver	Proj #	Project	Description
	167	Building resilience to the ever-changing cyber threat environment	Cyber security threats are increasing, including attacks by criminal organisations and nation states targeting critical data and systems. Endeavour Energy must be resilient to these threats and adapt to remain resilient.
	168	Securing digital identities and data	Strengthen the protection of information used to authorise access to systems, particularly in Operational Technology (OT). Protect critical data in accordance with risk, and the requirements of legislation, regulators, and license conditions.
	169	Enable smooth adoption of technologies and solutions	Cyber and information security foundations are in place to support technology rollout and business systems changes to realise efficiencies, keep up with energy transition, and capture unregulated business opportunities.
Respond & Recover (for vulnerable customers)	15	Enterprise Social Networking tool	Enabling staff to informally connect to their peers through a common Unified Comms platform
	117	IT/OT network infrastructure consolidation	Consolidation and rationalisation of IT/OT network infrastructure and ensure integration with core platforms
	120	Maintain lifecycle - network hardware	Maintenance of network hardware and software, systems and devices through the lifecycle to ensure connectivity and communication capabilities
Option 2			
Anticipate (Realtime/short term)	18	Business Video Streaming platform (ongoing)	Uplift of business video streaming platform to enable greater linkage between workers and jobs and inventory/AM platform

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Driver	Proj #	Project	Description
	19	Passwordless Sign-on (Biometric Sign-Ins) (ongoing)	Implementation of biometric sign-in capability to internal portals and platforms
	24	Fieldworker Mobility enhancements (ongoing)	Extend digital services to provide field workers with access to information in remote locations, including enhancements to Wi-Fi, satellite, areas of all things connectivity
	26	Enhance workforce connectivity with dedicated 5G & DAS infrastructure	Deployment of mobile Distributed Antenna Systems (DAS) and 5G cells to key Endeavour Energy sites to enable field workers with enhanced communications and connectivity
	32	Biometric/mobile device access to EE offices/locations (ongoing)	Enable workers and staff to access Endeavour Energy locations through biometric access control and mobile device access
	36	Federated Data Analytics (ongoing)	Implementation of a record federating repository providing capability to support controlled sharing of customer and operational data with external third parties
	38	Business Event Information Model (ongoing)	Development of data platforms and tools to support business event information model identify, mitigate and recover from business events
	44	IOT data management (operational)	Enhancement of Industrial Internet of Things (IIOT) operational data management to adopt modern predictive and prescriptive asset management capabilities
	46	Asset predictive/prescriptive	Design and implementation of data architecture to support the adoption of

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Driver	Proj #	Project	Description
		maintenance data architecture (ongoing)	modern predictive and prescriptive asset management capabilities
	88	Workforce scheduling replacement (ongoing)	Implementing modern cloud-based subscription workforce scheduling system with micro-services enabled enterprise integration
	96	Advanced operational efficiency	Maintenance and enhancements to OT systems to improve operational efficiency, including implementation of AI and machine learning capabilities
	158	Data platforms and pipelines to facilitate Asset management analysis at an Asset Level	Asset management of poles & wires, switchgear and underground cables, with asset-specific modelling, risk management and analytics
Respond & Recover (all customers)	135	Efficient workforce identity authentication services	Enhancement of identity access management tools to uplift workforce identity authentication services (including MFA, SSO)
Option 3			
Anticipate (long term)	22	Connected Vehicles & AI implementation	Implementation of smart cars and trucks to be used for business operations with satellite connectivity and wireless service
	29	Simplified Device Build & Windows as a Service and Windows 11 Update (ongoing)	Uplift of simplified device build capability, deployment of Windows as a Service and update to Windows 11 across all devices
	31	Enhance workforce apps & app modernisation (ongoing)	Enhancement of workforce applications to provide a modern digital experience

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Driver	Proj #	Project	Description
	33	Maintaining and refreshing workforce devices	Provide the workforce with reliable, supported and fit-for-purpose devices to effectively support their operational requirements
Lean & Adapt	51	Fleet management system	Uplift of fleet management system to provide automation and support data-driven insights and decision making
	53	Warranty management (ongoing)	Enhancement to warranty management systems to uplift supplier contract management and asset lifecycle management
	55	Integrated IDM/IAS (ongoing)	Uplifting IDM/IAS capability and integrating IDM/IAS systems to enable single sign-on across corporate platforms
	56	Migrate to SAP SaaS	Migrating human resource, enterprise resource planning and employee expense management data to SAP SaaS
	59	Enterprise GRC (Investment) (ongoing)	Implementing an enterprise GRC solution for risk and compliance across Endeavour Energy
	61	Predictive maintenance	Enhancement of asset management system and data platforms to enable predictive maintenance capability
	67	Business platforms process restructure and integration (ongoing)	Uplift of business platforms to align with process restructures, and integration with corporate platforms to ensure seamless junctions between systems
	122	AI monitoring & self-healing network	Implementation of future network capability to allow for AI driven monitoring capacity that supports the ability for networks to self-heal and self-scale to improve responsiveness to critical events

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Driver	Proj #	Project	Description
	127	IT WAN connectivity automation & refresh (ongoing)	Uplift in IT WAN connectivity capabilities to support connectivity and access across remote locations
	131	Application zero-trust network transformation (ongoing)	Transformation of application zero-trust network to enforce appropriate access control and secure remote access to Endeavour Energy's applications, data and services
	163	Data platforms and pipelines to facilitate Asset management analysis at an Asset Level	Visualisation and understanding of current state network, simulation of future states and ability to introduce interventions into simulations.

Table 20 Project summaries for the three considered options

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7 Appendix - Cost Assumptions

By defining the costs and benefits associated with individual investment programs under this investment brief with consideration of the real value of money, Endeavour Energy can predict the net present value of investment under this investment brief.

Table 21 demonstrates this investment profile and the assumptions behind the cost and benefits categories which form part of this brief.

ID	Assumption Type	Category	Assumption	Metric
1	Both	General Assumptions	Program Start Date	1/07/2024
2	Both	General Assumptions	Model Start Financial Year	2025
3	Both	General Assumptions	10-year model duration	10
4	Both	General Assumptions	Sensitivity Analysis	+/-20%
5	Both	General Assumptions	Discount rate (pre-tax nominal WACC)	5.77%
6	Both	General Assumptions	The Resource Rate Card records the assumptions made for Program, Project and Ongoing Roles. It uses Hayes Technology Contractor Rates Guide FY22/23 and Deloitte Allocation Base for Use rates	N/A
7	Both	General Assumptions	The nominal 2.5% of wage growth on labour from FY25 onwards	2.50%
8	Both	General Assumptions	The Program Master Schedule provides the assumption on Ramp Up / Down of Resources during the lifecycle of the Program Roll-Outs	N/A
9	Both	General Assumptions	Inflation rate	2.42%
10	Benefit	Benefits	Quantitative Benefits <ul style="list-style-type: none"> Productivity losses: Value of productivity losses based on average outage resolution time and the number of incidences per year, if investment is not undertaken. Avoided loss from Cybercrime: Avoided loss from Cybercrime through investment in Security areas 	N/A

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ID	Assumption Type	Category	Assumption	Metric
			<ul style="list-style-type: none"> Time to Competency (Control room operator): Reduction in the annual training time for operator Reduction in cancelled maintenance works: Value the improvement in planned outage management through reduction in cancelled maintenance works Risk of system failure: Mitigation of the risk of system failure Productivity improvements: Value of productivity improvements through projects to improve workforce collaboration Customer value of outage inconvenience: Value of inconvenience due to outages Avoided system failure costs: Mitigation of the risk of system failure. Time to Competency: Reduction in the annual training time due to lower average number of devices needed by staff to perform their role and the proportion of applications that are securely and easily accessible across all supported devices Data collection, sharing and reuse: Data collection, sharing & reuse measures the value of enhancements to the organisation's data landscape Improved employee productivity - Planning: Value of employee productivity for planning of outages Opex reduction and STIPIS benefit: Per annum saving of \$1m in asset OPEX reduction and \$0.65m STIPIS benefit related to targeted analytics as a portion of the 1m per annum STIPIS benefit. Avoided system failure costs: Mitigation of the risk of system failure. Productivity improvements: Value of productivity improvements through projects to improve corporate platforms and OT systems Customer time savings benefit: Financial benefits of saving end customer's time in a service interaction Agent time savings benefit: Financial benefits of saving internal IT agents time in a service interaction REPEX and AUGEX benefit: CAPEX impact from optimised decisions on CAPEX 	
11	Benefit	Benefits	Miscellaneous Assumption: Average hourly rate for an employee Average hourly rate is based on the Endeavour Energy average hourly wage rate.	\$ 83.25
12	Benefit	Benefits	Miscellaneous Assumption: Average hourly rate for a customer Average hourly rate for customers is based on average hourly rate using NSW average weekly earnings of \$1761.10 - ABS November 2021	\$ 44.03

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ID	Assumption Type	Category	Assumption	Metric
13	Benefit	Benefits	Benefit: Productivity loss Number of incidents per year if investment is not undertaken × Average outage resolution time × Impacted customers due to outages × Average hourly rate for employees	N/A
14	Benefit	Benefits	Benefit: Productivity loss The assumption for <i>Number of incidents per year if investment is not undertaken</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
15	Benefit	Benefits	Benefit: Productivity loss Average outage resolution time (in hours) is based on the average of the historical network level response in minutes for distribution and low voltage in FY13 to FY21. This information can be found in the Benefits Calculation tab.	N/A
16	Benefit	Benefits	Benefit: Productivity loss Impacted customers due to outages is based on historical data of number of customers impacted by unplanned outages	189
17	Benefit	Benefits	Benefit: Avoided loss from cybercrime Average reported loss based on average reported loss for the medium business × Number of avoided cybercrime incidents	N/A
18	Benefit	Benefits	Benefit: Avoided loss from cybercrime The assumption for <i>Average reported loss based on average reported loss for the medium business</i> is sourced from the Australian Cyber Security Centre Annual Cyber Threat Report for FY20-21 (https://www.cyber.gov.au/acsc/view-all-content/reports-and-statistics/acsc-annual-cyber-threat-report-2020-21)	33,442.00
19	Benefit	Benefits	Benefit: Avoided loss from cybercrime The assumption for <i>Number of avoided cybercrime incidents</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model.	N/A
20	Benefit	Benefits	Benefit: Time to competency Number of new employees per year × Annual salary of new employees × Percentage reduction in annual training time	N/A
21	Benefit	Benefits	Benefit: Time to Competency Number of new employees per year is based on the average of the FY21 and FY22 new employee head count	148
22	Benefit	Benefits	Benefit: Time to Competency Annual salary of new employees is based on a conservative assumption	\$ 100,000.00

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ID	Assumption Type	Category	Assumption	Metric
23	Benefit	Benefits	Benefit: Time to Competency The assumption for <i>Percentage reduction in annual training time</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
23	Benefit	Benefits	Benefit: Reduction in cancelled maintenance works Number of field employees required per outage × Average outage resolution time (in hours) × Average hourly rate for employees × annual reduction in cancelled maintenance works	N/A
24	Benefit	Benefits	Benefit: Reduction in cancelled maintenance works Number of field employees required per outage is based on XX	3
25	Benefit	Benefits	Benefit: Reduction in cancelled maintenance works Average outage resolution time (in hours) is based on the average of the historical network level response in minutes for distribution and low voltage in FY13 to FY21. This information can be found in the Benefits Calculation tab of the underlying Cost Benefit model.	N/A
26	Benefit	Benefits	Benefit: Avoided loss from cybercrime The assumption for <i>Average reported loss based on average reported loss for the medium business</i> is sourced from the Australian Cyber Security Centre Annual Cyber Threat Report for FY20-21 (https://www.cyber.gov.au/acsc/view-all-content/reports-and-statistics/acsc-annual-cyber-threat-report-2020-21)	33,442.00
27	Benefit	Benefits	Benefit: Reduction in cancelled maintenance works The assumption for <i>annual reduction in cancelled maintenance works</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
28	Benefit	Benefits	Benefit: Avoided system failure costs (1) Number of incidents per year if investment is not undertaken × Average outage resolution time × Impacted customers due to outages × Average hourly rate for customers	N/A
29	Benefit	Benefits	Benefit: Avoided system failure costs (1) The assumption for <i>Number of incidents per year if investment is not undertaken</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
30	Benefit	Benefits	Benefit: Avoided system failure costs (1) Average outage resolution time (in hours) is based on the average of the historical network level response in minutes for distribution and low voltage in FY13 to FY21. This information can be found in the Benefits Calculation tab.	N/A

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ID	Assumption Type	Category	Assumption	Metric
31	Benefit	Benefits	Benefit: Avoided system failure costs (1) Impacted customers due to outages is based on historical data of number of customers impacted by unplanned outages	189
32	Benefit	Benefits	Benefit: Productivity improvements Assumed usage level for all employees on average × Average cost per minute rate × Number of impacted employees × Working days in the year (minutes) × Assumed improvement in productivity	N/A
33	Benefit	Benefits	Benefit: Productivity improvements The assumption for <i>Assumed usage level for all employees on average</i> is based on XX	0.25
34	Benefit	Benefits	Benefit: Productivity improvements Average cost per minute rate (based on average Endeavour Energy hourly rate)	1.3875
35	Benefit	Benefits	Benefit: Productivity improvements Number of impacted employees	600
36	Benefit	Benefits	Benefit: Productivity improvements The assumption for <i>Working days in the year (minutes)</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
37	Benefit	Benefits	Benefit: Productivity improvements The assumption for <i>Assumed improvement in productivity</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
38	Benefit	Benefits	Benefit: Customer value of outage inconvenience Size of outage per customer × Total inconvenience (per kWh) × Reduction in total outages per year × Number of impacted employees	N/A
39	Benefit	Benefits	Benefit: Customer value of outage inconvenience The assumption and calculation for <i>Size of outage per customer</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
40	Benefit	Benefits	Benefit: Customer value of outage inconvenience The assumption for Value of Customer Reliability is related to the size of outages per customer assumption	30.37

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ID	Assumption Type	Category	Assumption	Metric
41	Benefit	Benefits	Benefit: Customer value of outage inconvenience Number of customers in FY21 is related to the size of outages per customer assumption	2,500,000.00
42	Benefit	Benefits	Benefit: Customer value of outage inconvenience The assumption for size of planned and unplanned outages is related to the size of outages per customer assumption	N/A
43	Benefit	Benefits	Benefit: Customer value of outage inconvenience Number of impacted employees	189
44	Benefit	Benefits	Benefit: Customer value of outage inconvenience The assumption and calculation for <i>Reduction in total outages per year</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
45	Benefit	Benefits	Benefit: Avoided system failure costs (2) Number of incidents per year if investment is not undertaken × Average outage resolution time × Impacted customers due to outages × Average hourly rate for customers	N/A
46	Benefit	Benefits	Benefit: Avoided system failure costs (2) The assumption for <i>Number of incidents per year if investment is not undertaken</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
47	Benefit	Benefits	Benefit: Avoided system failure costs (2) Average outage resolution time (in hours) is based on the average of the historical network level response in minutes for distribution and low voltage in FY13 to FY21. This information can be found in the Benefits Calculation tab.	N/A
48	Benefit	Benefits	Benefit: Avoided system failure costs (2) Impacted customers due to outages is based on historical data of number of customers impacted by unplanned outages	189
49	Benefit	Benefits	Benefit: Time to competency (2) Number of new employees per year × Annual salary of new employees × Percentage reduction in annual training time	N/A
50	Benefit	Benefits	Benefit: Time to Competency (2) Number of new employees per year is based on the average of the FY21 and FY22 new employee head count	148
51	Benefit	Benefits	Benefit: Time to Competency (2) Annual salary of new employees is based on a conservative assumption	\$ 100,000.00

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ID	Assumption Type	Category	Assumption	Metric
52	Benefit	Benefits	Benefit: Time to Competency (2) The assumption for <i>Percentage reduction in annual training time</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
53	Benefit	Benefits	Benefit: Customer value of outage inconvenience Number of customers in FY21 is related to the size of outages per customer assumption	2,500,000.00
54	Benefit	Benefits	Benefit: Reduction in cancelled maintenance works (2) Number of field employees required per outage × Average outage resolution time (in hours) × Average hourly rate for employees × annual reduction in cancelled maintenance works	N/A
55	Benefit	Benefits	Benefit: Reduction in cancelled maintenance works (2) Number of field employees required per outage is based on XX	3
56	Benefit	Benefits	Benefit: Reduction in cancelled maintenance works (2) Average outage resolution time (in hours) is based on the average of the historical network level response in minutes for distribution and low voltage in FY13 to FY21. This information can be found in the Benefits Calculation tab of the underlying Cost Benefit model.	N/A
57	Benefit	Benefits	Benefit: Reduction in cancelled maintenance works (2) The assumption for <i>annual reduction in cancelled maintenance works</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
58	Benefit	Benefits	Benefit: Data collection, sharing and reuse Data sharing factor × total expenditure of projects which deliver this benefit	N/A
59	Benefit	Benefits	Benefit: Data collection, sharing and reuse The assumption for <i>Data sharing factor</i> is based on the productivity improvement rate reported by the OECD on economic and social benefits of data access and sharing (https://www.oecd-ilibrary.org/sites/90ebc73d-en/index.html?itemId=/content/component/90ebc73d-en)	0.50%
60	Benefit	Benefits	Benefit: Improved employee productivity - customer interactions Number of avoided employees hired × Average yearly salary based on average employee hourly rate	N/A
61	Benefit	Benefits	Benefit: Improved employee productivity - customer interactions	N/A

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ID	Assumption Type	Category	Assumption	Metric
			The assumption for <i>number of avoided employees hired</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	
62	Benefit	Benefits	Benefit: Improved employee productivity - customer interactions Average yearly salary based on average hourly rate using NSW average weekly earnings of \$1761.10 - ABS November 2021	91577.2
63	Benefit	Benefits	Benefit: Improved employee productivity - planning Number of avoided employees hired × Average yearly salary based on average employee hourly rate	N/A
64	Benefit	Benefits	Benefit: Improved employee productivity - planning The assumption for <i>number of avoided employees hired</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
65	Benefit	Benefits	Benefit: Improved employee productivity - planning Average yearly salary based on average hourly rate using NSW average weekly earnings of \$1761.10 - ABS November 2021	91577.2
66	Benefit	Benefits	Benefit: Avoided system failure costs (3) Number of incidents per year if investment is not undertaken × Average outage resolution time × Impacted customers due to outages × Average hourly rate for customers	N/A
67	Benefit	Benefits	Benefit: Avoided system failure costs (3) The assumption for <i>Number of incidents per year if investment is not undertaken</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
68	Benefit	Benefits	Benefit: Avoided system failure costs (3) Average outage resolution time (in hours) is based on the average of the historical network level response in minutes for distribution and low voltage in FY13 to FY21. This information can be found in the Benefits Calculation tab.	N/A
69	Benefit	Benefits	Benefit: Avoided system failure costs (3) Impacted customers due to outages is based on historical data of number of customers impacted by unplanned outages	189
70	Benefit	Benefits	Benefit: Productivity improvements (2) Assumed usage level for all employees on average × Average cost per minute rate × Number of impacted employees × Working days in the year (minutes) × Assumed improvement in productivity	N/A

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ID	Assumption Type	Category	Assumption	Metric
71	Benefit	Benefits	Benefit: Productivity improvements (2) The assumption for <i>Assumed usage level for all employees on average</i> is based on XX	0.25
72	Benefit	Benefits	Benefit: Productivity improvements (2) Average cost per minute rate (based on average Endeavour Energy hourly rate)	1.3875
73	Benefit	Benefits	Benefit: Productivity improvements (2) Number of impacted employees	600
74	Benefit	Benefits	Benefit: Productivity improvements (2) Assumed improvement in productivity	0.005
75	Benefit	Benefits	Benefit: Time to competency (3) Number of new employees per year × Annual salary of new employees × Percentage reduction in annual training time	N/A
76	Benefit	Benefits	Benefit: Time to Competency (3) Number of new employees per year is based on the average of the FY21 and FY22 new employee head count	148
77	Benefit	Benefits	Benefit: Time to Competency (3) Annual salary of new employees is based on a conservative assumption	\$ 100,000.00
78	Benefit	Benefits	Benefit: Time to Competency (3) The assumption for <i>Percentage reduction in annual training time</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
79	Benefit	Benefits	Benefit: Customer time savings benefit Improvement in time savings × Number of customers with DER × Average hourly rate for customers	N/A
80	Benefit	Benefits	Benefit: Customer time savings benefit The assumption for <i>Improvement in time savings</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
81	Benefit	Benefits	Benefit: Customer time savings benefit The assumption for <i>Number of customers with DER</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
82	Benefit	Benefits	Benefit: Agent time savings benefit Improvement in time savings × Working hours in the year ×	N/A

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ID	Assumption Type	Category	Assumption	Metric
			Average hourly rate for employees × Number of impacted employees	
83	Benefit	Benefits	Benefit: Agent time savings benefit The assumption for <i>Improvement in time savings</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
84	Benefit	Benefits	Benefit: Agent time savings benefit The assumption for <i>Working hours in the year</i> can be found in the Benefits Calculation tab of the underlying Cost Benefit model	N/A
85	Benefit	Benefits	Benefit: Agent time savings benefit Number of impacted employees	600
86	Benefit	Benefits	Benefit: REPEX and AUGEX benefit CAPEX impact from optimised decisions on CAPEX = REPEX benefit + AUGEX benefit: – [(REPEX of \$76-105m) + (AUGEX of \$74-82m)] X (optimisation opportunity of 20-30% - BCG/Plexigrid Estimate1)	N/A
87	Benefit	Benefits	Benefit: Opex reduction and STIPIS benefit \$1m p.a. savings in asset OPEX reduction. 0.65m STPIS benefit related to targeted analytics as a portion of the 1m p.a. STPIS benefit forecast in the reliability strategy. Note forecast of a 3-6m p.a. reduction in CAPEX spend not captured as a benefit.	N/A
88	Cost	Program Costs	Program 12: Enhancement of applications and systems to ensure network operational efficiency and resiliency. <ul style="list-style-type: none"> Project 88: Workforce scheduling replacement (ongoing) Project 96: Advanced operational efficiency 	N/A
89	Cost	Program Costs	Program 13: Uplifting operational data and analytics systems and management to enable data-driven insights and decisions <ul style="list-style-type: none"> Project 36: Federated Data Analytics (ongoing) Project 38: Business Event Information Model (ongoing) Project 44: IOT data management (operational) Project 46: Asset predictive/prescriptive maintenance data architecture (ongoing) Project 48: Federated records management, enterprise search and secure sharing (ongoing) Project 49: Contents and records management + rights management implementation Project 158: Data platforms and pipelines to facilitate Asset management analysis at an asset level Project 163: Next Gen Planning System 	N/A

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ID	Assumption Type	Category	Assumption	Metric
90	Cost	Program Costs	Program 14: Maintaining network infrastructure and uplifting future network capability to avoid service disruption and maintain safe and resilient supply of network services <ul style="list-style-type: none"> Project 117: IT/OT network infrastructure consolidation Project 120: Maintain lifecycle - network hardware Project 122: AI monitoring & self-healing network Project 127: IT WAN connectivity automation & refresh (ongoing) Project 131: Application zero-trust network transformation (ongoing) Project 135: Efficient workforce identity authentication services 	N/A
91	Cost	Program Costs	Program 15: Uplifting workforce communications, mobility and access platforms and tools to provide an integrated and flexible workplace <ul style="list-style-type: none"> Project 15: Enterprise Social Networking tool Project 18: Business Video Streaming platform (ongoing) Project 19: Passwordless Sign-on (Biometric Sign-Ins) (ongoing) Project 22: Connected Vehicles & AI implementation Project 24: Fieldworker Mobility enhancements (ongoing) Project 26: Enhance workforce connectivity with dedicated 5G & DAS infrastructure Project 29: Simplified Device Build & Windows as a Service and Windows 11 Update (ongoing) Project 31: Enhance workforce apps & app modernisation (ongoing) Project 32: Biometric/mobile device access to EE offices/locations (ongoing) Project 33: Maintaining and refreshing workforce devices 	N/A
92	Cost	Program Costs	Program 16: Enhancing cyber resiliency through uplift of cybersecurity platforms and enablers to provide insights on the security status of the technology environment and protect against evolving threats. <ul style="list-style-type: none"> Project 164: Strengthening governance and standards Project 165: Enable a cyber safe workforce of the future Project 166: Working with secure suppliers and partners Project 167: Building resilience to the ever-changing cyber threat environment Project 168: Securing digital identities and data Project 169: Enable smooth adoption of technologies and solutions 	N/A
93	Cost	Program Costs	Program 17: Enhancing corporate and business system platforms to uplift asset maintenance, resource management and risk and compliance <ul style="list-style-type: none"> Project 51: Fleet management system 	N/A

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ID	Assumption Type	Category	Assumption	Metric
			<ul style="list-style-type: none"> Project 53: Warranty management (ongoing) Project 55: Integrated IDM/IAS (ongoing) Project 56: Migrate to SAP SaaS Project 59: Enterprise GRC (Investment) (ongoing) Project 61: Predictive maintenance (predictive advanced asset management) Project 67: Business platforms process restructure and integration (ongoing) 	
94	Cost	Program Costs	Program Management Resourcing <ul style="list-style-type: none"> 2 Program Managers will be resourced at 0.1 FTE full-time for the duration of the Program and 1 Program Manager will be resourced at 0.1 FTE full-time until FY27. Quality Assurance Manager will be resourced at 0.1 FTE full-time for the duration of the Program Quality Assurance Team Member will be resourced quarterly for 0.1 FTE for the duration of the projects underneath the Programs Please refer to Program Master Schedule for roll start and end dates 	N/A
95	Cost	Develop and Deploy	<ul style="list-style-type: none"> All costs for these are resourcing costs: Please see 'Program Master Schedule' for each option for the resourcing levels Please see Resource Rate Card for each option for the rates 	N/A
96	Cost	Develop and Deploy	Project Duration Low Complexity = 3 month project Medium Complexity = 6 month project High Complexity = 12 month project Other = Unique Resourcing Requirements	N/A
97	Cost	Develop and Deploy	Low Complexity Projects <ul style="list-style-type: none"> Project 15: Enterprise Social Networking tool Project 19: Passwordless Sign-on (Biometric Sign-Ins) (ongoing) Project 24: Fieldworker Mobility enhancements (ongoing) Project 26: Enhance workforce connectivity with dedicated 5G & DAS infrastructure Project 48: Federated records management, enterprise search and secure sharing (ongoing) Project 53: Warranty management (ongoing) Project 59: Enterprise GRC (Investment) (ongoing) Project 131: Application zero-trust network transformation (ongoing) 	N/A
98	Cost	Develop and Deploy	Medium Complexity Projects <ul style="list-style-type: none"> Project 18: Business Video Streaming platform (ongoing) 	N/A

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ID	Assumption Type	Category	Assumption	Metric
			<ul style="list-style-type: none"> Project 22: Connected Vehicles & AI implementation Project 29: Simplified Device Build & Windows as a Service and Windows 11 Update (ongoing) Project 31: Enhance workforce apps & app modernisation (ongoing) Project 32: Biometric/mobile device access to EE offices/locations (ongoing) Project 33: Maintaining and refreshing workforce devices Project 51: Fleet management system Project 55: Integrated IDM/IAS (ongoing) Project 61: Predictive maintenance (predictive advanced asset management) Project 67: Business platforms process restructure and integration (ongoing) Project 88: Workforce scheduling replacement (ongoing) Project 117: IT/OT network infrastructure consolidation Project 120: Maintain lifecycle - network hardware Project 122: AI monitoring & self-healing network Project 127: IT WAN connectivity automation & refresh (ongoing) Project 135: Efficient workforce identity authentication services 	
99			High Complexity Projects <ul style="list-style-type: none"> Project 36: Federated Data Analytics (ongoing) Project 38: Business Event Information Model (ongoing) Project 44: IOT data management (operational) Project 46: Asset predictive/prescriptive maintenance data architecture (ongoing) Project 49: Contents and records management + rights management implementation Project 56: Migrate to SAP SaaS Project 96: Advanced operational efficiency Project 158: Data platforms and pipelines to facilitate Asset Project 163: Next Gen Planning System 	
100	Cost	Develop and Deploy	Capital Expenditure/Operating Expenditure split All projects in the pipeline have been allocated a project type based on the split of project and product costs between capital and operating expenditure: System implementation/major upgrade, SaaS/Cloud implementation/upgrades, SaaS/Cloud equivalent to 'On Prem' solution, Security/Infrastructure implementation/refresh, Strategy and planning	N/A
101	Cost	Develop and Deploy	Capital Expenditure/Operating Expenditure split: System implementation/major upgrade <ul style="list-style-type: none"> Project 19: Passwordless Sign-on (Biometric Sign-Ins) (ongoing) 	N/A

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ID	Assumption Type	Category	Assumption	Metric
			<ul style="list-style-type: none"> Project 24: Fieldworker Mobility enhancements (ongoing) Project 31: Enhance workforce apps & app modernisation (ongoing) Project 38: Business Event Information Model (ongoing) Project 44: IOT data management (operational) Project 46: Asset predictive/prescriptive maintenance data architecture (ongoing) Project 48: Federated records management, enterprise search and secure sharing (ongoing) Project 51: Fleet management system Project 53: Warranty management (ongoing) Project 55: Integrated IDM/IAS (ongoing) Project 59: Enterprise GRC (Investment) (ongoing) Project 61: Predictive maintenance (Predictive advanced asset mgmt.) Project 67: Business platforms process restructure and integration (ongoing) Project 96: Advanced operational efficiency 	
102	Cost	Develop and Deploy	Capital Expenditure/Operating Expenditure split: SaaS/Cloud implementation/upgrades <ul style="list-style-type: none"> Project 15: Enterprise Social Networking tool Project 18: Business Video Streaming platform (ongoing) Project 29: Simplified Device Build & Windows as a Service and Windows 11 Update (ongoing) Project 36: Federated Data Analytics (ongoing) Project 56: Migrate to SAP SaaS Project 88: Workforce scheduling replacement (ongoing) 	N/A
103	Cost	Develop and Deploy	Capital Expenditure/Operating Expenditure split: SaaS/Cloud equivalent to 'On Prem' solution <ul style="list-style-type: none"> Project 49: Contents and records management + rights management implementation 	N/A
104	Cost	Develop and Deploy	Capital Expenditure/Operating Expenditure split: Security/Infrastructure implementation/refresh <ul style="list-style-type: none"> Project 22: Connected Vehicles & AI implementation Project 26: Enhance workforce connectivity with dedicated 5G & DAS infrastructure Project 32: Biometric/mobile device access to EE offices/locations (ongoing) Project 33: Maintaining and refreshing workforce devices Project 117: IT/OT network infrastructure consolidation Project 120: Maintain lifecycle - network hardware Project 122: AI monitoring & self-healing network Project 127: IT WAN connectivity automation & refresh (ongoing) 	N/A

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ID	Assumption Type	Category	Assumption	Metric
			<ul style="list-style-type: none"> Project 131: Application zero-trust network transformation (ongoing) Project 135: Efficient workforce identity authentication services Project 164: Strengthening governance and standards Project 165: Enable a cyber safe workforce of the future Project 166: Working with secure suppliers and partners Project 167: Building resilience to the ever-changing cyber threat environment Project 168: Securing digital identities and data Project 169: Enable smooth adoption of technologies and solutions 	
105	Cost	Develop and Deploy	Capital Expenditure/Operating Expenditure split: Strategy and planning No projects under this Investment Brief	N/A
106	Cost	Develop and Deploy	AER Capex Categories All projects in the pipeline have been allocated to a single AER Capex categorisation: Non-Recurrent Maintain, Non-Recurrent Compliance and Non-Recurrent New Capability or Recurrent	N/A
107	Cost	Develop and Deploy	AER Capex Categories - Non-Recurrent New Capability <ul style="list-style-type: none"> Project 15: Enterprise Social Networking tool Project 22: Connected Vehicles & AI implementation Project 31: Enhance workforce apps & app modernisation (ongoing) Project 44: IOT data management (operational) Project 48: Federated records management, enterprise search and secure sharing (ongoing) Project 51: Fleet management system Project 56: Migrate to SAP SaaS Project 59: Enterprise GRC (Investment) (ongoing) Project 61: Predictive maintenance Project 96: Advanced operational efficiency Project 158: Data platforms and pipelines to facilitate Asset management analysis at an asset level Project 163: Next Gen Planning System 	N/A
108	Cost	Develop and Deploy	AER Capex Categories - Non-Recurrent Compliance <ul style="list-style-type: none"> Project 164: Strengthening governance and standards Project 165: Enable a cyber safe workforce of the future Project 166: Working with secure suppliers and partners Project 167: Building resilience to the ever-changing cyber threat environment Project 168: Securing digital identities and data Project 169: Enable smooth adoption of technologies and solutions 	N/A

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ID	Assumption Type	Category	Assumption	Metric
109	Cost	Infrastructure Upgrades	AER Capex Categories – Recurrent <ul style="list-style-type: none"> Project 18: Business Video Streaming platform (ongoing) Project 19: Passwordless Sign-on (Biometric Sign-Ins) (ongoing) Project 24: Fieldworker Mobility enhancements (ongoing) Project 26: Enhance workforce connectivity with dedicated 5G & DAS infrastructure Project 29: Simplified Device Build & Windows as a Service and Windows 11 Update (ongoing) Project 32: Biometric/mobile device access to EE offices/locations (ongoing) Project 33: Maintaining and refreshing workforce devices Project 36: Federated Data Analytics (ongoing) Project 38: Business Event Information Model (ongoing) Project 46: Asset predictive/prescriptive maintenance data architecture (ongoing) Project 49: Contents and records management + rights management implementation Project 53: Warranty management (ongoing) Project 55: Integrated IDM/IAS (ongoing) Project 67: Business platforms process restructure and integration (ongoing) Project 88: Workforce scheduling replacement (ongoing) Project 117: IT/OT network infrastructure consolidation Project 120: Maintain lifecycle - network hardware Project 122: AI monitoring & self-healing network Project 127: IT WAN connectivity automation & refresh (ongoing) Project 131: Application zero-trust network transformation (ongoing) Project 135: Efficient workforce identity authentication services 	N/A
110	Cost	Infrastructure Acquisition	Small: relative size of procurement requirement.	\$ 100,000
111	Cost	Infrastructure Acquisition	Medium: relative size of procurement requirement.	\$ 300,000
112	Cost	Infrastructure Acquisition	Large: relative size of procurement requirement.	\$ 900,000
113	Cost	Infrastructure Acquisition	Product procurement - None, ongoing: no procurement because required assets have already been obtained. <ul style="list-style-type: none"> Project 18: Business Video Streaming platform (ongoing) Project 19: Passwordless Sign-on (Biometric Sign-Ins) (ongoing) Project 24: Fieldworker Mobility enhancements (ongoing) 	\$ -

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ID	Assumption Type	Category	Assumption	Metric
			<ul style="list-style-type: none"> Project 29: Simplified Device Build & Windows as a Service and Windows 11 Update (ongoing) Project 31: Enhance workforce apps & app modernisation (ongoing) Project 32: Biometric/mobile device access to EE offices/locations (ongoing) Project 36: Federated Data Analytics (ongoing) Project 38: Business Event Information Model (ongoing) Project 46: Asset predictive/prescriptive maintenance data architecture (ongoing) Project 48: Federated records management, enterprise search and secure sharing (ongoing) Project 53: Warranty management (ongoing) Project 55: Integrated IDM/IAS (ongoing) Project 56: Migrate to SAP SaaS Project 67: Business platforms process restructure and integration (ongoing) Project 88: Workforce scheduling replacement (ongoing) Project 127: IT WAN connectivity automation & refresh (ongoing) Project 131: Application zero-trust network transformation (ongoing) 	
114	Cost	Infrastructure Acquisition	Product procurement - None, SaaS: no procurement capital expenditure cost as projects leverage existing tools that have a cloud-based procurement nature. <ul style="list-style-type: none"> Project 59: Enterprise GRC (Investment) (ongoing) 	\$ -
115	Cost	Infrastructure Acquisition	Product procurement – Small <ul style="list-style-type: none"> Project 15: Enterprise Social Networking tool Project 26: Enhance workforce connectivity with dedicated 5G & DAS infrastructure Project 44: IOT data management (operational) Project 135: Efficient workforce identity authentication services 	N/A
116	Cost	Infrastructure Acquisition	Product procurement – Medium <ul style="list-style-type: none"> Project 22: Connected Vehicles & AI implementation Project 96: Advanced operational efficiency Project 117: IT/OT network infrastructure consolidation Project 122: AI monitoring & self-healing network 	N/A
117	Cost	Infrastructure Acquisition	Product procurement – Large <ul style="list-style-type: none"> Project 49: Contents and records management + rights management implementation Project 51: Fleet management system Project 61: Predictive maintenance 	N/A

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ID	Assumption Type	Category	Assumption	Metric
118	Cost	Infrastructure Acquisition	Product procurement - Percentage where an appropriate percentage of implementation cost is allocated to product. • Project 33: Maintaining and refreshing workforce devices	90%
119	Cost	Infrastructure Acquisition	Product procurement - Percentage where an appropriate percentage of implementation cost is allocated to product. • Project 120: Maintain lifecycle - network hardware	115%
120	Cost	Infrastructure Acquisition	The Infrastructure Pattern worksheet provides per project the timing of acquisition of assets for the individual projects.	N/A
121	Cost	Infrastructure Maintenance	Infrastructure Maintenance as a proportion of project total expenditure	5.78%
122	Cost	Infrastructure Maintenance	Projects which have no additional product do not require any infrastructure maintenance expenditure	N/A
123	Cost	Service Management	Support Costs as a proportion of project total expenditure	3.26%
124	Cost	Service Management	Projects which have no additional product do not require any service management expenditure	N/A
125	Cost	Contingency	Contingency Rates are based on a conservative assumption of the risk profile and complexity of the projects	19%
126	Cost	Other Program Costs	Travel Costs for the Programme are based on a proportion of the overall Programme costs.	0.50%
127	Cost	Other Program Costs	Office Accommodation Costs for the Program, including accommodation, stationery, and ICT equipment is based on a proportion of the overall Programme Costs.	2.00%

Table 21: Assumptions related to Cost-benefit analysis of investment brief “Providing a resilient network for the community adapting to changing climate and external hazards”.

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8 Appendix – Limitations of proposed cyber security investments

We have identified several limitations to existing analysis in meeting requirements specified by the amendments related to the Security of Critical Infrastructure Act 2018. These include:

- Absence of detailed risk assessments for each critical asset
- Limited understanding of attack paths and failure scenarios
- Lack of understanding in terms of the requirement to do a full restoration of services from significant attacks
- Ambiguity over ownership around nation-state risks.

Although further analysis will address some of these limitations, there can still be uncertainties in the next decade that may cause a shift in the number and nature of needed investments. These include:

- Escalation of the external cyber threat
- Regulatory change
- The impact and speed of energy transition
- Change in risk tolerance.

Above limitations and uncertainties may have significant impact on the total cost of future investments needed to meet the requirements specified by the Security of Critical Infrastructure Act 2018 but this does not mean that we must delay critical investments in this area. Implementation of new capabilities that address some areas of the requirements will provide an essential building block for future investments.

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