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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 2024-2029 regulatory submission.

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
Endeavour Energy Stakeholder & Community Reputation Benchmark Study	05 February 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

4 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 “Supporting the sustainable growth of our communities”.

This investment theme links closely to our strategic goals: “Health, safety & environment” 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. Our investments focus on supporting the sustainable growth of our communities by enabling and supporting the provision and operation of systems and non-system assets in greenfield areas such as the Western Sydney Parkland City (adjacent to the new Nancy Bird Walton International Airport) through better data and insights, enhanced operational capabilities and automation. Endeavour Energy is investing in accommodating for the directions of future growth and change across Greater Sydney. The step change in growth of customers across Western Sydney will open new geographical locations as well as increase the customer density of existing locations, necessitating investments in supporting field workers, supporting network infrastructure growth and scaling back-office operations.

The Greater Sydney Commission published The Greater Sydney Region Plan in March 2018¹. This aims to inform and assist a range of stakeholders with future decision-making processes in accommodating the expected future growth and change across Greater Sydney. This investment theme links closely to the following objectives from the plan, and these provide additional support to our vision and strategic goals in response to expansion related to Western Sydney region:

- “Objective 33: A low-carbon city contributes to net-zero emissions by 2050 and mitigate climate change”
- “Objective 34: Energy and water flows are captured, used and re-used”
- “Objective 35: More waste is re-used and recycled to support the development of a circular economy”
- “Objective 36: People and places adapt to climate change and future shocks and stresses”
- “Objective 37: Exposure to natural and urban hazards is reduced”
- “Objective 38: Heatwaves and extreme heat are managed”.

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.”

¹ <https://www.greatercities.au/metropolis-of-three-cities/about-plan>

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In a Customer Panel conducted with Endeavour Energy customers, the participants highlighted the importance of supporting the sustainable growth of our communities through the following verbatim responses:

- “Just go for it! What do we have to lose? Growth and expectations often increase faster than planned so no use getting left behind. Innovative work now could actually manifest into potential savings later.” – *Residential, under financial pressure, South-west Sydney*
- “Plan for the future but at a more progressive rate in order to strike a balance between cost escalations and infrastructure upgrades.” – *Residential, CALD, North-west Sydney*

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, illustrated in Figure 2, identifies three 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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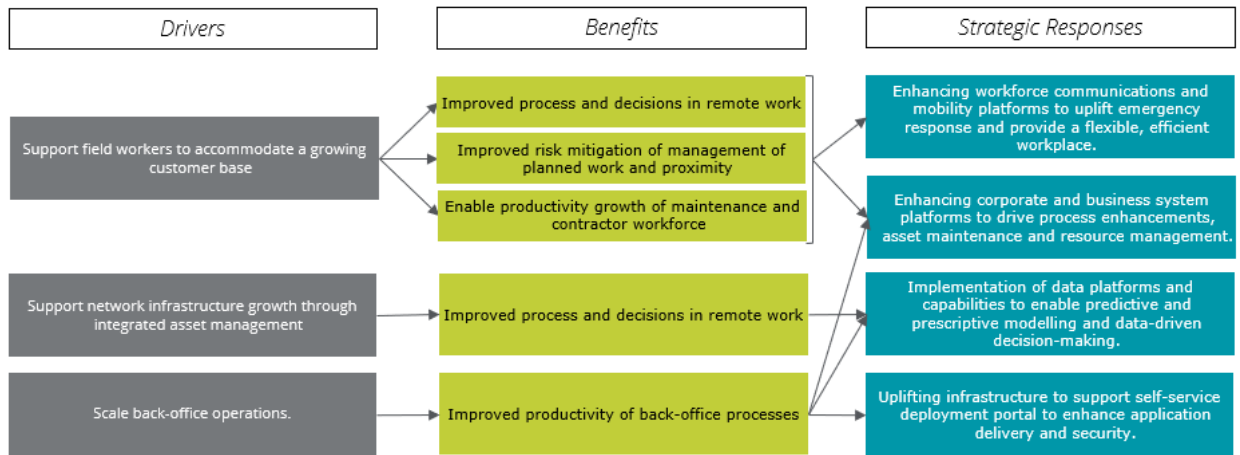


Figure 2: Investment Logic Map

1.5 Drivers and challenges

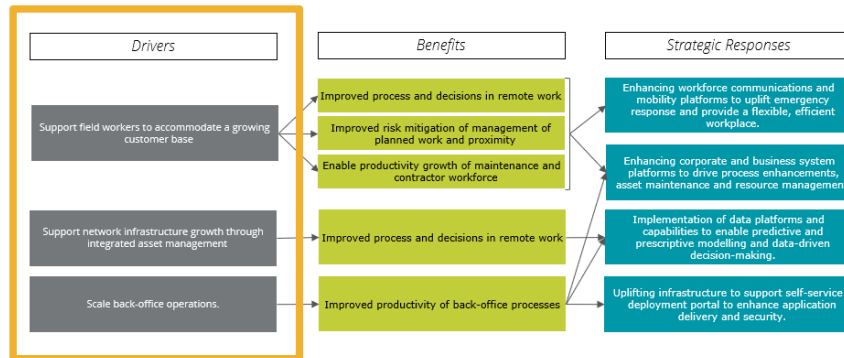


Figure 3: Investment Logic Map identifying three key drivers of support field workers, support network infrastructure growth and scale back-office operations.

The three key drivers for investment are:

- Support field workers to accommodate a growing customer base.** The step change in growth of customers across West Sydney will open new geographical locations as well as increase the customer density of existing locations. By 2036, half of Sydney’s population will reside around the River City and Bradfield City. Projections support the need for an additional 725,000 dwellings and 200,000 new jobs, in a region that will cater for a new airport, new industries and transport. There are challenges that will be faced by Endeavour Energy field workers as they seek to maintain services for the growing customer base. These challenges include providing field staff with the information they need in the new locations, cost-effectively growing the field services teams required to cover the increased number of customers and to continue to safely mitigate the risks associated with emergency responses.
- Support network infrastructure growth through integrated asset management.** The development of Western Sydney will require an expansion of the network infrastructure to be serviced. There are challenges with cost-effectively managing the increased volume and complexity of the supply chain and the end-to-end lifecycle of this increased asset base.
- Scale back-office operations.** The increased volume of customers and network infrastructure will impact back-office support operations to manage customer contacts, and plan for the enterprise. Building on the existing capabilities in these areas, the challenge is to cost-effectively grow the capacity of the back-office operations teams and processes to manage the increased volumes.

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1.6 Way forward benefits

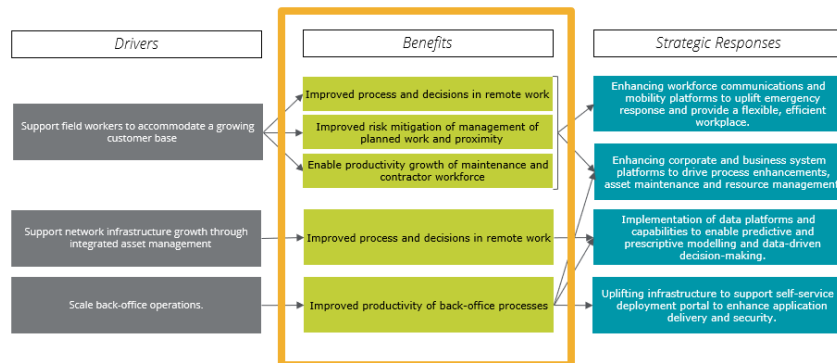


Figure 4: Investment Logic Map identifying four benefits that can be realised.

Endeavour Energy is focused on identifying solutions aligned to the priorities and expectations of our customers, which reflect their long-term interests, 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, as population grows exponentially in the Western Sydney region, successful integration of new network infrastructure is important to ensure customers are provided with a safe and reliable supply of electricity in the most efficient way possible. This is to ensure that benefits from these investments are captured appropriately. These benefits can be either 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:

- Improved process and decisions in remote work.** With predicted expansion of the asset base and fit-for-purpose network infrastructure, field workers play a larger role in managing future network infrastructure. ICT investments in the next regulatory period can enhance the productivity of field workers through remote work technologies and connected vehicles to ensure a safe and reliable supply of electricity to the Western Sydney region. To maximise the benefits from network infrastructure, it is necessary for us to adopt better asset management to improve field workers' responsiveness to customers and operational planning, ensuring remote work is performed safely and efficiently.

These benefits are realised by addressing the fundamental challenges of ensuring that *fields workers* are equipped with the right tools and knowledge to optimise the investments in network infrastructure through *better asset management* of network infrastructure support while delivering them a *safe working environment*.

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

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Endeavour Energy Benefits:

- Enhance the productivity of field workers through remote work technologies and connected vehicles
- Improve responsiveness to customers and operational planning by leveraging customer data and segmentation

Main Benefit Measures:

- Productivity improvements
- Data reuse benefit
- Agent time savings
- Time to competency.

- **Improved risk mitigation of management of planned work and proximity.** Better corporate platforms provide ways for Endeavour Energy to manage the risks of system failures. This can be done by using AI capabilities to support management of stock/inventory and scheduling of planned work and proximity.

These benefits are realised by allowing *field workers* the opportunity to manage risks related to their safety and wellbeing as well as the operation of the network through flexible and efficient workplace.

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

Endeavour Energy Benefits:

- Minimise risk related to potential disruptions in the network.

Benefit Measures:

- Avoided system failure costs.

- **Enable productivity growth of maintenance and contractor workforce.** With the expansion of new infrastructure and customer numbers in the Western Sydney region, it is important to scale corporate and emergency response services. Investments in contractor management software and provision of business systems training through virtual reality for team members allow us to better manage maintenance works and training outcomes. This will maximise the value created by these initiatives and ensure we can provide better services to customers and stakeholders.

These benefits are realised by improving the ability for us to scale some of the functions related to how *field workers* collaborate and work with other areas of the business. This is to ensure the long-term benefits of the investments in delivering a more collaborative and integrated workforce and minimise the costs related to future compatibility.

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

Endeavour Energy Benefits:

- Minimise risk related to cancellation of planned works
- Improve the skills and knowledge of employees through a more effective way.

Benefit Measures:

- Reduction in cancelled maintenance works
- Time to competency.

- **Improved productivity of back-office processes.** While it is necessary for us to adopt better asset management to improve field workers' responsiveness to customers and operational planning to maximise the benefits from the growth in network infrastructure, it is also important to address the challenges related to back-office processes. Back-office workflow productivity is crucial for any

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business functions. Therefore, investments to improve the productivity of back-office secondary processes are important to ensure core operations of a business perform well. This also means a better price outcome and customer service for the customers.

These benefits are realised by addressing the fundamental challenges related to the *scale of back-office processes*. The benefits from investments to improve the safety of field workers and asset management can only be maximised by ensuring that back-office processes are capable and aligned with the demand growth of the core operations in delivering safe and reliable electricity supply to the Western Sydney region.

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

Endeavour Energy Benefits:

- Improve back-office service productivity through new and innovative ways of collecting and analysing data for internal process
- Enhance decision making and day-to-day tasks by improving visibility of customer energy consumption.
- Opex efficiency benefits including design and software improvements

Main Benefit Measures:

- Productivity improvements
- Technology innovative and reuse benefit
- Cost avoidance – Opex

There are several qualitative benefits related to:

- Improvement of collaborative culture in the business due to the expansion growth of Western Sydney region
- Community productivity gains
- Better customer experience
- Improved customer relationship and commercial partnership.

1.7 Objectives and outcomes

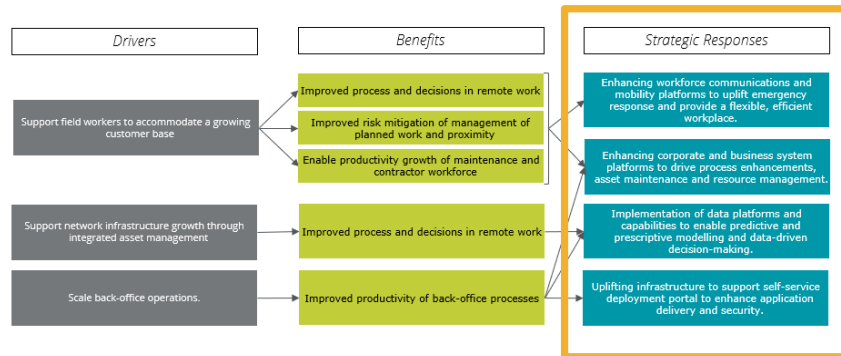


Figure 5: Investment Logic Map identifying four strategic responses to deliver against the investment drivers and realise benefits identified.

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

- **Strategic Response 1. Enhancing workforce communications and mobility platforms to uplift emergency response and provide a flexible, efficient workplace.**

This strategic response will enhance communications, flexibility and mobility in the workforce through the development of artificial intelligence and Augmented Reality/Virtual Reality (AR/VR) capabilities for field workers. This program addresses the *field workers* driver.

Key objectives and outcomes in this strategic response include:

- Enable artificial intelligence capabilities for resource management. Implementation of artificial intelligence capabilities to support stock and inventory management, and planned work and proximity scheduling.
- Enhanced workforce communications. Development of AR/VR communication capabilities for remote job locations and enablement of artificial intelligence capabilities for contact centres, providing staff with the ability to connect and collaborate regardless of their location.
- Enhanced workforce safety. Implementation of automation and robots in the field (including smart cars, trucks and drones) as part of the emergency response capability and roll-out of wearable device and motion detection end-user technology to enhance field worker safety and linkage to necessary information for execution of work.

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- **Strategic Response 2. Enhancing corporate and business system platforms to drive process enhancements, asset maintenance and resource management.**

This strategic response will build on the investments to 2024 to further standardise corporate enterprise platforms to enhance management of resources and drive process enhancements. This program addresses the *field workers* and *process efficiency* drivers.

Key objectives and outcomes in this strategic response include:

- Enhanced resource management. Uplift in contract lifecycle management platform and warehouse management system to enhance contractor and field staff productivity.
- Increased process efficiency and data-driven insights and decisions. Enabling capabilities to drive process efficiency through enabling process mining and remediation of enterprise resource planning systems.
- **Strategic Response 3. Implementation of data platforms and capabilities to enable predictive and prescriptive modelling and data-driven decision-making.**

This strategic response will uplift data platforms, systems and tools to enable machine learning and artificial intelligence data capabilities and predictive and prescriptive asset management models. This program addresses the *asset management* and *process efficiency* drivers.

Key objectives and outcomes in this strategic response include:

- Enable data platforms, systems and tools for machine learning and artificial intelligence. Implementation and management of data platforms and tools for operational data to enable machine learning and artificial intelligence capabilities.
- Enable predictive and prescriptive asset management models. Development and configuration of data platforms, integration systems and smart plant asset management systems to support predictive and prescriptive asset management models.
- **Strategic Response 4. Uplifting infrastructure to support self-service deployment portal to enhance application delivery and security.**

This strategic response will enhance application delivery and security by implementing the required infrastructure for delivery of self-service deployment portal. This program addresses the *process efficiency* driver.

Key objectives and outcomes in this strategic response include:

- Enhanced application delivery and security. Implementation of underlying infrastructure to enable the implementation of technology self-service deployment portal.

2 Investment Options

2.1 Options Description

Three options were considered to address the drivers and challenges outlined and deliver the benefits described above. Please refer to section 5.1 for the underlying initiatives within each option.

3.1.1 Option 1: Support field workers to accommodate a growing customer base

The focus of Option 1 is to *promote the safety and wellbeing of workers due to unprecedented growth in population and energy choices in Western Sydney*. These investments help ensure that workers are equipped with the right skills and knowledge to deal with uncertainties related to energy market transition.

This option addresses one driver:

- **Support field workers to accommodate a growing customer base.** Investments in technologies to promote the safety and wellbeing of workers due to unprecedented growth in population and energy choices in Western Sydney. These investments help ensure workers are equipped with the right skills and knowledge to deal with uncertainties related to the energy market transition.

This Option has a lack of initiatives supporting two of the key strategic external drivers which support the significant network growth expected in Western Sydney. There is also a lack of alignment with the priorities raised by customers for the future of the network.

3.1.2 Option 2: Support network infrastructure growth through integrated asset management

The focus of Option 2 is to *promote the safety and wellbeing of customers and identify and build on current business capabilities*. Option 2 builds upon the drivers that are the focus of Option 1 by addressing the asset management and infrastructure required to enable growth in Western Sydney.

In addition to the driver addressed under Option 1, Option 2 addresses one additional driver:

- **Support network infrastructure growth through integrated asset management.** Investments in ICT solutions are needed to improve the management of supporting infrastructure assets. This will enable significant network investment due to growth in Western Sydney and provide additional support needs for the investments in Option 1.

This Option has a lack of initiatives which support the back-office operations required to support the growth of the network.

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3.1.3 Option 3: Enable focus on core operations

The focus of Option 3 is *delivering a more efficient back-office operation through the use of new ICT technologies*. 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 one additional driver:

- **Scale back-office operations.** To allow Endeavour Energy to focus on core operations in ensuring safe and reliable electricity supply, investments to improve back-office secondary process are needed. These investments deliver more efficient back-office operations through the use of new ICT technologies.

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 the three **key external drivers** in the investment brief *Safety and wellbeing of field workers, Network infrastructure through integrated asset management* and *Enable focus on core operations*.
- **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 them²: Providing a reliable supply; Responding to emergencies; Prudent and efficient management of the network; Researching, trialling 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.

² 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 – Support field workers	Score	Option 2 – Support network infrastructure	Score	Option 3 – Enable focus on core operations	Score
Strategic Alignment with Drivers	10%	This option solely invests in capabilities which support future field worker safety and well-being in the growing network. There is a lack of investment in back-end and asset management processes.	1	This option includes asset management capabilities required to support network logistics and predictive/prescriptive modelling in addition to the investment in field worker support.	3	This option enables a focus on core operations through investments in back-office operations which will drive efficiencies across the network.	4
Alignment with customer priorities	20%	This option has a low alignment with most customer priorities, with only a medium alignment with researching, trialling and installing new technologies which will be essential as the network grows and develops.	1	This option addresses the customer priorities for reliable supply and emergency response through asset management investments, as well as a higher alignment with new technologies required to support future growth.	2	This option provides alignment to priorities associated with new technologies, as well as a reliable electricity supply and prudent and efficient management of the network through enhancement and development of processes.	3
Risk mitigation associated with investment	25%	The mitigation of safety and network risks are high priorities under this option as field worker and network safety are key areas of focus.	2	This option ensures a higher compliance with maintaining network reliability and ensures safety measures for employees and customers.	2	This option demonstrates high mitigation of most corporate risks, including customer centricity through AI contact centres and driving process efficiencies to relieve finance and network risks.	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 Capability Benefits: \$47.11M Recurrent Project Benefits: \$5.50M Qualitative Benefits: <ul style="list-style-type: none"> Improvement of collaborative culture in the business from Western Sydney growth especially for field workers, Improvement in field workers' risk culture, community productivity gains and attract/retain new talents. 	1	Quantitative Benefits: <ul style="list-style-type: none"> New Capability Benefits: \$50.85M Recurrent Project Benefits: \$10.16M Qualitative Benefits: <ul style="list-style-type: none"> Improvement of customer relationship and commercial partnership Higher employee engagement. 	2	Quantitative Benefits: <ul style="list-style-type: none"> New Capability Benefits: \$52.88M Recurrent Project Benefits: \$14.22M Qualitative Benefits: <ul style="list-style-type: none"> Better customer experience Improvement in innovation culture. 	3
Costs associated with investment <i>Note: this excludes non-project costs</i>	15%	<ul style="list-style-type: none"> New Capability Capital Expenditure: \$6.28M Recurrent Project Capital Expenditure: \$1.08M Operating Expenditure: \$2.97M 	3	<ul style="list-style-type: none"> New Capability Capital Expenditure: \$7.51M Recurrent Project Capital Expenditure: \$1.91M Operating Expenditure: \$3.71M 	2	<ul style="list-style-type: none"> New Capability Capital Expenditure: \$13.74M Recurrent Project Capital Expenditure: \$5.68M Operating Expenditure: \$6.69M 	1
WEIGHTED SCORE			1.55		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.

3.4 Recommended Option

Option 3 “Enable focus on core operations” is the most prudent and efficient option.

Option 1 “Support field workers to accommodate a growing customer base” lacks the investments to scale back-end processes and improve asset management capability. Additionally, it has a relatively low alignment with customer priorities and the total costs associated with these investments are higher than the total quantitative benefit.

Option 2 “Support network infrastructure growth through integrated asset management” aims to optimise the potential value of the network infrastructure in response to the demand growth in the Western Sydney region through investments in new asset management capabilities, however, it does not invest in back-office operations which would drive efficiencies across the network. Additionally, this option has lower alignment with customer priorities and lower contribution towards mitigating corporate risks for Endeavour Energy.

This is in addition to the investments included in Option 1. Option 2 provides a more integrated system for field workers to perform their works than Option 1 and aligns more with the customer priorities and our strategic drivers.

In comparison to Option 1 and Option 2, Option 3 “Enable focus on core operations” more strongly supports the external investment drivers and customer priorities identified as important to delivering the outcomes in this Investment Brief. Additionally, it has higher contribution towards mitigating corporate risks. Furthermore, the level of benefits achieved across the firm from investment under this option offsets the higher capital costs required to support the sustainable growth of our communities.

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4 Implementation of the Recommended Option

To realise the significant planned benefits, the “Supporting the sustainable growth of our communities” 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 four programs of work, each program focused on the delivery of one strategic response, whose vision, objectives and outcomes are described in **Section 1.7**. The programs and the vision for each are described below:

1. **Uplift emergency response.** Enhancing workforce communications and mobility platforms to uplift emergency response and provide a flexible, efficient workplace. This strategic response will enhance communications, flexibility and mobility in the workforce through the development of artificial intelligence and AR/VR capabilities for field workers. This program addresses the *field workers* driver.
2. **Enhance corporate platforms to uplift process enhancements, asset maintenance and resource management.** Enhancing corporate and business system platforms to drive process enhancements, asset maintenance and resource management. This strategic response will build on the investments to 2024 to further standardise corporate enterprise platforms to enhance management of resources and drive process enhancements. This program addresses the *field workers* and *process efficiency* drivers.
3. **Enable predictive and prescriptive modelling.** Implementation of data platforms and capabilities to enable predictive and prescriptive modelling and data-driven decision-making. This strategic response will uplift data platforms, systems and tools to enable machine learning and artificial intelligence data capabilities and predictive and prescriptive asset management models. This program addresses the *asset management* and *process efficiency* drivers.
4. **Enhance application delivery and security.** Uplifting infrastructure to support self-service deployment portal to enhance application delivery and security. This strategic response will enhance application delivery and security by implementing the required infrastructure for delivery of self-service deployment portal. This program addresses the *process efficiency* driver.

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.

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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. The key objectives to be achieved for this phase include:
 - Enable artificial intelligence capabilities for resource management
 - Increased process efficiency and data-driven insights and decisions
 - Enhanced resource management
 - Enable data platforms, systems and tools for machine learning and artificial intelligence
 - Enhanced application delivery and security.
- **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. The key objectives to be achieved for this phase include:
 - Enhanced workforce communications
 - Enhanced workforce safety
 - Enable predictive and prescriptive asset management models.

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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.

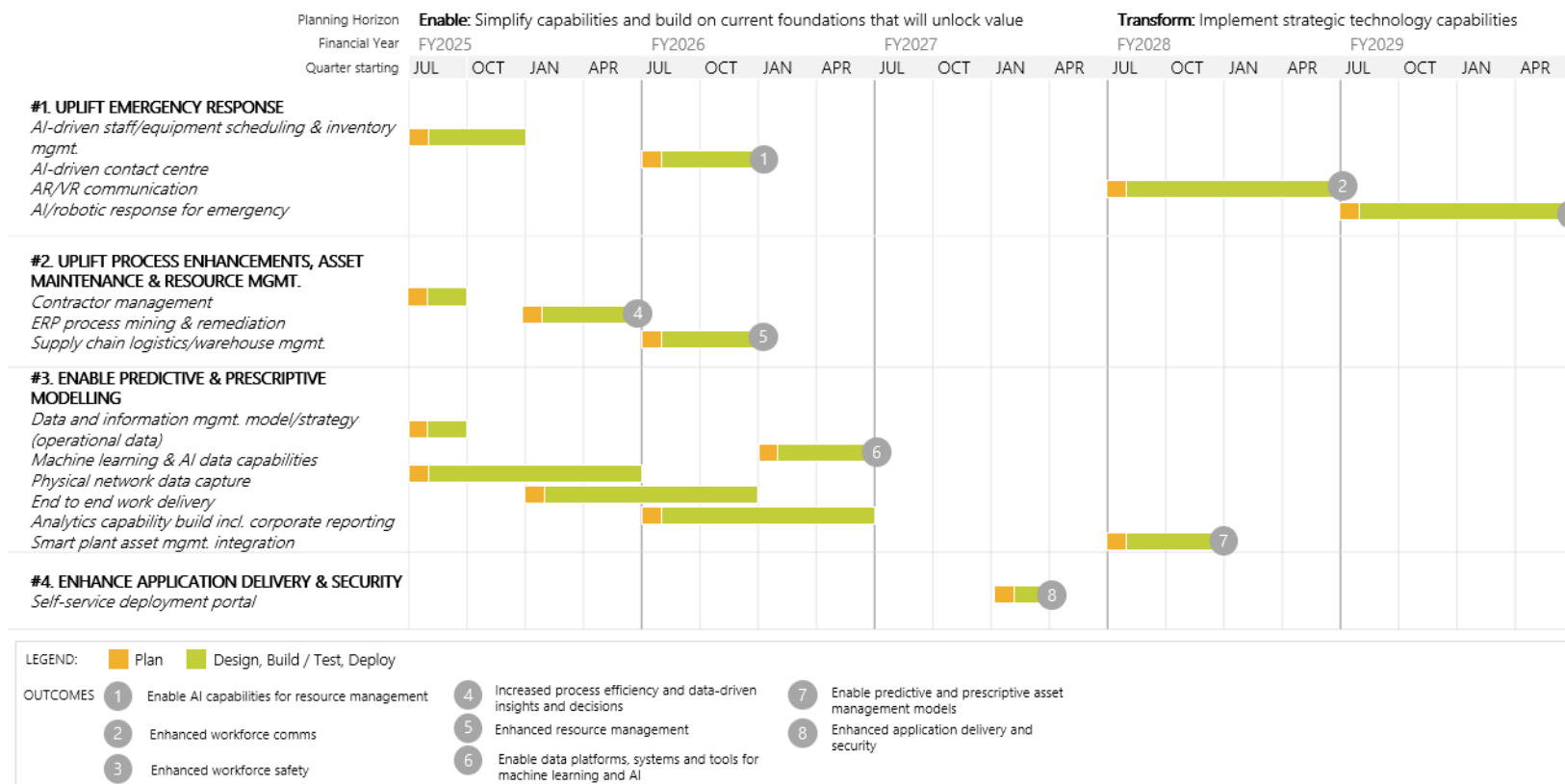


Figure 6: High level roadmap of the investment brief “Providing a resilient network for the community adapting to changing climate and external hazards”.

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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 Asset 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 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.	Augmentation: Endeavour Energy augments by outsourcing to industry-leading specialists to leverage best practice In this investment case we have assumed these resources use contractor rates, based in Sydney. An alternative sourcing option considered for Application Development includes: Prime Integrator: Endeavour Energy engages a range of specialist industry-leading vendors to orchestrate delivery as a prime integrator for any projects.
Systems and Network and testing Provides industry-leading expertise for systems and network and testing capabilities.	Augmentation: Endeavour Energy augments by outsourcing to industry-leading specialists to leverage best practice. In this investment case we have assumed these resources use contractor rates, based in Sydney.

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 1.6. These benefits have been categorised as Recurrent and Non-Recurrent – New Capability benefits associated with the categorisation of the projects which deliver the benefits.

The quantitative benefits reaped from this investment include productivity improvement needed to accommodate for the expansion in the Western Sydney region, improvement in risk mitigation related to system failure and cancelled maintenance works, data and innovation reuse benefits. These benefits are realised by addressing the challenges faced by field workers, network infrastructure support and back-office secondary process.

The qualitative benefits include improvement of collaborative culture in the business from Western Sydney growth especially for field workers, improvement in field workers’ risk culture, community productivity gains and attract/retain new talents, improve customer relationship and commercial partnership, higher employee engagement, better customer experience and improvement in innovation culture.

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	\$8.0M	\$8.3M	\$8.5M	\$8.5M	\$9.9M	\$43.1M	\$52.9M
Recurrent	\$0.4M	\$2.0M	\$2.4M	\$2.6M	\$1.5M	\$8.9M	\$14.2M
Total Estimated Benefits	\$8.4M	\$10.3M	\$10.9M	\$11.1M	\$11.3M	\$52.0M	\$67.1M

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 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 key 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 have 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 – 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						
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	\$1.8M	\$2.6M	\$2.0M	\$3.3M	\$2.7M	\$12.4M
Infrastructure Acquisition	\$0.0M	\$0.0M	\$0.1M	\$0.3M	\$0.9M	\$1.4M
Contingency	\$0.4M	\$0.6M	\$0.4M	\$1.0M	\$0.9M	\$3.3M
Total	\$2.3M	\$3.4M	\$2.6M	\$4.8M	\$4.6M	\$17.7M

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						
Program Costs	\$0.1M	\$0.1M	\$0.1M	\$0.2M	\$0.2M	\$0.6M
Other Program Costs	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M
Develop and Deploy	\$0.3M	\$0.2M	\$0.0M	\$0.8M	\$0.7M	\$2.1M
Infrastructure Acquisition	\$0.0M	\$0.3M	\$0.0M	\$0.3M	\$0.0M	\$0.6M
Contingency	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M
Total	\$0.4M	\$0.6M	\$0.2M	\$1.3M	\$0.8M	\$3.3M

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
#4 Sustainable Growth	\$52.9M	\$17.7M	\$31.5M

Table 6 NPV Calculations

4.5.3 Non-Recurrent – Maintaining existing capabilities expenditure

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

4.5.4 Non-Recurrent – Complying with regulatory obligations expenditure

No projects under this investment brief are categorised as complying with regulatory obligations in the following regulatory period.

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4.5.5 Recurrent expenditure

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	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.1M	\$0.1M
Other Program Costs	\$0.1M	\$0.1M	\$0.0M	\$0.0M	\$0.0M	\$0.2M
Infrastructure Acquisition	\$0.3M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.3M
Infrastructure Upgrades	\$2.2M	\$1.4M	\$0.6M	\$0.6M	\$0.6M	\$5.4M
Contingency	\$0.6M	\$0.6M	\$0.1M	\$0.1M	\$0.1M	\$1.6M
Total Recurrent	\$3.3M	\$2.0M	\$0.7M	\$0.7M	\$0.7M	\$7.5M

Table 7: Recurrent projects’ investment costs funded through capital expenditure

	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	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M
Infrastructure Acquisition	\$0.0M	\$0.3M	\$0.0M	\$0.0M	\$0.0M	\$0.3M
Infrastructure Upgrades	\$0.6M	\$1.2M	\$0.0M	\$0.0M	\$0.0M	\$1.7M
Contingency	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M
Total Operating Expenditure	\$0.7M	\$1.5M	\$0.0M	\$0.0M	\$0.0M	\$2.3M

Table 8: Recurrent projects’ investment costs funded through operating expenditure

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4.5.6 Ongoing – New capabilities expenditure

The ongoing costs related to ongoing support and maintenance of ICT infrastructure for project related ICT investments. This is assumed to be completely 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 Ongoing	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M	\$0.0M

Table 9: Ongoing - New Capability investment costs funded through capital expenditure

	FY2025	FY2026	FY2027	FY2028	FY2029	Total 5 years
Ongoing						
Infrastructure Maintenance	\$0.2M	\$0.3M	\$0.1M	\$0.3M	\$0.3M	\$1.2M
Service Management	\$0.1M	\$0.2M	\$0.1M	\$0.2M	\$0.2M	\$0.7M
Contingency	\$0.1M	\$0.1M	\$0.0M	\$0.1M	\$0.1M	\$0.4M
Total Ongoing	\$0.4M	\$0.5M	\$0.2M	\$0.6M	\$0.5M	\$2.3M

Table 10: Ongoing - New Capability investment costs funded through 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 11 outlines the initiatives included in each option against the strategic responses.

Strategic response	Option 1	Option 2	Option 3
Enhancing workforce communications and mobility platforms to uplift emergency response and provide a flexible, efficient workplace.	Option 1 invests in the following initiatives: <ul style="list-style-type: none"> AR/VR communication AI-driven contact centre AI-driven staff/equipment scheduling and inventory management AI/robotic response for emergency 	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.
Enhancing corporate and business system platforms to drive process enhancements, asset maintenance and resource management.	Option 1 invests in the following initiative: <ul style="list-style-type: none"> Contractor lifecycle management 	In addition to initiatives in Option 1, there are the following additional initiatives: <ul style="list-style-type: none"> Supply chain logistics/warehouse management 	In addition to initiatives in Option 2, there are the following additional initiatives: <ul style="list-style-type: none"> ERP process mining & remediation
Implementation of data platforms and capabilities to enable predictive and prescriptive modelling and data-driven decision-making.	Option 1 invests in the following initiative: <ul style="list-style-type: none"> End to end work delivery 	In addition to initiatives in Option 1, there are the following additional initiatives: <ul style="list-style-type: none"> Data and information management model/strategy - operational data Smart plant asset management integration 	In addition to initiatives in Option 2, there are the following additional initiatives: <ul style="list-style-type: none"> Machine learning and artificial intelligence data capabilities Physical network data capture Analytics capability build including corporate reporting and insights
Uplifting infrastructure to support self-service deployment portal to enhance application delivery and security.	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"> Self-service deployment portal

Table 11: Initiatives within each option

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5.2 Strategic Alignment with Drivers

Table 12 conveys the strategic alignment with the three key drivers against the three options.

Driver	Option 1	Score	Option 2	Score	Option 3	Score
Support field workers to accommodate a growing customer base	Very High Alignment Option 1 investments focus on the safety, well-being and communication capabilities for the Endeavour Energy workforce supporting network growth.	●	Very High Alignment Option 2 invests in asset management capabilities to support emergency response and supply chain logistics.	●	Very High Alignment Option 3 has no further investments from Option 2.	●
Support network infrastructure growth through integrated asset management	Very Low Alignment Option 1 lacks the initiatives in asset management capabilities to support emergency response and supply chain logistics.	○	Very High Alignment Option 2 invests in asset management capabilities to support emergency response and supply chain logistics.	●	Very High Alignment Option 3 has no further investments from Option 2.	●
Scale back-office operations	Very Low Alignment Option 1 lacks initiatives aligned with digitisation and investment in back-office operations to support Western Sydney Growth.	○	Very Low Alignment Option 2 lacks initiatives aligned with digitisation and investment in back-office operations to support Western Sydney Growth.	○	Very High Alignment Option 3 investments include digitisation and investment in management of back-office operations to support network reliability and safety in the future network.	●
SCORE	Investments which support future field worker safety and well-being in the growing network. There is a lack of investment in back-end and asset management processes.	1	Investments which include asset management capabilities required to support network logistics and predictive/prescriptive modelling in addition to the investment in field worker support.	3	Enables a focus on core operations through investments in back-office operations which will drive efficiencies across the network.	4
















Table 12: Alignment of options against external drivers

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5.3 Alignment with Customer Priorities

Table 13 conveys the alignment to the five customer insights.

Customer Priority	Option 1	Score	Option 2	Score	Option 3	Score
Providing a reliable supply	Low Alignment Option 1 invests in field worker communication, thereby ensuring a reliable electricity supply.		Medium Alignment Option 2 additionally invests in predictive and prescriptive asset management capabilities to ensure a reliable electricity supply.		High Alignment In addition to Option 2, Option 3 invests in machine learning, physical network data capture and back-office infrastructure to support reliable electricity supply.	
Responding to emergencies	Low Alignment Option 1 invests in AI and field worker communication capabilities and platforms to enable an efficient emergency response.		Medium Alignment Option 2 additionally invests in data platforms to support enhancements in emergency response.		Medium Alignment In addition to Option 2, Option 3 invests in ERP systems and AI tools to enable more efficient emergency responses.	
Prudent and efficient management of the network	Low Alignment Option 1 invests in AI systems and enhances platforms to drive efficiencies across the business and improve service delivery.		Medium Alignment Option 2 additionally invests in supply chain logistics and asset management integration to manage the network more efficiently.		High Alignment In addition to Option 2, Option 3 invests in enhancing and implementing processes in back-office functions to support more efficient management of the network.	
Researching, trialling and installing new technologies	Medium Alignment Option 1 invests in new technologies to cater for growth in infrastructure and population.		High Alignment Option 2 additionally invests in new data platforms and warehouse management to support the growth in new network infrastructure.		Very High Alignment In addition to Option 2, Option 3 invests in either new or enhanced systems to support the new energy system and requirements from network growth.	
Keeping customers informed	Low Alignment Option 1 has minimal investment in keeping customers informed through enhanced planned work scheduling.		Medium Alignment Option 2 additionally invests in smart plant asset management models to track assets, thereby informing customers of outages/issues more efficiently.		Medium Alignment Option 3 additionally invests in AI contact centres to keep customers informed.	

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Customer Priority		Option 1	Score	Option 2	Score	Option 3	Score
SCORE		Low alignment with most customer priorities, with only a medium alignment with researching, trialling and installing new technologies which will be essential as the network grows and develops.	1	Higher alignment with reliable supply and emergency response through asset management investments, as well as a higher alignment with new technologies required to support future growth.	2	Higher alignment to priorities associated with new technologies, as well as a reliable electricity supply and prudent and efficient management of the network through enhancement and development of processes.	3










Table 13: Alignment of options against customer priorities

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5.4 Risk mitigation associated with investment

Table 14 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.	High contribution to risk mitigation There are investments in enhancing field worker capabilities through the development of AR/VR communication capabilities, as well as investment in AI and robotic response for emergency.		High contribution to risk mitigation No additional investments beyond those in Option 1 mitigate this category of risk.		High contribution to risk mitigation No additional investments beyond those in Option 1 mitigate this category of risk.	
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 enhancing AI capabilities to support scheduling and inventory and emergency response, as well as enhancing contractor management.		High contribution to risk mitigation In addition to Option 1, there are investments in enhancing smart plant asset management integration, supply chain management and operational data.		Very High contribution to risk mitigation In addition to Option 2, there are investments in machine learning and AI, ERP process mining and self-service deployment portal.	
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 Investment in an AI-driven contact centre to enhance customer experience.		Very low contribution to risk mitigation No additional investments beyond those in Option 1 mitigate this category of risk.		Low contribution to risk mitigation No additional investments beyond those in Option 1 mitigate this category of risk.	

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Risks	Option 1	Score	Option 2	Score	Option 3	Score
R1.4 Finance Maintaining a predictable revenue stream whilst pursuing opportunities to deliver new 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.	Medium contribution to risk mitigation Investment in enabling AI capabilities to support resourcing and inventory management		Medium contribution to risk mitigation No additional investments beyond those in Option 1 mitigate this category of risk.		High contribution to risk mitigation In addition to Option 1, there are investments in enhancing machine learning and AI data capabilities to uplift data-driven decision making and insights, to maintain a predictable revenue stream.	
SCORE	The mitigation of safety and network risks are high priorities under this option as field worker and network safety are key areas of focus.	2	Higher compliance with maintaining network reliability and ensures safety measures for employees and customers.	2	Higher mitigation of most corporate risks, including customer centricity through AI contact centres and driving process efficiencies to relieve finance and network risks.	3

Table 14: Mitigation of risks across Options

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5.5 Benefits associated with investment

Table 15 and **Table 16** highlight the quantitative and qualitative benefits associated with the investment in the three options. It should be noted that the qualitative and quantitative benefits are cumulative and quantitative benefits are based on a 10-year period.

Driver	Option 1	Score	Option 2	Score	Option 3	Score
Support field workers to accommodate a growing customer base <i>Benefits related to driver:</i> <ul style="list-style-type: none"> Avoided system failure costs Time to Competency Agent time savings benefit Reduction in cancelled maintenance works Productivity improvements 	<ul style="list-style-type: none"> New Capability projects: \$47.11M Recurrent projects: \$5.50M 	N/A	<ul style="list-style-type: none"> New Capability projects: \$47.11M Recurrent projects: \$5.50M 	N/A	<ul style="list-style-type: none"> New Capability projects: \$47.11M Recurrent projects: \$5.50M 	N/A
Support network infrastructure growth through integrated asset management <i>Benefits related to driver:</i> <ul style="list-style-type: none"> Improved employee productivity – planning Data collection, sharing and reuse 	<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: \$3.74M Recurrent projects: \$4.66M 	N/A	<ul style="list-style-type: none"> New Capability projects: \$3.74M Recurrent projects: \$4.66M 	N/A
Scale back-office operations <i>Benefits related to driver:</i> <ul style="list-style-type: none"> Technology innovation and reuse Productivity improvements Cost avoidance - Opex 	<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: \$2.04M Recurrent projects: \$4.06M 	N/A

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Driver	Option 1	Score	Option 2	Score	Option 3	Score
SCORE	New Capability Benefits: \$47.11M Recurrent Project Benefits: \$5.50M	1	New Capability Benefits: \$50.85M Recurrent Project Benefits: \$10.16M	2	New Capability Benefits: \$52.88M Recurrent Project Benefits: \$14.22M	3

Table 15: 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 of collaborative culture in the business due to the expansion growth of Western Sydney region especially for field workers Higher employee engagement. Improvement in risk culture for field workers Attract and retain new talents 	N/A	<ul style="list-style-type: none"> Higher employee engagement. 	N/A	<ul style="list-style-type: none"> Improvement in innovation culture. 	N/A
Improved societal outcomes	<ul style="list-style-type: none"> Community productivity gains Improve customer relationship and commercial partnership 	N/A	<ul style="list-style-type: none"> Improve customer relationship and commercial partnership 	N/A	<ul style="list-style-type: none"> Better customer experience 	N/A
SCORE	<ul style="list-style-type: none"> Improvement of collaborative culture in the business from Western Sydney growth especially for field workers, Improvement in field workers' risk culture, community productivity gains and attract/retain new talents. 	1	<ul style="list-style-type: none"> Improvement of customer relationship and commercial partnership Higher employee engagement. 	2	<ul style="list-style-type: none"> Better customer experience Improvement in innovation culture. 	3

Table 16: Qualitative Benefits associated with investment in the three options

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5.6 Costs associated with investment

Table 17 illustrates the estimated project expenditure over the regulatory period across the three options.

Driver	Option 1	Score	Option 2	Score	Option 3	Score
Support field workers to accommodate a growing customer base	<ul style="list-style-type: none"> New Capability: \$6.28M Recurrent: \$1.08M Operating Expenditure: \$2.97M 	N/A	<ul style="list-style-type: none"> New Capability: \$6.28M Recurrent: \$1.08M Operating Expenditure: \$2.97M 	N/A	<ul style="list-style-type: none"> New Capability: \$6.28M Recurrent: \$1.08M Operating Expenditure: \$2.97M 	N/A
Support network infrastructure growth through integrated asset management	<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: \$1.23M Recurrent: \$0.82M Operating Expenditure: \$0.74M 	N/A	<ul style="list-style-type: none"> New Capability: \$1.23M Recurrent: \$0.82M Operating Expenditure: \$0.74M 	N/A
Scale back-office operations	<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: \$6.23M Recurrent: \$3.78M Operating Expenditure: \$2.98M 	N/A
SCORE	New Capability Capital Expenditure: \$6.28M Recurrent Capability Capital Expenditure: \$1.08M Operating Expenditure: \$2.97M	3	New Capability Capital Expenditure: \$7.51M Recurrent Capability Capital Expenditure: \$1.91M Operating Expenditure: \$3.71M	2	New Capability Capital Expenditure: \$13.74M Recurrent Capability Capital Expenditure: \$5.68M Operating Expenditure: \$6.69M	1

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

Table 17: Costs associated with investment in the three options

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6 Appendix – Project Summaries

Table 18 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			
Support field workers to accommodate a growing customer base	14	AR/VR Communication	Development of AR/VR communication capabilities for remote job locations
	20	AI-driven staff/equipment scheduling and inventory management	Enabling AI capabilities to support management of stock/inventory and scheduling of planned work and proximity
	28	AI/Robotic response for emergency (e.g. Drones, Automated Vehicles)	Enhancement of workforce mobility platforms to automation and robots in the field (including smart cars, trucks, drones) as part of emergency response capability
	62	Contractor lifecycle management (ongoing)	Enhancement of contract lifecycle management platform to enable management of Endeavour Energy contractors
	157	End to End Work Delivery	Planning/scenario model to draft plans, analytics/optimisation for scheduling, link mobile apps to logistics & maintenance forms & data, and performance dashboards
Option 2			
Support network infrastructure growth through integrated asset management	35	Data and information management model/strategy (ongoing) - operational data	Implementation of data platform and tools to support the operational data and information model and strategy
	40	Smart plant asset management integration	Develop and configure data platforms, integration systems and smart plant asset management systems to support predictive and prescriptive asset management models

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Driver	Proj #	Project	Description
	63	Supply chain logistics / warehouse management	Implementation of a warehouse management system to enhance field staff productivity and reduce overheads for staff currently performing manual supply chain assurance processes.
Option 3			
Scale back-office operations	17	AI-Driven Contact Centre	Enabling AI capabilities for contact centres
	45	Machine learning and artificial intelligence data capabilities	Implementation, enhancement and management of machine learning and artificial intelligence tools
	54	ERP process mining & remediation	Uplift in ERP systems to enable process mining and remediation capabilities
	141	Self-service deployment portal	Uplift in infrastructure to support the implementation of technology self-service deployment portal for application delivery and security
	156	Physical Network Data Capture	Physical data capture (Lidar and imagery feeds) for digital twin simulations, design and GIS information capture
	162	Analytics capability build including corporate reporting and associated insights	Extensions to corporate reporting covering strategic workforce planning, performance management, budget monitoring/spend management, and sustainability impact modelling

Table 18 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 19 demonstrates this investment profile and the individual 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

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ID	Assumption Type	Category	Assumption	Metric
9	Both	General Assumptions	Inflation rate	2.42%
10	Benefit	Benefits	Quantitative Benefits <ul style="list-style-type: none"> Avoided system failure costs: Mitigation of the risk of system failure Time to Competency: Reduction in the annual training time Agent time savings benefit: Financial benefits of saving internal IT agents time in a service interaction Reduction in cancelled maintenance works: Value the improvement in planned outage management through reduction in cancelled maintenance works Productivity improvements: Per annum saving of \$8m related to <i>Project 157: End to End Work Delivery</i> Improved employee productivity - Planning: Value of employee productivity for planning of outages Data collection, sharing and reuse: Data collection, sharing & reuse measures the value of enhancements to the organisation's data landscape. Technology innovation and reuse benefit: The monetised benefit of reusing technology or investing in technology that can be reused. Productivity improvements: Value of productivity improvements through projects to improve corporate platforms and OT systems Cost avoidance - Opex: OPEX efficiency benefits including design and software improvements. 	N/A
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 an employee is based on the NSW	\$ 44.03

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ID	Assumption Type	Category	Assumption	Metric
			average weekly earnings of \$1761.10 - ABS November 2021 divided by a 40 hour work week	
13	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
14	Benefit	Benefits	Benefit: Avoided system failure costs The assumption for <i>Number of incidents per year if investment is not undertaken</i> can be found in the Benefits Calculation tab	N/A
15	Benefit	Benefits	Benefit: Avoided system failure costs 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: Avoided system failure costs Impacted customers due to outages is based on historical data of number of customers impacted by unplanned outages	189
17	Benefit	Benefits	Benefit: Time to competency Annual salary of new employees × Percentage reduction in annual training time × Number of new employees per year	N/A
18	Benefit	Benefits	Benefit: Time to Competency Annual salary of new employees is based on a conservative assumption	\$100,000.00
19	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	N/A
20	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

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ID	Assumption Type	Category	Assumption	Metric
21	Benefit	Benefits	Benefit: Agent time savings benefit Percentage of improvement needed to accommodate for the increase in customers × Working hours in the year × Average hourly rate for employees × Number of impacted employees	N/A
22	Benefit	Benefits	Benefit: Agent time savings benefit The assumption for <i>Percentage of improvement needed to accommodate for the increase in customers</i> can be found in the Benefits Calculation tab	N/A
23	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
24	Benefit	Benefits	Benefit: Agent time savings benefit Number of impacted employees is based on a conservative assumption	600
25	Benefit	Benefits	Benefit: Reduction in cancelled maintenance works Annual reduction in cancelled maintenance works × Number of field employees required per outage × Average outage resolution time (in hours) × Average hourly rate for employees	N/A
26	Benefit	Benefits	Benefit: Reduction in cancelled maintenance works The assumption for <i>Assumed annual reduction in cancelled maintenance works</i> can be found in the Benefits Calculation tab	N/A
27	Benefit	Benefits	Benefit: Reduction in cancelled maintenance works Number of field employees required per outage is based on a conservative assumption	3
28	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	N/A

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ID	Assumption Type	Category	Assumption	Metric
			distribution and low voltage in FY13 to FY21. This information can be found in the Benefits Calculation tab.	
29	Benefit	Benefits	Benefit: Productivity improvements (1) Per annum saving of 8m. Productivity improvements assuming a 14% uplift. Ratio is assumed at 3:5 OPEX: CAPEX split	N/A
30	Benefit	Benefits	Benefit: Improved employee productivity - planning Avoided number of employees for hiring × Average cost per hour rate × Working hours in the year	N/A
31	Benefit	Benefits	Benefit: Improved employee productivity - planning The assumption for <i>Avoided number of employees for hiring</i> can be found in the Benefits Calculation tab	N/A
32	Benefit	Benefits	Benefit: Improved employee productivity - planning 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
33	Benefit	Benefits	Benefit: Data collection, sharing and reuse Data sharing factor × total expenditure of projects which deliver this benefit	N/A
34	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%
35	Benefit	Benefits	Benefit: Technology innovation and reuse benefit Total expenditure of projects which deliver this project × plans for reuse of technology × percentage of project that is an enabler	N/A

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ID	Assumption Type	Category	Assumption	Metric
36	Benefit	Benefits	Benefit - Technology innovation and reuse benefit The assumption for <i>Plans for reuse of technology</i> is based on a conservative assumption	50.00%
37	Benefit	Benefits	Benefit - Technology innovation and reuse benefit The assumption for <i>Percentage of project that is an enabler</i> is based on a conservative assumption	25.00%
38	Benefit	Benefits	Benefit: Productivity improvements (2) Assumed usage level for all employees on average × Average cost per minute rate × Impacted employees × Assumed improvement in productivity	N/A
39	Benefit	Benefits	Benefit - Productivity improvements (2) The assumption for <i>Assumed usage level for all employees on average</i> is based on a conservative assumption	0.25
40	Benefit	Benefits	Benefit - Productivity improvements (2) Average cost per minute rate (based on average Endeavour Energy hourly rate)	1.3875
41	Benefit	Benefits	Benefit: Productivity improvements (2) Number of impacted employees is based on a conservative assumption	600
42	Benefit	Benefits	Benefit: Productivity improvements (2) The assumption for <i>Assumed improvement in productivity</i> can be found in the Benefits Calculation tab	N/A
43	Benefit	Benefits	Benefit: Cost avoidance - Opex OPEX efficiency benefits including design and software improvements. Total benefit quoted up to FY27. Assumed to be fully captured in next reg period	N/A

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ID	Assumption Type	Category	Assumption	Metric
44	Cost	Program Costs	Program 18: Enhancing corporate and business system platforms to drive process enhancements, asset maintenance and resource management <ul style="list-style-type: none"> Project 54: ERP process mining & remediation Project 62: Contractor management (ongoing) Project 63: Supply chain logistics/warehouse management 	N/A
45	Cost	Program Costs	Program 19: Implementation of data platforms and capabilities to enable predictive and prescriptive modelling and data-driven decision-making <ul style="list-style-type: none"> Project 35: Data and information management model/strategy (ongoing) - operational data Project 40: Smart plant asset management integration Project 45: Machine learning and artificial intelligence data capabilities Project 156: Physical Network Data Capture Project 157: End to End Work Delivery Project 162: Analytics capability build including corporate reporting and associated insights 	N/A
46	Cost	Program Costs	Program 20: Enhancing workforce communications and mobility platforms to uplift emergency response and provide a flexible, efficient workplace <ul style="list-style-type: none"> Project 14: AR/VR Communication Project 17: AI-Driven Contact Centre Project 20: AI-driven staff/equipment scheduling and inventory management Project 28: AI/Robotic response for emergency (e.g., Drones, Automated Vehicles) 	N/A
47	Cost	Program Costs	Program 21: Uplifting infrastructure to support self-service deployment portal to enhance application delivery and security <ul style="list-style-type: none"> Project 141: Self-service deployment portal 	N/A

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ID	Assumption Type	Category	Assumption	Metric
48	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
49	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
50	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
51	Cost	Develop and Deploy	Low Complexity Projects <ul style="list-style-type: none"> Project 62: Contractor management (ongoing) Project 141: Self-service deployment portal 	N/A
52	Cost	Develop and Deploy	Medium Complexity Projects <ul style="list-style-type: none"> Project 17: AI-Driven Contact Centre Project 20: AI-driven staff/equipment scheduling and inventory management Project 40: Smart plant asset management integration Project 45: Machine learning and artificial intelligence data capabilities Project 54: ERP process mining & remediation 	N/A

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ID	Assumption Type	Category	Assumption	Metric
			<ul style="list-style-type: none"> Project 63: Supply chain logistics/warehouse management 	
53	Cost	Develop and Deploy	High Complexity Projects <ul style="list-style-type: none"> Project 14: AR/VR Communication Project 28: AI/Robotic response for emergency (e.g. Drones, Automated Vehicles) Project 156: Physical Network Data Capture Project 157: End to End Work Delivery Project 162: Analytics capability build including corporate reporting and associated insights 	N/A
54	Cost	Develop and Deploy	Other projects Project 35: Data and information management model/strategy (ongoing) - operational data <ul style="list-style-type: none"> Duration: Assumed to be low complexity (equivalent to 3 months). Change team not required Application team not required 	N/A
55	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
56	Cost	Develop and Deploy	Capital Expenditure/Operating Expenditure split: System implementation/major upgrade <ul style="list-style-type: none"> Project 20: AI-driven staff/equipment scheduling and inventory management Project 28: AI/Robotic response for emergency (e.g. Drones, Automated Vehicles) Project 40: Smart plant asset management integration Project 54: ERP process mining & remediation 	N/A

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ID	Assumption Type	Category	Assumption	Metric
			<ul style="list-style-type: none"> Project 63: Supply chain logistics/warehouse management 	
57	Cost	Develop and Deploy	Capital Expenditure/Operating Expenditure split: SaaS/Cloud implementation/upgrades <ul style="list-style-type: none"> Project 45: Machine learning and artificial intelligence data capabilities Project 62: Contractor management (ongoing) 	N/A
58	Cost	Develop and Deploy	Capital Expenditure/Operating Expenditure split: SaaS/Cloud equivalent to 'On Prem' solution <ul style="list-style-type: none"> Project 14: AR/VR Communication Project 17: AI-Driven Contact Centre 	N/A
59	Cost	Develop and Deploy	Capital Expenditure/Operating Expenditure split: Security/Infrastructure implementation/refresh <ul style="list-style-type: none"> Project 141: Self-service deployment portal 	N/A
60	Cost	Develop and Deploy	Capital Expenditure/Operating Expenditure split: Strategy and planning <ul style="list-style-type: none"> Project 35: Data and information management model/strategy (ongoing) - operational data 	N/A
61	Cost	Develop and Deploy	Project Resourcing Refer to the Program Master Schedule tab for the project resourcing requirements: <ul style="list-style-type: none"> Workstreams required for each project Project organisational structure for each workstream Procurement decisions on who is delivering the capability Start/end dates for projects Interim resource capacity planning 	N/A
62	Cost	Develop and Deploy	AER Capex Categories All projects in the pipeline have been allocated to a single AER	N/A

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ID	Assumption Type	Category	Assumption	Metric
			Capex categorisation: Non-Recurrent Maintain, Non-Recurrent Compliance and Non-Recurrent New Capability or Recurrent	
63	Cost	Develop and Deploy	AER Capex Categories - Non-Recurrent New Capability <ul style="list-style-type: none"> Project 14: AR/VR Communication Project 17: AI-Driven Contact Centre Project 28: AI/Robotic response for emergency (e.g. Drones, Automated Vehicles) Project 40: Smart plant asset management integration Project 62: Contractor management (ongoing) Project 141: Self-service deployment portal Project 156: Physical Network Data Capture Project 157: End to End Work Delivery 	N/A
64	Cost	Infrastructure Upgrades	AER Capex Categories – Recurrent <ul style="list-style-type: none"> Project 20: AI-driven staff/equipment scheduling and inventory management Project 35: Data and information management model/strategy (ongoing) - operational data Project 45: Machine learning and artificial intelligence data capabilities Project 54: ERP process mining & remediation Project 63: Supply chain logistics/warehouse management Project 162: Analytics capability build including corporate reporting and associated insights 	N/A
65	Cost	Infrastructure Acquisition	Small: relative size of procurement requirement.	\$ 100,000
66	Cost	Infrastructure Acquisition	Medium: relative size of procurement requirement.	\$ 300,000
67	Cost	Infrastructure Acquisition	Large: relative size of procurement requirement.	\$ 900,000

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ID	Assumption Type	Category	Assumption	Metric
68	Cost	Infrastructure Acquisition	Product procurement - None, ongoing: no procurement because required assets have already been obtained. <ul style="list-style-type: none"> Project 35: Data and information management model/strategy (ongoing) - operational data Project 54: ERP process mining & remediation Project 63: Supply chain logistics/warehouse management Project 141: Self-service deployment portal 	N/A
69	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 62: Contractor management (ongoing) 	N/A
70	Cost	Infrastructure Acquisition	Product procurement - Small No projects under this investment brief	N/A
71	Cost	Infrastructure Acquisition	Product procurement – Medium <ul style="list-style-type: none"> Project 14: AR/VR Communication Project 17: AI-Driven Contact Centre Project 20: AI-driven staff/equipment scheduling and inventory management Project 40: Smart plant asset management integration Project 45: Machine learning and artificial intelligence data capabilities 	N/A
72	Cost	Infrastructure Acquisition	Product procurement – Large <ul style="list-style-type: none"> Project 28: AI/Robotic response for emergency (e.g. Drones, Automated Vehicles) 	N/A
73	Cost	Infrastructure Acquisition	The Infrastructure Pattern worksheet provides per project the timing of acquisition of assets for the individual projects.	N/A

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ID	Assumption Type	Category	Assumption	Metric
74	Cost	Infrastructure Maintenance	Infrastructure Maintenance as a proportion of project total expenditure	5.78%
75	Cost	Service Management	Support Costs as a proportion of project total expenditure	3.26%
76	Cost	Contingency	Contingency Rates are based on a conservative assumption of the risk profile and complexity of the projects	19%
77	Cost	Other Program Costs	Travel Costs for the Program are based on a proportion of the overall Program costs.	0.50%
78	Cost	Other Program Costs	Office Accommodation Costs for the Program, including accommodation, stationery, and ICT equipment is based on a proportion of the overall Program Costs.	2.00%

Table 19: Assumptions related to Cost-Benefit analysis of investment brief "Supporting the sustainable growth of our communities"

Produced by Technology branch

W [Endeavourenergy.com.au](https://endeavourenergy.com.au)
E news@endeavourenergy.com.au
T 131 081



ABN 11 247 365 823