

ID11 Asset Inspections and Monitoring Tools Consolidation & Replacement Preliminary Gate 2 Business Case

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Preliminary Gate 2 Business Case

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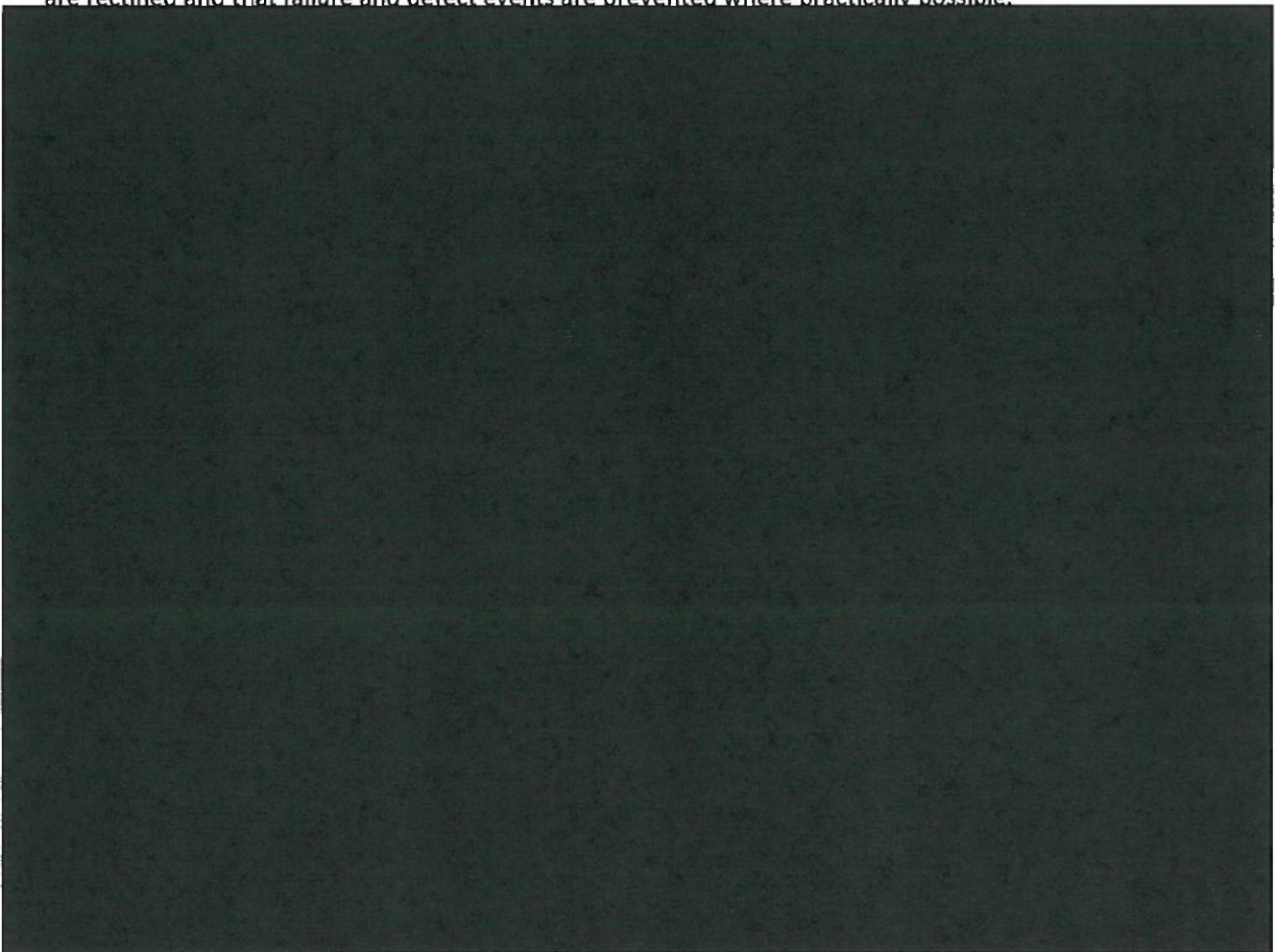
1 EXECUTIVE SUMMARY

1.1. Background & Business Problem

Asset inspection and monitoring tools and processes support the safe and reliable operation of the electricity network. Cyclic, time based inspections are key to mitigating asset failure and defect events. In addition, Energex and Ergon Energy have established, and enhanced over time, their condition-based maintenance capabilities, aimed to optimise the preventative maintenance program.

Large-scale asset inspection programs (e.g. comprehensive substation inspections) are commonly performed by contractors. Both organisations contract external service providers and provide mobile handheld devices to external field crews to perform the asset inspections.

In the case of pole and column asset inspections, Energex and Ergon Energy have a statutory obligation (see 3.4) to maintain these assets in accordance with the Queensland mandate. While there are no specific compliance obligations for substation inspections, Energex and Ergon Energy have an obligation to ensure the safe operation of the electricity network. A cyclic asset inspection scheme ensures that potential issues are rectified and that failure and defect events are prevented where practically possible.



The systems and tools in scope of this proposal will be between 7 and 14 years of age at the time of replacement [REDACTED]. This investment proposal [REDACTED] primarily responds to the need to ensure sustainable, supportable asset inspection and Monitoring processes. In addition, the following drivers support the justification for replacement.

- Asset and Public Safety – For safety and reliability of electricity supply it is important to regularly check and maintain poles. Over time, poles can deteriorate through decay, termite damage or rust. If this occurs it can weaken the pole resulting in the pole leaning or falling, potentially injuring people or damaging surrounding property. A fallen pole may also bring down the powerline supplying

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- Regulatory obligation business continuity – The pole inspection tools [REDACTED] support Energex and Ergon Energy’s compliance requirements for power poles and structures. These tools therefore provide critical business functionalities associated with the provision of standard control services.

This investment proposal ensures the ongoing supportability, sustainability, security and suitability of Energex and Ergon Energy's Asset Inspections and Monitoring tools and processes.

1.3. Options Analysis

- Option 1 – Proceed with the consolidation and replacement of Asset Inspections and Monitoring tools (preferred)
- Option 2 – Independent Energex and Ergon Energy Asset Inspections and Monitoring tools replacement
- Option 3 – Do minimal

“Option 2 - Independent Energex and Ergon Energy Asset Inspections and Monitoring tools replacement” is viable, but requires duplication of costs across the two distributors, with less opportunity for process alignment and improvement.

“Option 3 – Do minimal” defers renewal of the companies’ legacy Asset Inspections and Monitoring tools. It therefore represents a material risk to the companies’ continued delivery of their asset management and service delivery obligations.

The tables below summarise the forecast initiative costs for Energex and Ergon Energy.

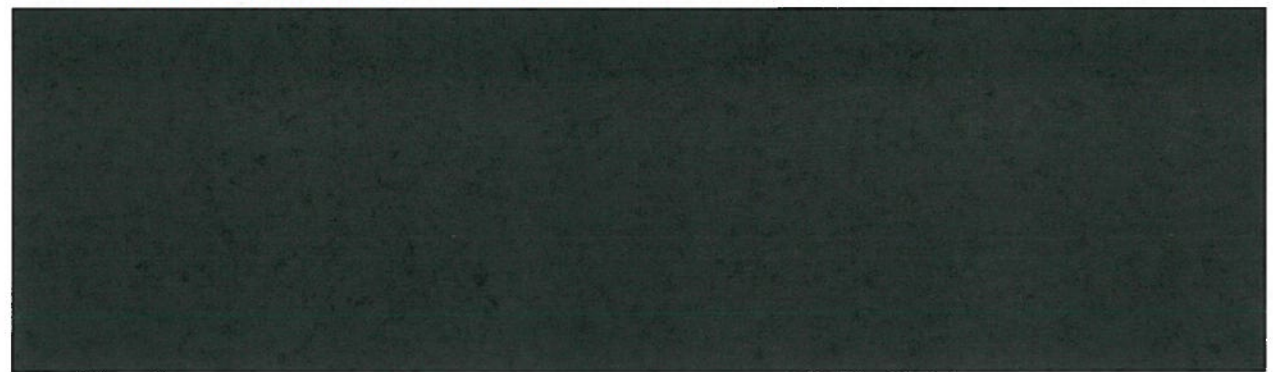
1.4.1 Energex Option Comparison

¹ Bracketed figures indicate negative values.

1.4.2 Ergon Energy Option Comparison



1.4.3 Energex Expenditure Summary (Option 1 – Preferred)



1.4.4 Ergon Energy Expenditure Summary (Option 1 – Preferred)



1.5. Benefits

The preferred option delivers benefits including:

- Sustainment of the companies' Asset Inspections and Monitoring tools for ongoing supportability, serviceability, security and suitability;
- Continued compliance with obligations, notably including compliance with the Queensland Electrical Safety Act 2002, the Queensland Electrical Safety Regulation 2013 (ESR) and the QLD Electrical Safety Code of Practice 2010 – Works (ESCOP); and
- Improved inspection and monitoring tools result in better analysis of the network, ensuring safety for field staff and the community - supports the delivery of the 'Look up and live' safety campaign.

The investment is also a critical enabler of Energy Queensland's planned productivity improvements which result in a forecast 10% reduction in indirect costs and 3% improvement in program of work labour costs.

The consolidation of Asset Inspections and Monitoring supports this improvement with benefits including:

- Aggregation of asset inspections and Monitoring workload for optimal workforce productivity;
- Improved judgements on replacement or repair through additional asset information capture and improved analysis, resulting in a reduction of asset failures;
- Improved identification of trends related to network defects and maintenance issues, through improved asset condition information and analysis, resulting in a reduced corrective maintenance spend; and
- Labour intensive usage of the CBRM and JAMIT tools is reduced through integration with the Unified ERP EAM.

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1.6. Investment Risks



1.7. Customer Focus

The investment in asset inspection and monitoring ensures that the electricity network is available, reliable and safe for the community. Through the scheduling of regular field inspections, potential asset and safety issues are identified and rectified in an efficient and effective manner, resulting in the safe operation of the network and provision of safe public infrastructure.

2. INVESTMENT OVERVIEW

2.1. Background and History

Asset inspection and monitoring tools and processes support the safe and reliable operation of the electricity network. Cyclic, time based inspections are key to mitigating asset failure and defect events. In addition, Energex and Ergon Energy have established, and enhanced over time, their condition-based maintenance capabilities, aimed to optimise the preventative maintenance program.

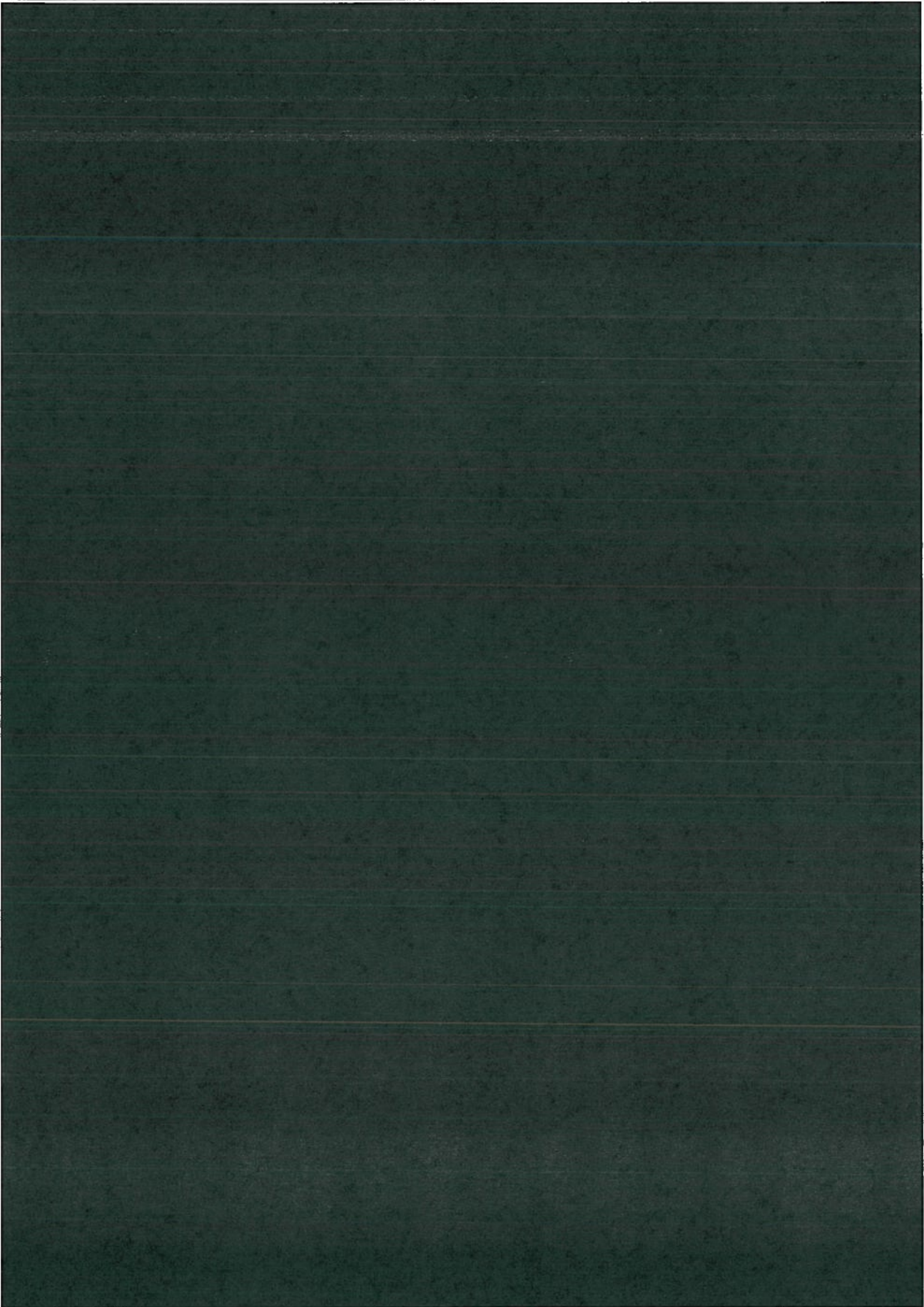
Large-scale asset inspection programs (e.g. comprehensive substation inspections) are commonly performed by contractors. Both organisations contract external service providers and provide mobile handheld devices to external field crews to perform the asset inspections.

In the case of pole and column asset inspections, Energex and Ergon Energy have a statutory obligation (see 3.4) to maintain these assets in accordance with the Queensland mandate. The cyclic field inspections include timber, steel and concrete structures. Based on the inspection results, service providers may be required to treat the pole base with pesticide or anti-fungal treatments and/or reinstate the mechanical integrity of steel streetlight poles. The mobile inspection solutions at Energex and Ergon Energy are map based and linked closely with the Enterprise Asset Management (EAM) system.

While there are no specific compliance obligations for substation inspections, Energex and Ergon Energy have an obligation to ensure the safe operation of the electricity network. A cyclic asset inspection scheme ensures that potential issues are rectified and that failure and defect events are prevented where practically possible. Transformers, which are amongst the most expensive assets of a distribution company, are subject to regular health-checks and condition assessments to effectively manage the assets through the lifecycle, and therefore, optimise unplanned maintenance spend. Substation asset inspections further ensure that major safety events, such as potential equipment explosions, are rare events.

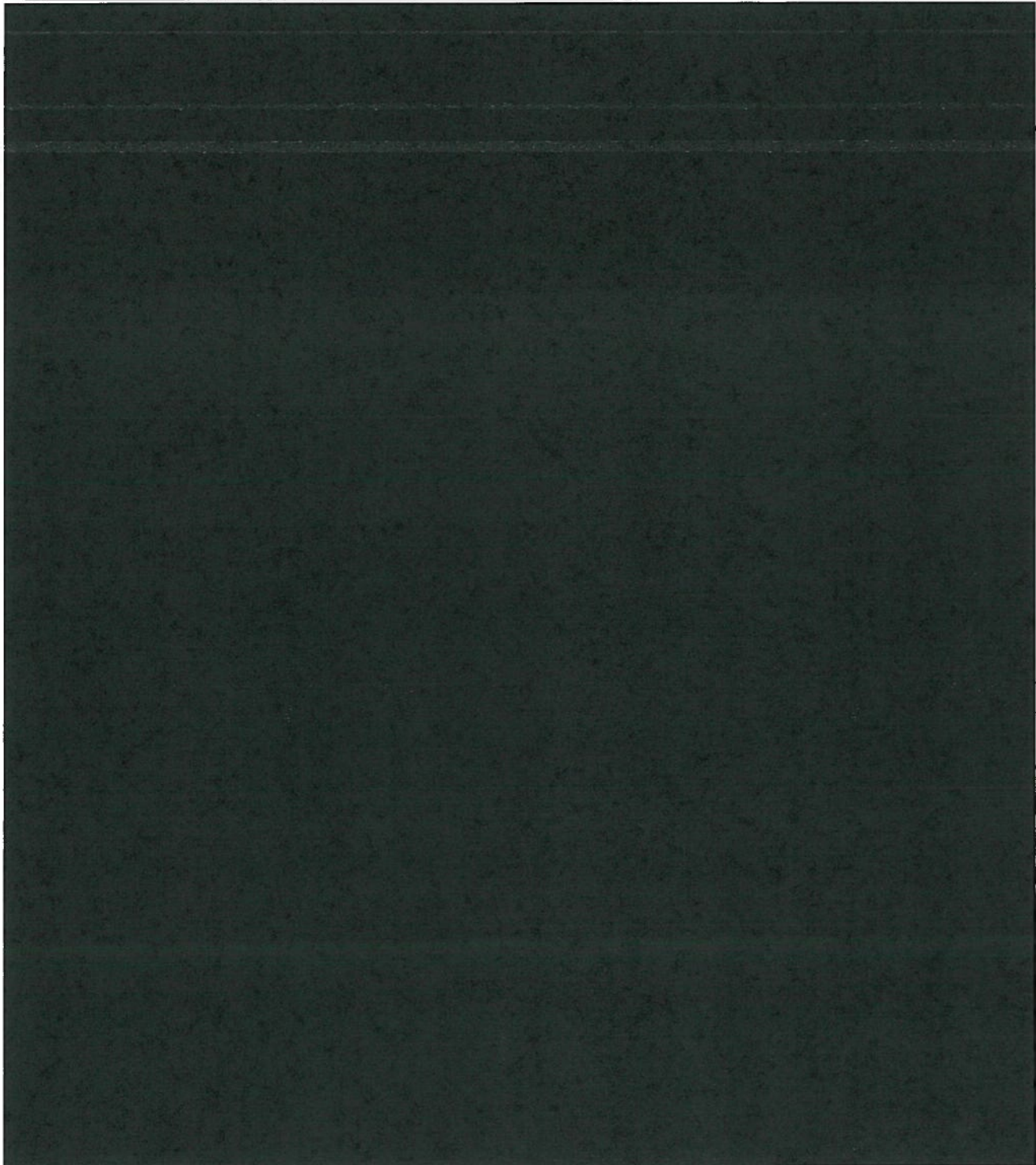
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2.2. Business Problem and Rationale

Asset inspection tools and processes are essential for the effective management of assets within Energex and Ergon Energy's electricity networks. The current systems are aging and require prudent investment to ensure ongoing supportability, sustainability and security.

Specifically:

- **Aging ICT assets** – The systems and tools in the scope of this proposal will be between 7 and 14 years of age at the time of replacement [REDACTED] This investment proposal, therefore, primarily responds to the need to ensure sustainable, supportable asset inspection and monitoring processes. Specific issues include:

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- The JAMIT tool was initially developed as an interim production solution until a COTS based solution could be found, however this situation has not progressed and JAMIT is still being used as a production tool today. Due to a number of modifications and changes to underpinning operating systems, the tool has become unreliable with frequent application crashes. Staff who developed the tool have since left the organisation.

- **Asset and Public Safety** – For safety and reliability of electricity supply, it is important to regularly inspect and maintain poles. Over time, poles can deteriorate through decay, termite damage or rust. If this occurs, it can weaken the pole resulting in the pole leaning or falling, potentially injuring people or damaging surrounding property. A fallen pole may also bring down the powerline supplying electricity to your home or business. This is not only dangerous - as fallen powerlines can kill - but the electricity supply will be interrupted until the pole can be replaced. Similarly, a transformer can explode, causing serious damage and significant safety impacts to the public.

2.3. Investment Objectives

This investment in Asset Inspections and Monitoring tools consolidation and replacement will deliver on the following objectives:

- Ensure ongoing supportability and sustainability of ICT platforms to support the Asset Inspections and Monitoring process.
- Replace and consolidate the Asset Inspections and Monitoring tools, enabling consistent state-wide processes and tools.
- Support compliance with Electrical Safety Act in relation to asset safety (clearance to ground and structures) and Electrical Safety Code of Practice 2010 – Works (management of poles).
- Support compliance with the National Electricity Rule (NER) in relation to meter services (meter readings).
- Support cost reduction of inspection programs through economies of scale (larger contracts with service providers, larger contracts with mobile device providers).
- Support cost reductions of preventative maintenance programs through enhanced condition based maintenance tools and trend analysis.

3. STRATEGIC ALIGNMENT

3.1. Alignment to Energy Queensland Strategic Objectives

This investment aligns with the Energy Queensland Strategic Objectives in the following ways:

Strategic Objective	How this investment contributes to the Strategic Objective of EQL	Impact
1. Community and customer focused Maintain and deepen our communities' trust by delivering on our promises, keeping the lights on and delivering an exceptional customer experience every time.	The investment in asset inspection and monitoring ensures that the electricity network is available, reliable and safe for the community. Through the scheduling of regular field inspections, potential asset and safety issues are identified and rectified in an efficient and effective manner, resulting in the safe operation of the network and provision of safe public infrastructure.	High
2. Operate safely as an efficient and effective organisation Continue to build a strong safety culture across the business and empower and develop our people while delivering safe, reliable, and efficient operations.	This investment supports the safety of our staff and the community by identifying abnormalities early through inspections, condition monitoring, preventative maintenance programs and desktop asset health analysis. The 'Look up and live' tool, [REDACTED] provides the customer a tool to work safely near power infrastructure.	High
3. Strengthen and grow from our core Leverage our portfolio business, strive for continuous improvement and work together to shape energy use and improve the utilisation of our assets.	The investment in asset inspection tools provides the data and tools to assess when an asset should be replaced, compared to a time based, cyclic replacement at a higher cost (e.g. CBRM end of life assessment,).	High
4. Create value through innovation Be bold and creative, willing to try new ways of working and deliver new energy services that fulfil the unique needs of our communities and customers.	The 'Look up and live' tool, [REDACTED] provides the customer a tool to work safely near power infrastructure.	Medium

3.2. Alignment with National Electricity Rules (NER)

The table below details the alignment of the proposed solution with the NER capital expenditure objectives as regulated by the AER.

NER Objective Alignment	Rationale
6.5.7 (a) (2) The forecast capital expenditure complies with all applicable regulatory obligations or requirements associated with the provision of standard control services	This investment is required to maintain Energex and Ergon Energy's capabilities to inspect power poles and structures as per regulatory requirement. It is further required to read Type 6 electricity meters in the Ergon Energy network.
6.5.7 (a) (3) The forecast capital expenditure maintains the quality, reliability and security of supply of standard control services	Through preventative maintenance programs and subsequent proactive rectification of issues and/or emerging issues, Energex and Ergon Energy can continue to ensure the quality, reliability and security of standard control services.

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NER Objective Alignment	Rationale
<p>6.5.7 I (1) (i) The forecast capital expenditure reasonably reflects the efficient costs of achieving the capital expenditure objectives</p>	<p>Costs for this investment have been forecast based on knowledge of recent and historical market procurements for equivalent capability and services, experience from previous investments, as well as through specialist advice and internal subject matter expertise.</p> <p>Energy Queensland undertakes competitive market procurement processes to ensure cost efficiency in project cost and operational expenditure.</p> <p>Energy Queensland also has a cloud services strategy, which assesses each potential investment to ensure the optimal use of cloud and internal services with considerations of cost, risk, service requirements and other parameters.</p>
<p>6.5.7 I (1) (ii) The forecast capital expenditure reasonably reflects the costs that a prudent operator would require to achieve the capital expenditure objectives</p>	<p>The requirement for this investment is premised on industry typical ICT Asset Lifecycle Management principles to prudently and efficiently ensure the supportability, serviceability and security of Energex and Ergon Energy's business systems.</p> <p>Currently this investment has been analysed to a "Preliminary Gate 2" level. Prior to investment, a Gate 3 business case will be prepared with further detail to be assessed in accordance with the established investment governance processes.</p>
<p>6.5.7 I (1) (iii) The forecast capital expenditure reasonably reflects a realistic expectation of the demand forecast and cost inputs required to achieve the capital expenditure objective</p>	<p>Costs for this investment have been forecast based on knowledge of recent and historical market procurements for equivalent capability and services, experience from previous investments, as well as through specialist advice and internal subject matter expertise.</p> <p>Further detailed cost build up will take place in development of the Gate 3 business case.</p> <p>This detailed cost build up may be subject to further competitive market procurement processes, sourcing analysis and peer consultation.</p>

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3.3. Alignment with the Digital Office Application Asset Management Guidelines

The table below indicates alignment of the solution with the **Digital Application Asset Management Guidelines**:

Digital Application Asset Management Guidelines Assessment	Rationale
<p>Asset Inspections and Monitoring Tools are generally classified as Systems of Differentiation according to the Energy Queensland's Digital Application Asset Management Guidelines.</p> <p>These guidelines describe key defining criteria for Systems of Differentiation including:</p> <ul style="list-style-type: none">• Supports a differentiating or new business process• Business process is developing, ambiguous and dynamic• Utilises information that is core to the business <p>On the above basis, the guidelines forecast that these systems should maintain currency, supportability and effectiveness through the following investment lifecycle.</p> <ul style="list-style-type: none">• Minor Upgrade – 2 years after implementation• Major Upgrade – 5 years after implementation• Replacement – 7 years after implementation <p>The guidelines further describe that Upgrade and Replacement investments should consider the extent of "obsolescence" of the solution. E.g.</p> <ul style="list-style-type: none">• Technical Obsolescence – The solution is still functional but not supportable• Financial Obsolescence – The cost of maintaining the solution outweighs the value derived from it.• Asset Obsolescence – The asset has reached the end of its reasonable functional life as indicated through failure rates, inability to meet business requirements etc.	<p>The Asset Inspections and Monitoring Tools proposed for consolidation and replacement through this investment will meet the criteria for replacement identified in the guidelines.</p> <p>The proposed investment is planned to conclude in FY23.</p>

3.4. Regulatory Implications

Asset Inspections and Monitoring tools are essential enablers of Energex and Ergon Energy's compliance with legislative and regulatory obligations, notably compliance with the Queensland Electrical Safety Act 2002, the Queensland Electrical Safety Regulation 2013 (ESR) and the QLD Electrical Safety Code of Practice 2010 – Works (ESCOP).

- The **QLD Electrical Safety Regulation 2013** details requirements for electricity lines, of which poles are classed as associated equipment. These include general obligations related to safety of works of an electrical entity and also specific obligations, notably:

Section 295	Clearances for lines built before 1 January 1995
Section 297	Clearances for lines built between 1 January 1995 and 1 October 2002
Schedule 2	Exclusion zones for overhead electric lines
Schedule 4	Clearance of overhead electric lines (other than low voltage service lines)

- The **QLD Electrical Safety Code of Practice 2010 – Works (ESCOP-Works)** details obligations and guidelines regarding the management of poles, including:

Section 5.1	The program must achieve a minimum three-year moving average reliability 99.99 % per annum.
Section 5.2.1	Each pole should be inspected at intervals deemed appropriate by the entity. Absent documented knowledge, inspection must occur at least every 5 years.
Section 5.3.4	A suspect pole must be assessed within three months; an unserviceable pole must be replaced or reinstated within 6 months.

4. INVESTMENT SCOPE

4.1. Functional Scope

Energy Queensland comprises multiple business areas and functions as defined in the organisation's Business Reference Model.

The proposed investment in Asset Inspections and Monitoring Tools Consolidation and Replacement is essential for the ongoing efficient, sustainable support of Energy Queensland's business areas and functions as listed below.

Business Area	Business Function	Business Reference Model Description
Asset PoW Planning, Governance and Reporting	Network Asset Works Planning	A function to deliver plans for asset lifecycle related works, such as construction, maintenance, inspections and refurbishment. The development of these plans is based on outputs of the Network Performance and Maintenance business capability (existing assets), as well as the Network Forecasting and Planning business capability (new assets, asset augmentation, non-network alternatives). The function of Works Program Management will integrate these plans into and manage through the overall PoW.
	Network Asset Works Reporting	A function to report on the asset works program. This includes the production of asset works program related elements for regulatory reports.
	Network Asset Works Planning and Governance	A function to monitor and exercise governance over the asset works program. This function works on information provided by the Works Program Management function.
Network Performance and Maintenance	Asset Strategy and Planning	A function to define strategies and policies for network assets throughout their whole lifecycle management, in alignment with regulatory, safety/security, financial and other enterprise requirements and objectives. This includes assessing changes in the environment, standards and regulations to understand their impact on existing assets and new asset requirements.
	Asset Maintenance, Refurbishment and Retirement Planning	A function to deliver plans for the maintenance, refurbishment and retirement of existing network assets, optimised to meet regulatory, safety / security and enterprise objectives in the most effective and efficient manner. This function makes decisions based on the outcomes of the Asset Analytics and Reporting function and is directed by the deliverables of the Asset Maintenance Strategy and Planning function.
	Asset Analysis and Reporting	A function to analyse and report on the current and future behaviour, condition and performance of network assets for the purpose of optimised decision making on activities for the management of the asset lifecycle. Analysis is undertaken on the basis of historical, current and third-party asset performance data, as well as various types of forecasts, using appropriate models
	Device Configuration Management and Lifecycle Planning	A function to manage the configuration of secondary systems devices in accordance with their purpose, changing environmental parameter (e.g. seasonal / weather, changes in network utilisation and other operational requirements, version upgrades, security threats etc.) and defined secondary system standards. Examples for this are the planning and management of version upgrades for firmware, changes of seasonal limit settings, security patches rollouts, password / key changes, device audits.

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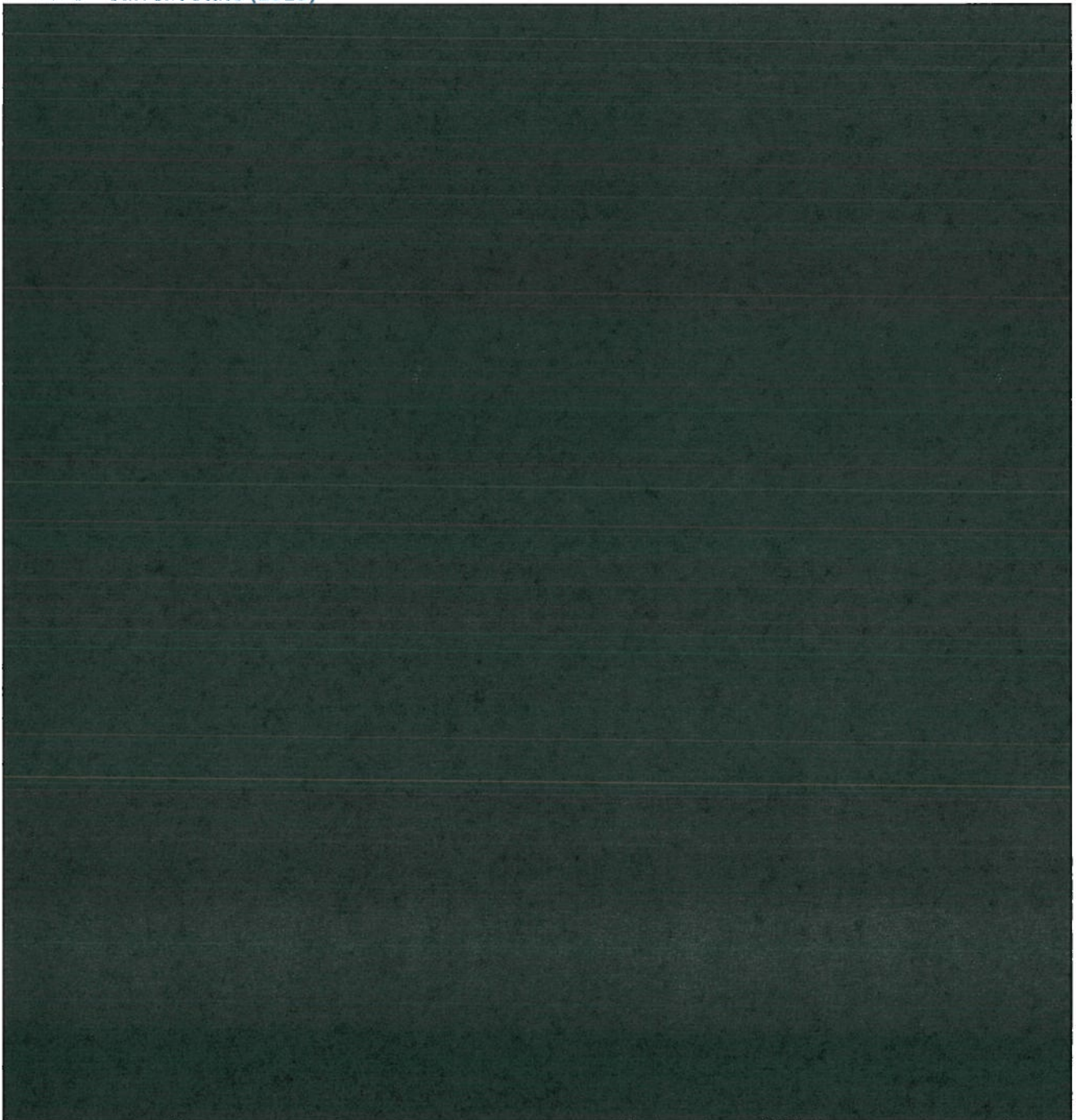
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Business Area	Business Function	Business Reference Model Description
Network Information Management	Network Information Operational Management	A function to ensure the execution of plans developed by the Network Information Standards and Planning function. This is an operational function. Certain operational aspects of management of network information (e.g. GIS data, Information Quality Assurance etc.) may be directly allocated to this function, others may be allocated to other functions across Network Asset Management or Service Delivery.

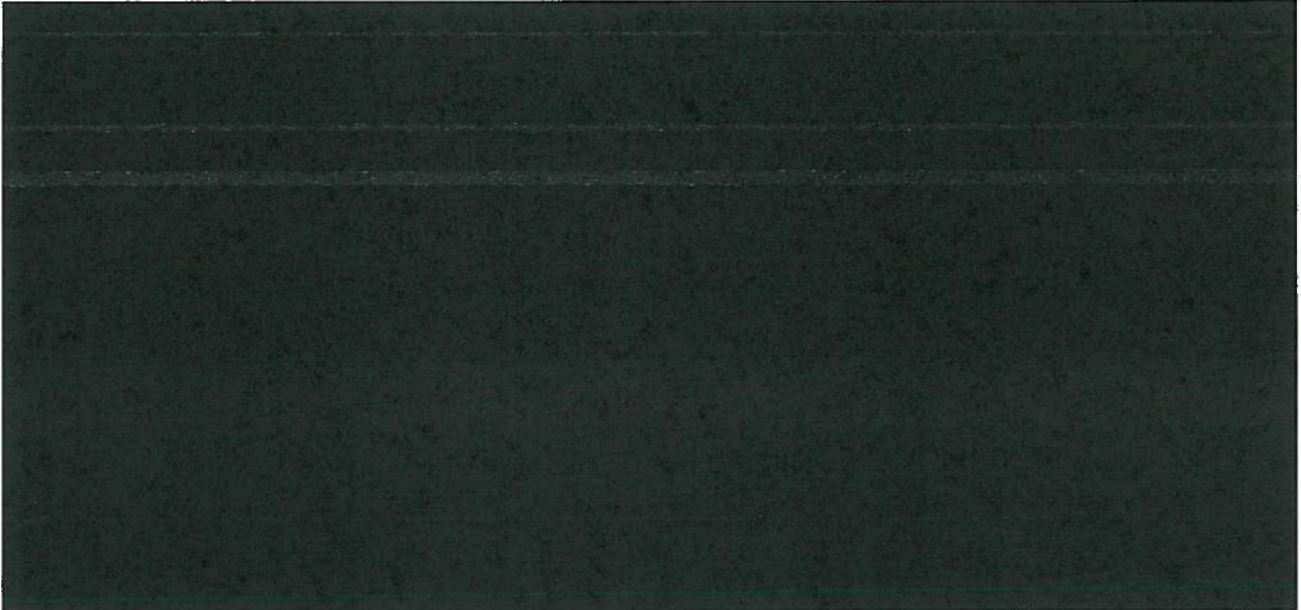
4.2. Solution Overview

4.2.1 Current State (2018)

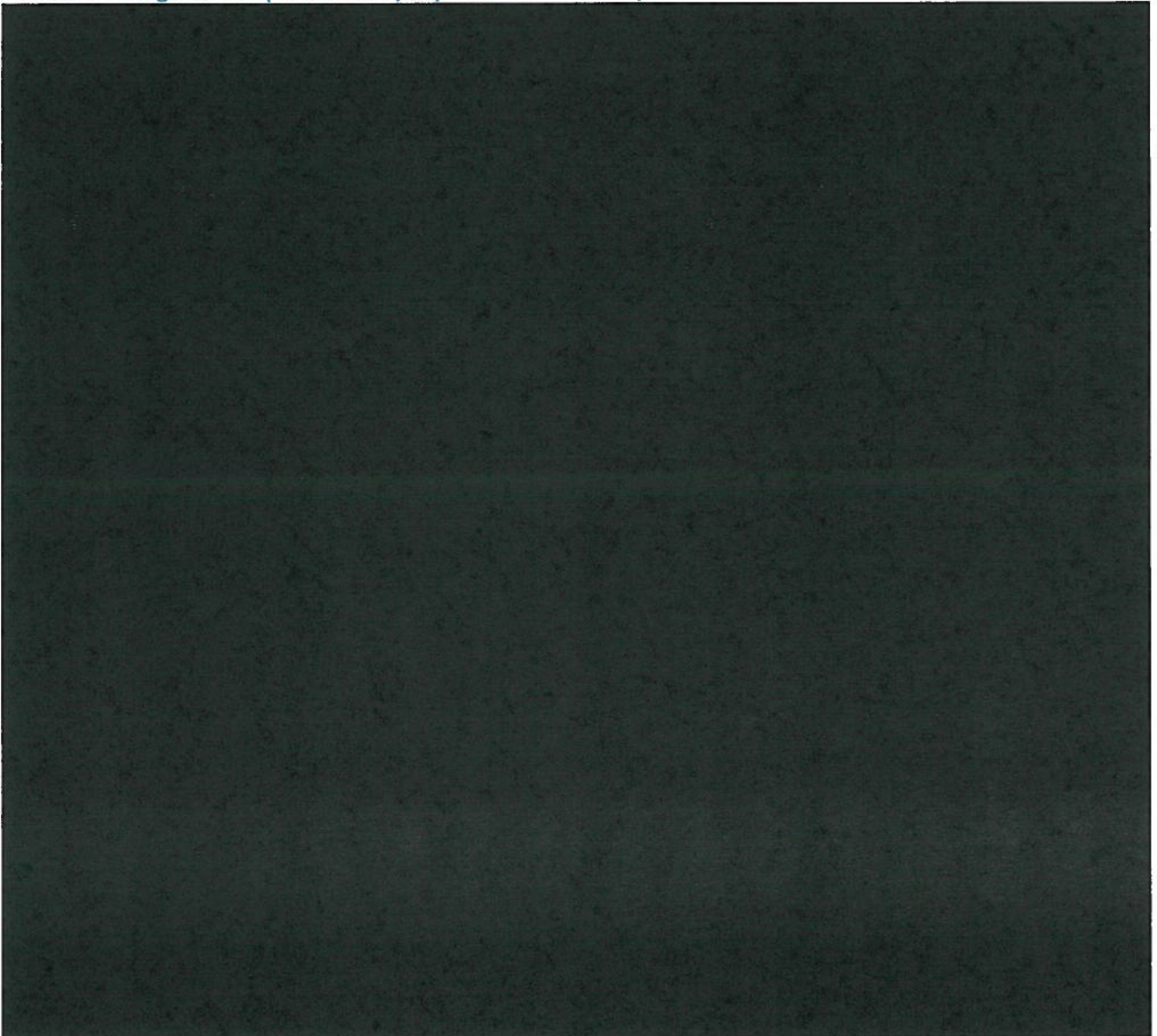


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4.2.2 Target State (end of the proposed investment)



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4.3. Assumptions

This business case is based on the following assumptions.

- The initiative will be delivered in coordination with the ERP EAM program.
- The scope, inclusions, exclusions, costs and impacts of the initiative will be further detailed through the Gate 3 business case prior to investment. This may be subject to competitive procurement processes as appropriate to ensure cost efficiency of delivery.
- Previous investments shall be leveraged where possible.

4.4. Dependencies

This investment is dependent on the following programs, projects or business activities.

Program/Project	Dependency	Effect
ERP EAM Program	<p>The ERP EAM program will migrate the companies' Asset, Works, Finance, HR, Payroll and Procurement processes and data mastering from the existing Ellipse platforms and repositories to the new unified ERP EAM solution and Enterprise Intelligence Platform.</p> <p>The ERP EAM system is a key data source for Asset Inspections and Monitoring.</p>	<p>The tools [REDACTED] source asset data from the ERP EAM Works and Asset Management modules and return data into these modules.</p> <p>ID11 Asset Inspections and Monitoring Consolidation & Replacement must be delivered in coordination with the ERP EAM program.</p>
ID03 Field Force Systems Consolidation and Replacement	<p>The ID03 Field Force Systems Consolidation and Replacement will re-platform the companies' mobile work despatch and execution systems.</p>	<p>Asset inspection tools include mobile tooling [REDACTED] enabling field inspectors to conduct asset health monitoring. Currently Energex and Ergon Energy have deployed a suite of technologies to perform specific, specialised fieldwork.</p> <p>ID11 and ID03 should be designed in parallel to optimise the consolidation of legacy systems and tools, and to share device hardware for common user groups.</p>

5. OPTIONS ANALYSIS

This section considers the following options analysis:

- Option 1 – Proceed with the consolidation and replacement of Asset Inspections and Monitoring tools (Preferred Option)
- Option 2 – Independent Energex and Ergon Energy Asset Inspections and Monitoring tools replacement
- Option 3 – Do Minimal

5.1. Option 1 – Proceed with the consolidation and replacement of Asset Inspections and Monitoring tools (Preferred Option)

The existing Energex and Ergon Energy Asset Inspections and Monitoring tools will be replaced for ongoing sustainability, supportability and security as described in section 4.2.2. State-wide consolidation and alignment of business processes will also be implemented for best practice efficiency and effectiveness.

5.2. Option 2 – Independent Energex and Ergon Energy Asset Inspections and Monitoring tools replacement

The existing Energex and Ergon Energy legacy Asset Inspections and Monitoring tools will be replaced or renewed for ongoing supportability, security and serviceability.

No state-wide consolidation or alignment of business processes would occur.

5.3. Option 3 – Do Minimal

No significant investments in Energex or Ergon Energy's Asset Inspections and Monitoring tools or processes would occur in the FY21-25 regulatory control period, with replacements deferred until the FY26-30 period.

The existing platforms would therefore be locked down without further change to minimise risk.

A comparison of these options is provided over page.

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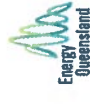
5.4. Option Comparison

Each option has been assessed against key assessment criteria contained in the table below.

Assessment Criteria	Option 1 – Proceed with the consolidation and replacement of Asset Inspections and Monitoring tools (Preferred Option)	Option 2 – Independent Energex and Ergon Energy Asset Inspections and Monitoring tools replacement	Option 3 – Do Minimal
Advantages	<p>Consistent with the business case objectives, this option:</p> <ul style="list-style-type: none"> Ensures ongoing supportability and sustainability of ICT platforms to support the Asset Inspections and Monitoring process. Replaces and consolidates the Asset Inspections and Monitoring tools, enabling consistent state-wide processes and tools. Supports compliance with Electrical Safety Act in relation to asset safety (clearance to ground and structures) and Electrical Safety Code of Practice 2010 – Works (management of poles). Supports compliance with the National Electricity Rule (NER) in relation to meter services (meter readings). Supports cost reduction of inspection programs through economies of scale (larger contracts with service providers, larger contracts with mobile device providers). Supports cost reductions of preventative maintenance programs through enhanced condition based maintenance tools and trend analysis. 	<p>Partly consistent with the business case objectives, this option:</p> <ul style="list-style-type: none"> Ensures ongoing supportability and sustainability of ICT platforms to support the Asset Inspections and Monitoring process. Supports compliance with Electrical Safety Act in relation to asset safety (clearance to ground and structures) and Electrical Safety Code of Practice 2010 – Works (management of poles). Supports cost reductions of preventative maintenance programs through enhanced condition based maintenance tools and trend analysis. 	<p>This option does not effectively achieve any of the objectives of the business case.</p> <p>It does however represent the lowest near-term expenditure on Asset Inspections and Monitoring tools by deferring replacement investment into the FY26-30 period.</p>

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ID11 Asset Inspections and Monitoring Tools Consolidation & Replacement



Assessment Criteria	Option 1 – Proceed with the consolidation and replacement of Asset Inspections and Monitoring tools (Preferred Option)	Option 2 – Independent Energex and Ergon Energy Asset Inspections and Monitoring tools replacement	Option 3 – Do Minimal
Disadvantages	<p>This option meets all the objectives of the business case. However, the following disadvantage is recognised:</p> <ul style="list-style-type: none"> The consolidation of Asset Inspections and Monitoring tools requires additional input from subject matter experts. This includes defining common inspection processes e.g. collecting the same data elements, standardising pole strength calculations etc. 	<p>This option does not meet the following objectives of the business case:</p> <ul style="list-style-type: none"> Does not replace and consolidate the Asset Inspections and Monitoring tools to enable consistent state-wide processes and tools. Therefore, this option does not support the forecast Energy Queensland 10% reduction in indirect costs and 3% improvement in program of works labour costs. Does not support cost reduction of inspection programs through economies of scale (larger contracts with service providers, larger contracts with mobile device providers). <p>Furthermore, this option involves material investment in the parallel Energex and Ergon Energy solutions which has the following additional disadvantages:</p> <ul style="list-style-type: none"> The transition from existing legacy systems to parallel independent replacement solutions involves substantial cost and complexity, for an outcome, which may not represent the optimal target-state solution. 	<p>This option does not meet any of the business case objectives and will not provide the sustainable, supportable and suitable inspection tools that are essential to appropriately manage network assets. This is therefore an unacceptable option.</p> <p>This option does not support the forecast Energy Queensland 10% reduction in indirect costs and 3% improvement in program of works labour costs. This will impact the companies' FY26-30 revenue requirements, resulting in a negative price outcome for customers.</p>

Preliminary Gate 2 Business Case

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Assessment Criteria	Option 1 – Proceed with the consolidation and replacement of Asset Inspections and Monitoring tools (Preferred Option)	Option 2 – Independent Energex and Ergon Energy Asset Inspections and Monitoring tools replacement	Option 3 – Do Minimal
Key Identified Risks	<p>As the “preferred option”, a specific implementation risk assessment is detailed in section 10.2.</p> <p>Key amongst these risks are:</p> <ul style="list-style-type: none"> • Resource capacity and availability – mitigated through the use of market-provisioned services and established practices, tools and techniques. • Energex / Ergon Energy alignment – mitigated through current work practice alignment focus, with the recognition that some differences in Energex and Ergon Energy’s respective operating environments exist. 	<p>Similar to Option 1, this option involves a substantial investment. Therefore, the risks are similar as follows:</p> <ul style="list-style-type: none"> • Resource capacity and availability – mitigated through the use of market-provisioned services and established practices, tools and techniques. <p>Also, the following additional risk exists for this option:</p> <ul style="list-style-type: none"> • Continued development of disparate Energex and Ergon Energy systems and tools is not supported by the merged business structure of Energy Queensland and the newly aligned business processes of the group. Therefore the value derived from future investments is reduced. • Continued asset inspection and monitoring process and system inconsistencies may result in sub-optimal Energex and/or Ergon Energy preventative maintenance programs. 	<p>See the organisational risk assessment in section 10.1 for information.</p>

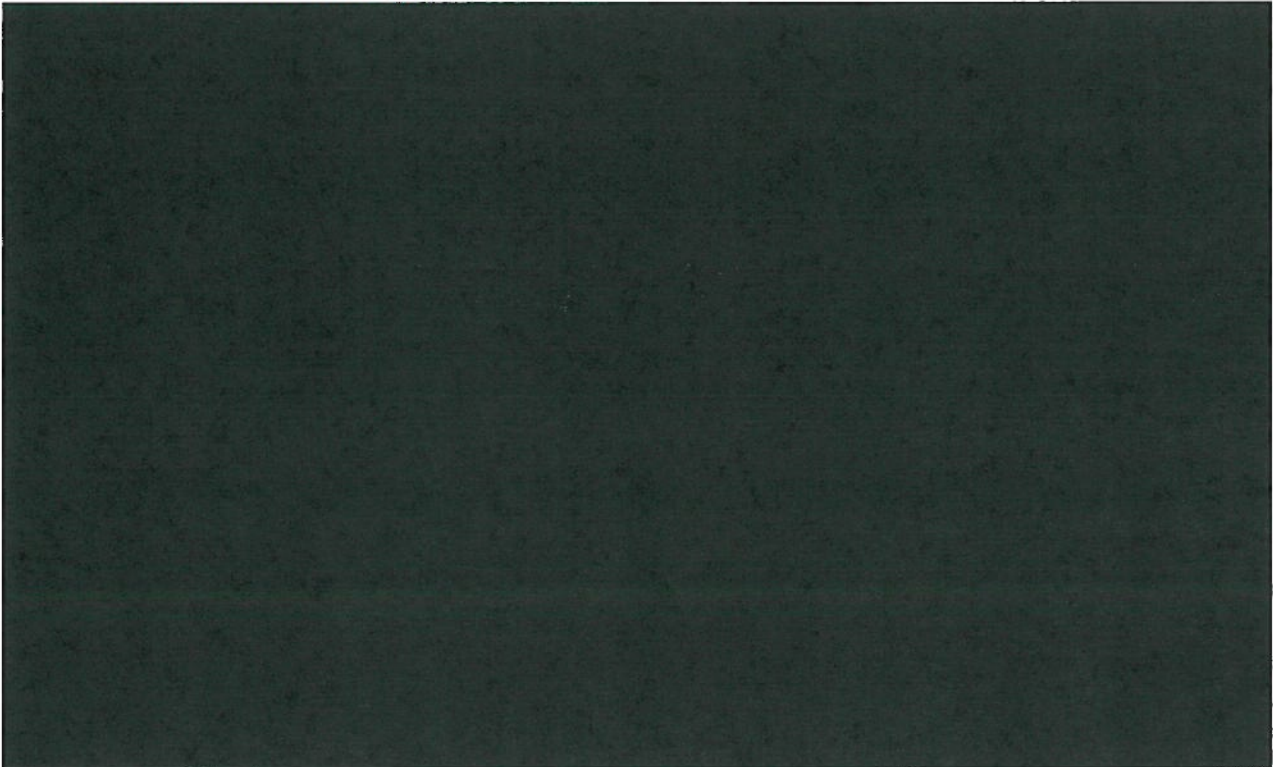
6. PREFERRED OPTION

“Option 1 - Proceed with the consolidation and replacement of Asset Inspections and Monitoring tools” is the preferred option, as it ensures sustainability, supportability and security of the companies’ Asset Inspections and Monitoring. It meets all the business case objectives, it is aligned with Energy Queensland’s strategic objectives and is consistent with Energex and Ergon Energy’s obligations. This option also supports Energy Queensland’s planned productivity improvements which result in a forecast 10% reduction in indirect costs and 3% improvement in program of work labour costs.

“Option 2 - Independent Energex and Ergon Energy Asset Inspections and Monitoring tools replacement” is viable, but requires duplication of costs across the two distributors, with less opportunity for process alignment and improvement.

“Option 3 - Do minimal” defers renewal of the companies’ legacy Asset Inspections and Monitoring tools. It therefore represents a material risk to the companies’ continued delivery of their asset management and service delivery obligations.

6.1. Delivery Timeline and Approach



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7. INVESTMENT BENEFITS OVERVIEW

This section outlines the benefits associated with the investment. This business case has currently been analysed to a "Preliminary Gate 2" level. As such, the benefits will be further detailed, tested, and verified in preparation of the Gate 3 business case prior to investment.

This initiative is primarily an ICT Asset Replacement of legacy systems, required to ensure the ongoing sustainability, supportability and security of business critical capability. Energy Queensland will leverage the opportunity associated with this ICT replacement to also enable planned productivity improvements, resulting in a forecast 10% reduction in indirect costs and a 3% improvement in program of works labour costs. The benefits listed below represent contributions to the overall Energy Queensland productivity improvement targets.

7.1. Financial and Other Benefits

Area	Benefits Identified	Value
Financial Benefits		
Asset Inspections and Monitoring Productivity	<ul style="list-style-type: none">• Aggregation of asset inspections and monitoring workload for optimal workforce productivity.• Labour intensive usage of the CBRM and JAMIT tools is reduced through integration with the Unified ERP EAM.	
Asset Management Improvement	<ul style="list-style-type: none">• Improved judgements on replacement or repair through additional asset information capture and improved analysis, resulting in reduced asset failures.• Improved identification of trends related to network defects and maintenance issues, through improved asset condition information and analysis, resulting in a reduced corrective maintenance.	
Other Benefits		
ICT Asset Management	<ul style="list-style-type: none">• Sustainment of the companies' Asset Inspections and Monitoring tools for ongoing supportability, serviceability and security.	Sustainment
Safety & Risk	<ul style="list-style-type: none">• Improved asset inspection and monitoring tools result in better analysis of the network, ensuring workforce and community safety.	Risk Mitigation
Customer	<ul style="list-style-type: none">• Supports the delivery of the 'Look up and live' safety campaign, which is a customer and community initiative.	Reputation
Compliance	<ul style="list-style-type: none">• Compliance with the Queensland Electrical Safety Act 2002, the Queensland Electrical Safety Regulation 2013 (ESR) and the QLD Electrical Safety Code of Practice 2010 – Works (ESCOP-Works).	Compliance

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8. FINANCIAL ANALYSIS

The table below summarises the potential cost inclusions to deliver the outcomes described in this business case.

Phase	Description / Rationale
All Phases	Project management
	Project support
	Internal corporate logistics / overheads
	Communications and engagement
	Review and assurance (excluding normal Internal Audit functions)
Monitoring & Procurement Phase	Tender facilitation, probity management and legals
	Gate 3 business case development
	Development of Monitoring deliverables (e.g. PMP, Stakeholder, and Communications Plan etc.)
	Software licences, hardware purchases, cloud services procurement
Design Phase	Software, infrastructure, and information design
	Data profiling and migration design
	Solution architecture
	Integration design
	Business process design
	Organisational change design and change management Monitoring
Build, Integrate, Test and Deploy Phase	Data migration and ETL (Extract, Transform, Load) build
	Data migration execution (incl. Trial Migrations, Dress Rehearsals, Verification etc)
	Software, infrastructure, and environment configuration
	Integration build
	Business process design and organisational change implementation
	Testing (incl. information consistency, capacity, performance, and load, security etc.)
	Training
	Production deployment
Warranty Phase	Post- implementation operational support
	Transition to business-as-usual (BAU) support
	Post- implementation review

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8.1. Cost Assumptions

The table below summarises the key cost assumptions for the initiative.

#	Assumption	Description / Rationale
1	Project phasing and deployment	<p>The initiative will be delivered over a 15 month elapsed period with an up-front design phase followed by multiple deployments. The deployment plan will be structured with consideration of:</p> <ul style="list-style-type: none">• Alignment with other dependent initiatives.• Sequencing to maximise business performance benefit.• Intention to progressively transition to the new solution through a sequence of capability deployments.
2	Use of market services	<p>The initiative will be delivered through a team comprising internal subject matter experts and external solution delivery specialists, to ensure project cost efficiency and mitigation of project risk.</p>
3	Energex and Ergon Energy costs	<p>The project costs for Energex and Ergon Energy are consistent with the effort and complexity of transitioning each company from their respective current state to the common target state. The respective estimates (CapEx and OpEx) are as described in the following section.</p>
4	Option 2 (Independent Energex and Ergon Energy Asset Inspections and Monitoring tools replacement)	
5	Option 3 (Do Minimal)	

8.2. Financial Summary²

8.2.1 Energex Option Comparison



8.2.2 Ergon Energy Option Comparison



8.2.3 Energex Expenditure Summary (Option 1 – Preferred)



8.2.4 Ergon Energy Expenditure Summary (Option 1 – Preferred)



8.3. NPV Calculation Parameters

The above NPV and financial calculations are based on the following parameters.

- The Energy Queensland Net Present Value (NPV) model has been used to calculate the NPV calculations for this business case.
- The financial analysis has been based over a 10 year period after a 15 month phased implementation period.
- 5.40% Regulated Rate of Return/WACC is applied with present values discounted to FY17/18.

² Bracketed figures indicate negative values.

9. PROGRAM DELIVERY

9.1. Program Governance & Delivery

The governance and delivery model depicted in Figure 2 (below) is planned to be used for delivery of the initiative.

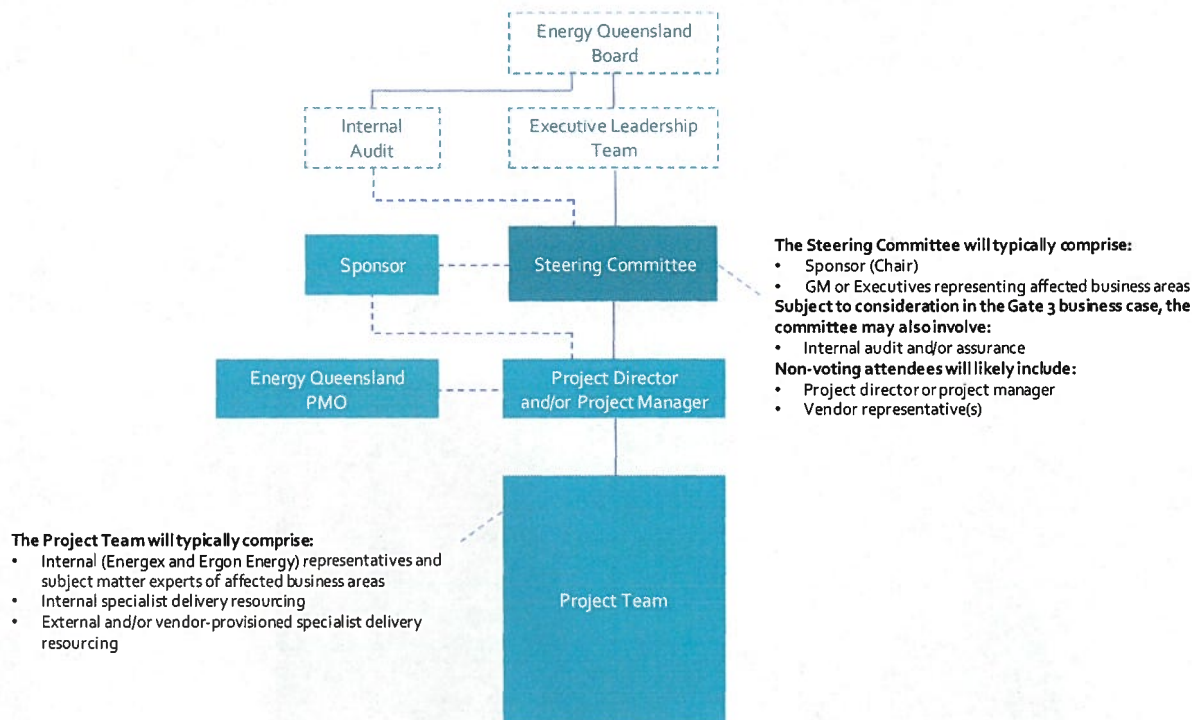


Figure 2 Governance and delivery model

Role	Key Accountabilities
Steering Committee	<p>Provides a single point of accountability for delivery of the initiative in accordance with the business case, as well as decision making aligned with strategic directions of the company. The committee governs the initiative with appropriate balance between delivered outcomes (time, fitness for purpose, cost), risk, business impact, and enabled business value.</p> <p>Responsibilities</p> <ul style="list-style-type: none"> • Attend and be an active participant in committee meetings • Foster positive communications outside of the committee regarding the initiative • Be the voice of the initiative, including communications where appropriate to the Group Executive, Energy Queensland Board, and other key stakeholders • Review and approve/reject any request for change (change requests) to the agreed scope, budget, schedule, or deliverables. • Ensure all approved change requests align with the program objectives • Ensure program quality outcomes are balanced with other competing priorities • Review each completed phase (or defined stages or gates) and provide go/no-go direction after consideration of quality, risk, cost, and schedule • Undertake a Post Implementation Review (PIR) • Ensure the appropriate independent auditing and review of the program is undertaken at the logical stage gates of the program

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Role	Key Accountabilities
Sponsor	<p>The Sponsor is accountable for delivering the business value enabled by the initiative and meeting the objectives set through the business case.</p> <p>Responsibilities</p> <ul style="list-style-type: none"> • Oversee development of the business case • Oversee development of the project management plan (PMP) working closely with the Project Director • Monitor and advise on delivery outcomes working closely with the Project Director and/or Project Manager • Ensure that any proposed changes of scope, cost or delivery timeline are checked against possible impacts to program benefits • Approve Change Requests within delegated authority levels • Ensure Change Requests have been endorsed by all impacted parties (Business Change, Design, Delivery, Finance, and BAU) • Brief Executives and Board on program progress • Ensure that the benefits realisation plan is realistic and achievable
Project Director and/or Project Manager	<p>The Project Director and/or Project Manager has responsibility for the delivery of the overall initiative while maintaining the balance of competing priorities and alignment with initiative objectives as specified in the business case and as directed by the Steering Committee.</p> <p>Responsibilities</p> <ul style="list-style-type: none"> • Deliver the overall initiative outcomes • Agree delivery strategies with the Sponsor and the Steering Committee • Develop the PMP and oversee specification of all initiative deliverables including assessment of interdependencies and appropriate sequencing across the initiative • Manage development of the communications plan and ongoing communications with guidance and feedback from key stakeholders • Manage mobilisation of the initiative, including resource provision and procurement • Oversee technical delivery of solution design, development, implementation, integration, testing, and data conversion • Oversee the delivery of training, deployment, organisational change management, and business process re-engineering • Resolve all issues concerning project plans, schedules, budgets, risks, and issues as they relate to the initiative • Manage cross-project dependencies, scope, and resourcing issues • Ensure audit feedback is actioned in a timely, verifiable manner and validated
Program Management Office	<p>The Program Management Office is a centralised Energy Queensland business function, which provides coordination, standards, administrative support, and end-to-end reporting for Energex and Ergon Energy's business transformational and ICT initiatives.</p> <p>Responsibilities</p> <ul style="list-style-type: none"> • Provide a central repository and framework for all program and project issues and risks • Co-ordinate and manage all project plans under guidance from the Project Managers and/or Project Directors • Overall program / project risk mitigation management • Overall program / project issue management • Program financial tracking and reporting • Deliverables monitoring • Program key performance monitoring and reporting

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Role	Key Accountabilities
Project Team Members	<p>The Project Team undertakes the core delivery of the project under the direction of the Project Director and/or Project Manager. The team typically comprises internal representatives and subject matter experts of affected business areas as well as internal and vendor-provisioned delivery resourcing.</p> <p>Responsibilities</p> <ul style="list-style-type: none"> • Develop and deliver assigned project deliverables • Identify issues and record, monitor, and report status • Manage issues with appropriate actions • Escalate issues as required • Attend reference groups and other forums as required

9.2. Stakeholder Management

The following tables summarise the key internal and external stakeholders for the investment. A detailed stakeholder management plan will be developed as part of delivery Monitoring for the initiative.

9.2.1 Key Internal Stakeholders

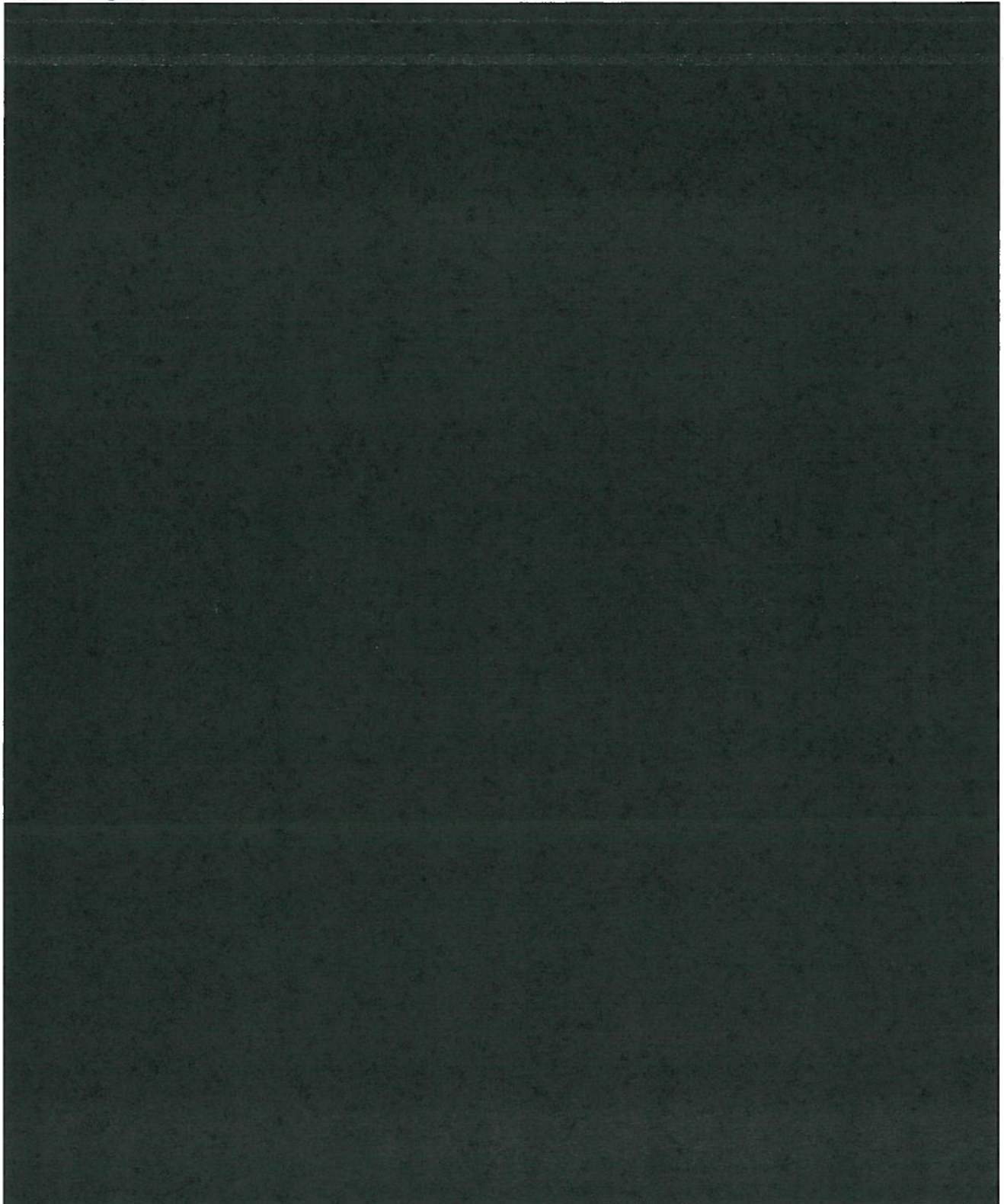
Stakeholder	Interest
Executive General Manager Asset Safety and Performance	<ul style="list-style-type: none"> • Oversight of the Asset Management business processes, systems and people.
Asset Management Group	<ul style="list-style-type: none"> • Efficient and effective asset management business processes, systems and tools.
Asset Lifecycle Management	<ul style="list-style-type: none"> • Effective and efficient field inspection processes and tools. • Effective and efficient asset inspection Monitoring processes and tools. • Effective and efficient asset life cycle assessment tools.
Field inspectors – internal	<ul style="list-style-type: none"> • User-friendly mobile fields applications. • Awareness of the process and tool changes. • Training as required.
Communications Group – Ergon Energy	<ul style="list-style-type: none"> • Efficient and effective inspection of mobile cell towers.

9.2.2 Key External Stakeholders

Stakeholder	Interest
Regulators	<ul style="list-style-type: none"> • Compliance with the asset inspection requirements to ensure safe and reliable operation of the network.
Community	<ul style="list-style-type: none"> • Continued availability of tools such as the 'Look up and live' phone application to plan for safe working around the electricity infrastructure.
Field inspectors – external	<ul style="list-style-type: none"> • User-friendly mobile field applications. • Awareness of the process and tool changes. • Training as required.

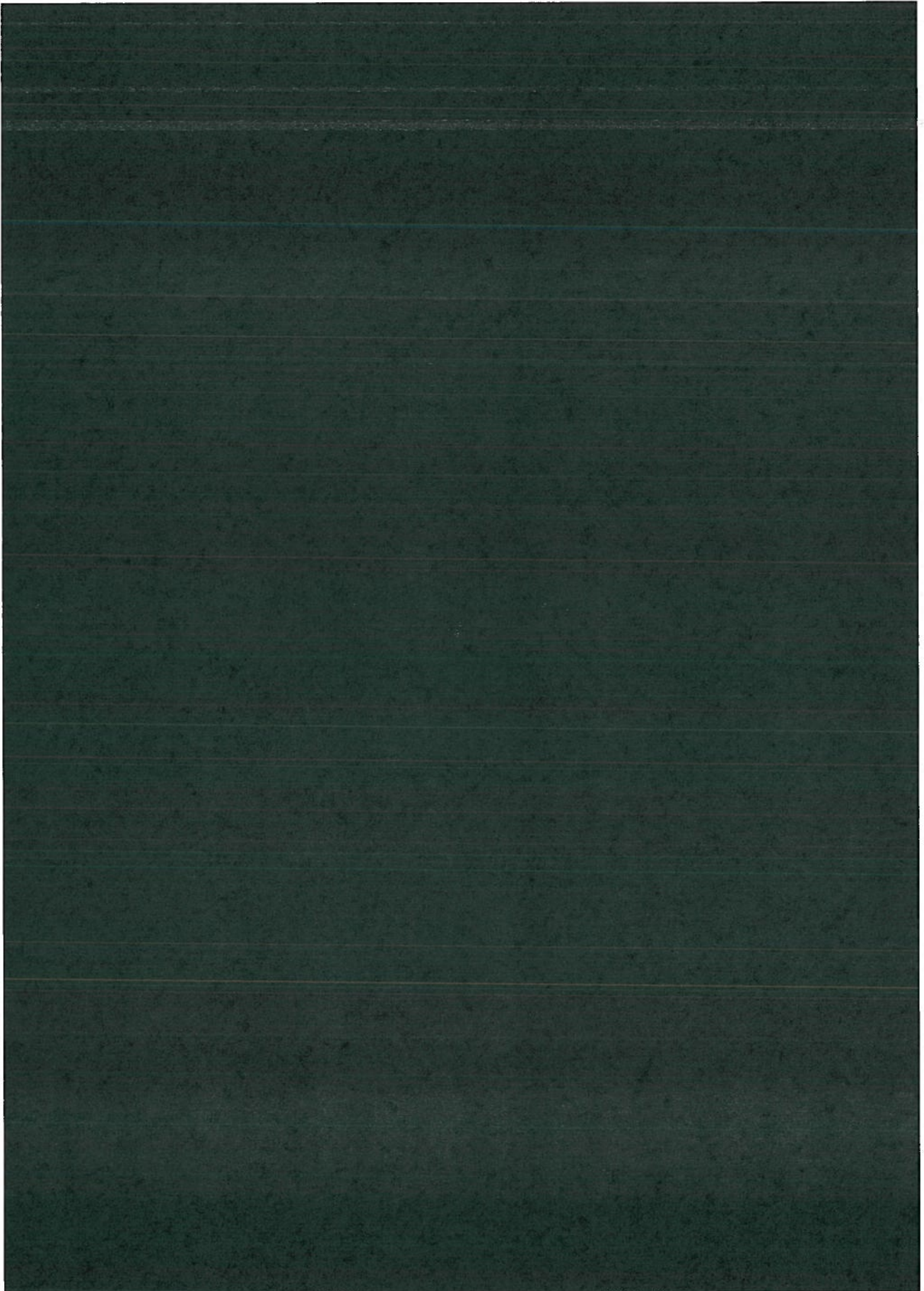
10. RISK ASSESSMENT

10.1. Organisational Risk Assessment



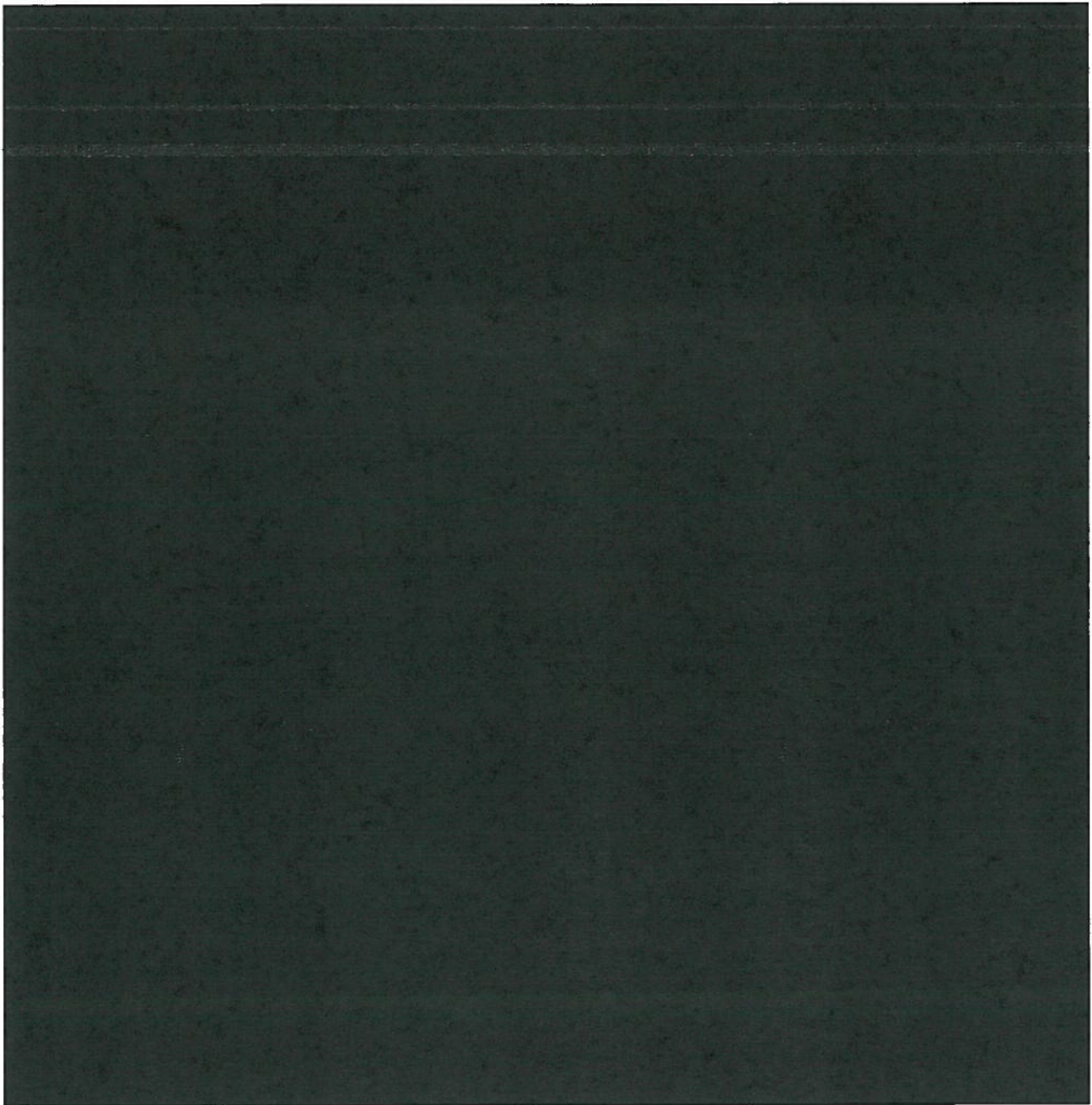
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10.2. Preliminary Implementation Risk Assessment

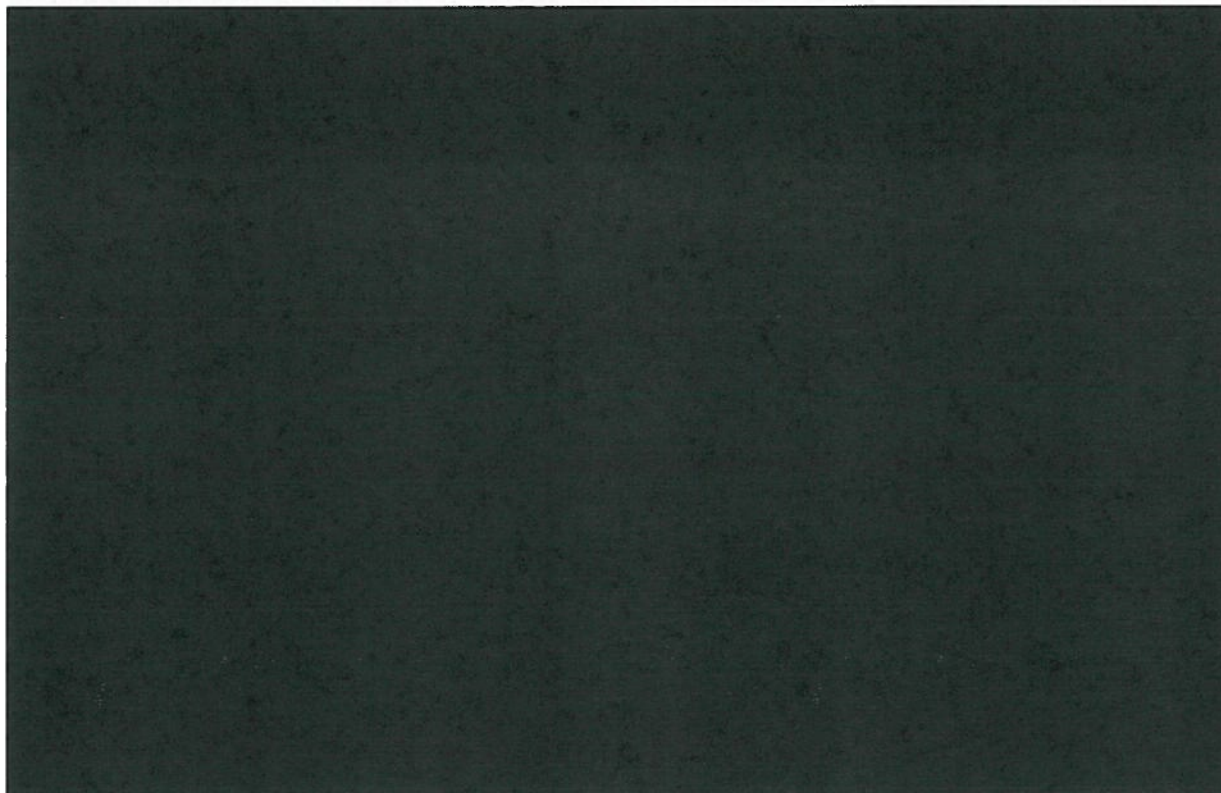
This section provides a preliminary assessment of the key implementation risks of the preferred investment option.

Risk Description	Inherent Risk	Planned Mitigation	Residual Risk
Risk 2. Resource capacity and availability The initiative requires mobilisation of a skilled delivery team comprising internal subject matter experts and external solution delivery specialists. Availability of required external solution delivery specialists is dependent on the capacity of the market.	High	Continue to perform prudent program management Monitoring to minimise internal resourcing conflicts, ensuring adequate capacity is committed to each initiative prior to delivery. Also prior to delivery, verify the availability of external solution delivery expertise through market procurement processes.	Low

11. CHANGE IMPACTS

The below section details the potential impacts to occur across the Energy Queensland environment during and after the implementation of this investment.

11.1. Investment System Impacts



11.2. People & Process Impacts



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APPENDIX A - Glossary

This section describes key terms and acronyms used in this document.

Term	Definition
CapEx	Capital Expenditure
DNSP	Distribution Network Service Provider (i.e. the Energex and Ergon Energy distribution businesses)
EAM	Enterprise Asset Management system supporting functions including Asset and Works Management
EE	Ergon Energy
EGX	Energex
ERP	Enterprise Resource Monitoring system supporting functions including Finance, Human Resource Management, Payroll and Procurement
GIS	The Energy Queensland Geographic Information and Network Model Management Systems
HR	Human Resources
ICT	Information Communication Technology
ISCA	In Service Condition Assessment
NER	National Electricity Rules
NFM	Energex's Network Facilities Management in-house built corporate Asset Management system
NPV	Net Present Value
OpEx	Operating Expenditure
Smallworld	Ergon Energy's GE-supplied GIS
WACC	Weighted Average Cost of Capital