Powerlink 2027-32 Revenue Proposal

IT Investment Program

IT04 - Support and Sustain

Contents

1. Executive Summary

Powerlink's major systems are periodically upgraded to ensure supportability, sustainability and security, consistent with prudent asset lifecycle management principles.

While many of the organisation's smaller applications are upgraded through the "recurrent" Information Technology (IT) investment program, there are also several larger system upgrades or renewals required in the coming regulatory control period (2027-32) that necessitate specific planning and preparation. These larger "non-recurrent" upgrade or renewal investments are the subject of this "Support and Sustain" preliminary business case, including the following planned investments:

▪ **Grid Planning Systems Sustainability**

Electricity grid planning is an increasingly critical and complex transmission network management activity.

Powerlink currently uses a variety of in-house developed tools, together with the Power System Simulator for Engineering (PSSE) and Power System Computer Aided Design (PSCAD) products, and custom workflow scripting, to undertake the required analysis underpinning the organisation's network augmentation, expansion and contingency planning.

In the coming period, we'll invest to renew these grid planning capabilities, for sustainability of the core products, and to remove the current heavy reliance on custom tooling including Excel spreadsheets with extensive use of ████████████████████████████. The renewal will enable sustainable, repeatable Electromagnetic Transient (EMT) modelling, as well as the Stability Limit analysis which forms the basis for network constraint advice to the Australian Energy Market Operator (AEMO).

▪ **SAP Enterprise Resource Planning (ERP) Sustainability**

SAP is Powerlink's core enterprise management system, with functionality spanning:

- Finance and Accounting
- Budgeting, Planning and Forecasting
- Cost Allocation Management
- Human Capital Management (HCM) and Payroll
- Asset, Maintenance and Works Management
- Logistics and Warehouse Management
- Business Process Management

In the current regulatory control period (2022-27), Powerlink has successfully transitioned from the legacy SAP "ERP Central Component 6" (ECC6) software platform to the current generation "S/4HANA" system operating in the ██████ environment. As such, the existing system is a sound foundation for Powerlink's business operations. However, given the rapid evolution of SAP's software, in the latter half of the coming regulatory control period, it will be necessary to transition Powerlink's existing legacy SAP configurations, custom code and integrations in order to retain access to current and emerging product features.

This "clean core" investment will deliver ongoing platform sustainability, while also emphasising agility,

operational simplicity, security and process best-practice.

- **GIS Spatial Data Management Sustainability**

  Powerlink's current Geographic Information System (GIS) platform is built on the ██████████████ and serves as a critical business application, acting as the authoritative source of location-based data across the organisation. It plays a vital role supporting the planning, operation and maintenance of Queensland's transmission network.

  During the current regulatory control period, Powerlink has retained the █████ GIS solution while transitioning the underlying ████████ database to a ██████████████████ datastore.

  Toward the end of the upcoming regulatory control period, Powerlink will undertake a sustainability upgrade of the GIS platform, including integration with the upgraded SAP Enterprise Asset Management (EAM) facility, to ensure ongoing supportability, and to enable future operational needs.

The Support and Sustain investment program reflects prudent asset lifecycle management of our critical system platforms.

This business case considers two options to address the investment drivers, and contrasts these options against a base case (counterfactual) scenario. I.e.:

- **Option 1 (Recommended Option)** "Existing Platform Sustainability"
- **Option 2 (Alternative Option)** "Systems Renewal and Extension"

The Recommended Option "Existing Platform Sustainability" addresses all identified drivers and represents the best NPV outcome over the 10-year analysis period.

The total forecast cost for the recommended option is **$8.35M** ($1.86M Capex, $6.49M Project Opex) in FY27 Real Terms (pre-CAM[1]).

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[1] The term "pre-CAM" indicates that the forecast cost represents the holistic Powerlink investment amount, prior to application of the Cost Allocation Method (CAM).

2. Investment Decision

2.1 Investment Drivers

Powerlink plans for the periodic upgrade and/or renewal of its major business systems through application of sound IT cyclic asset lifecycle management practices.

Consistent with the Gartner planning model for IT systems, major "Systems of Record" typically operate with a lifespan of 5-to-10 years, with periodic incremental changes applied as necessary throughout that time. For planning purposes, Powerlink assumes of lifespan for such systems of 10 or more years, with interim sustainability upgrades as required.

In the coming regulatory control period, three system groups are identified for sustainability upgrade investment.

1. **Grid Planning Systems** (including ███)

   Powerlink currently uses in-house developed tools, together with the Power System Simulator for Engineering (PSSE) and Power System Computer Aided Design (PSCAD) products, and custom workflow scripting to undertake the analysis underpinning the organisation's network augmentation, expansion and contingency planning.

   For sustainability and extensibility of Powerlink's critical grid planning business function beyond the coming regulatory control period, investment is required to renew these tools and capabilities, to ensure compliance with AEMO planning obligations and for supportability of the core products and to remove the current heavy reliance on legacy code, including ███████████████████████████████████████ ████.

   Over the coming regulatory control period, this specific dependence on ██████████ may become a material risk to the organisation, as Microsoft's focus has progressively shifted to more modern end-user technologies including ███████████ and ███████████.

   The renewal will enable sustainable, repeatable Electromagnetic Transient (EMT) modelling, as well as the Stability Limit analysis which forms the basis for network constraint advice to AEMO.

   Dependence on legacy tools, including ████████████████ and ██████████ could compromise the accuracy and timeliness of critical network modelling analyses, with risks of regulatory non-compliance and impacts on Powerlink's ability to respond to future grid challenges.

2. **SAP S/4HANA Environment**

   Powerlink operates SAP S/4HANA as the core system-of-record and primary transaction processing platform for key corporate functions, including Finance and Accounting, Budgeting and Planning, HCM and Payroll, Asset and Works Management, Logistics and Warehouse Management, and Business Process Management. The successful implementation of S/4HANA during the current regulatory control period represents a significant transition from the legacy ECC6 platform to the next-generation SAP environment, ████████████████. This has established a solid foundation for Powerlink's enterprise operations.

   However, while the system now runs on modern SAP software, many of Powerlink's configurations and integrations remain dependent on legacy ECC6-compatible configurations, with extensive in-house customisations. As SAP continues to evolve rapidly, these legacy elements pose a risk to future compatibility

and access to emerging features. Therefore, in the latter half of the upcoming regulatory control period, Powerlink will need to undertake a "clean core" transition, to remove legacy customisations and to align with modern SAP standard practices.

This investment will ensure long-term platform sustainability, while also delivering improved agility, operational simplicity, enhanced security, and consistency with SAP process best practices.

Continued reliance on legacy ECC6-compatible configurations and customisations would limit Powerlink's ability to adopt new SAP features, security enhancements and process innovations. This could result in increased technical debt, higher maintenance costs, and reduced system performance over time. Additionally, as SAP phases out support for legacy components, Powerlink may face compatibility issues, integration challenges and diminished vendor support, ultimately impacting business agility, compliance and operational resilience.

3. **GIS Spatial Data Management System**

Powerlink's GIS platform, built on the ▇▇▇▇▇▇▇▇▇▇▇, is a foundational business application that underpins the organisation's spatial data capabilities. As the authoritative source of location-based information, it plays a critical role in enabling effective planning, operation and maintenance of Queensland's electricity transmission network. The platform supports key operational workflows and decision-making processes by providing accurate, integrated spatial data across the enterprise.

Delaying an upgrade of Powerlink's GIS platform beyond the coming regulatory control period would introduce operational and strategic risks. Continued reliance on aging technology may lead to reduced system performance, increased maintenance costs and limited extensibility to support future business needs. With spatial data becoming increasingly critical for asset planning, field operations and network modelling, outdated or unsupported GIS capabilities could impact data accessibility, integration with modern platforms (including SAP EAM), and/or responsiveness to regulatory or customer requirements.

Consistent with the above context, the key drivers for the proposed investment program are as follows:

Driver 1: Technology Sustainability and Supportability

Replace legacy tools and customisations, including retirement of ▇▇▇▇▇▇▇▇▇ and other platform customisations for critical business functions, prior to the tools falling out of vendor support and to mitigate the key-person risks associated with aging custom software.

Driver 2: Platform Security, Patches and Updates

Ensure product major-version currency, to ensure continued access to critical security upgrades, patches and feature updates.

Driver 3: Contemporary Architecture Integration

Align with contemporary architecture design, to ensure flexibility in hosting, systems interfacing, and compatibility with current generation IT systems support and management practices.

Driver 4: Business Data Analytics

Utilise modern data integration practices, for efficient information management and whole-of-business analytics, leveraging Powerlink's ███████████ Strategic Data Platform (SDP) environment.

Driver 5: Best Practice Enablement

Adopt "out-of-the-box" principles to reduce the level of customisation and to enable future vendor-supported upgrades and business continuous improvement, through alignment with product-standard best practice processes.

2.2 Inherent risks

Table 1 below summarises the inherent risks requiring mitigation through this investment, with likelihoods forecast as at mid-2032 (i.e. at the end of the coming regulatory control period) if no remedial actions are taken.

Inherent Risk	Likelihood	Consequence	Rating
Risk R1 **System Supportability and Security Risk** Risk that existing systems fall out of vendor support, rendering software patches and security improvements unavailable. Unsupported systems also limit the ability to make required software changes to meet new and amended business requirements.	**C – Possible** The existing SAP S/4HANA system is likely to remain supported through the coming regulatory control period, however without transition to a "clean core" configuration, there is a likelihood that Powerlink will not be positioned to utilise upgraded SAP features or capabilities. It is further forecast that existing GIS software components will approach end-of-support within the coming regulatory control period, including the current ███ ██████ Enterprise version. There is also a material risk that support for the existing form of ██████████ macros may change within the coming regulatory control period as Microsoft's focus has progressively shifted to more modern end-user technologies including ██████████ and ██████████ Finally, the reliance on in-house custom code represents a key-person risk, due to dependence on the availability of existing personnel with detailed knowledge of the design and operation of critical tools (including SAP customisations and in-house Grid Planning tools).	**4 – Moderate** The consequence of system non-supportability varies greatly depending on the system in question and the nature of incidents that may result. In the least case, the non-supportability will limit the opportunity to utilise new or enhanced vendor product features. More significantly, the non-sustainability may result in failure, outage or defects in the delivery of critical Powerlink business functions, including works delivery and grid planning. Defects or invalid data in the various software applications may increase put field staff at an increased level of safety exposure.	**4 – Significant**

Inherent Risk	Likelihood	Consequence	Rating
Risk R2 **Operational Compliance Risk** Reliance on dated systems, with in-house customisations, macros and scripting, places Powerlink's ongoing compliance at risk. This includes obligations for: ■ Transmission network planning, system security and reliability ■ Provision of network constraint and limits advice ■ Network stability management and contingency planning	**C – Possible** Existing use of ▮▮▮▮ and system customisation in the delivery of core business systems places Powerlink at risk of the tools becoming unavailable or unsupported ▮▮▮▮▮▮▮ and other customisation tools), or of existing key personnel knowledge loss as the in-house software designs continue to age.	**4 – Moderate** The implications of not meeting compliance obligations depend on the nature of the non-compliance. These can include: ■ Regulatory penalty or statutory notice ■ Reputational impacts ■ Network constraints impacting customer supply ■ Damage to network assets and equipment	**4 – Significant**
Risk R3 **Extensibility and Business Improvement Risk** Reliance on dated systems, limits business continuous improvement, through inability to utilise new vendor software product features, or standardised business processes and workflows.	**B – Likely** With no further software upgrades, and with continued use of legacy system customisations and configurations, it is likely that that new product features will be inaccessible or ineffective, particularly including new and emerging SAP features and standardised processes dependent on a "clean core" implementation.	**3 – Minor** The implications of limitations on continuous improvement will primarily impact ongoing productivity, but may also affect network operational performance and planning.	**4 – Significant**

Table 1: Inherent Risks

Consequence

Likelihood	1 Negligible	2 Insignificant	3 Minor	4 Moderate	5 Major	6 Extreme	7 Catastrophic
A Almost Certain	3	4	4	5	5	6	6
B Likely	3	3	4 (R3)	4	5	5	6
C Possible	2	3	3	(R1) 4 (R2)	4	5	5
D Unlikely	2	2	3	3	4	4	5
E Rare	1	2	2	3	3	4	4
F Very Rare	1	1	2	2	3	3	4
G Almost Incredible	1	1	1	2	2	3	3

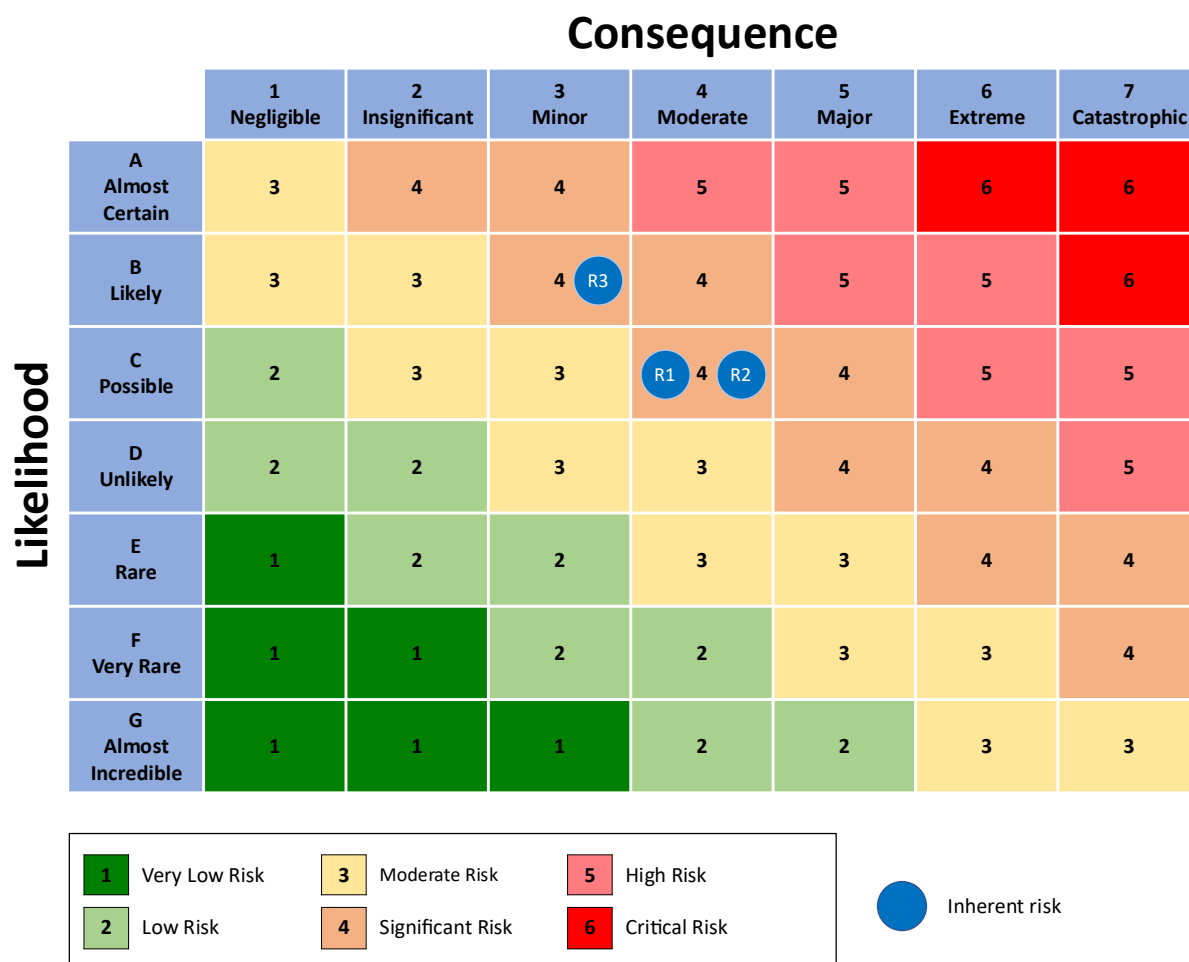| | | | |
|---|---|---|
| 1 Very Low Risk | 3 Moderate Risk | 5 High Risk |
| 2 Low Risk | 4 Significant Risk | 6 Critical Risk |

Inherent risk

Figure 1: Inherent Risk Matrix

3. Options Analysis

3.1 Investment Options Introduction

This business case explores and analyses the following options to address the investment drivers.

Options	Description
Option 1: Recommended Option "Existing Platform Sustainability"	In this recommended option, the existing Powerlink ERP, Grid Planning and Spatial systems will undergo sustainability upgrades or renewals, for ongoing supportability, security, extensibility and best practice enablement.
Option 2: Alternative Option "Systems Renewal and Extension"	In this alternative option, Powerlink will undertake a significant renewal activity for the existing core system implementations which will extend the solution capabilities, and automate a range of functions using the process orchestration and AI workflow management.
Base Case: Counterfactual	In this base case scenario, Powerlink would continue to operate the existing systems without further material change or integration for the medium term.

Table 2: Business Case Options

3.2 Option 1: Recommended Option (Existing Platform Sustainability)

This Recommended Option (Existing Platform Sustainability) describes the planned investment included within the coming regulatory control period proposal. In this option, the existing Powerlink ERP, Grid Planning and Spatial systems will undergo sustainability upgrades or renewals as described below, to address the investment drivers described in section 2.1, and the inherent risks described in section 2.2.

3.2.1 Recommended Option – Scope Description

Initiative 1: Grid Planning Sustainability

This initiative will renew and sustain Powerlink's core Grid Planning capabilities, including:

- Upgrade of software products, to ensure sustainability of key systems including the Power System Simulator for Engineering (PSSE) and Power System Computer Aided Design ▮▮▮▮▮ products.
- Replacement or porting of Powerlink's legacy custom tools, ▮▮▮▮▮▮ and custom workflows used for network augmentation, expansion and contingency planning. This includes the critical Powerlink ▮▮▮▮▮▮▮▮▮▮ Planning scenario model management tool.
- Implementation of a sustainable EMT Power Flow Simulation tool integrated with PSCAD and PSSE for repeatable, accurate power flow studies and scenario analyses.
- Renewal or replacement of the Transient Stability Limit Analysis facility, to enable efficient, accurate limit calculations and modelling, including with flexible configuration of renewable energy generation and

batteries.

This investment will mitigate the inherent risks associated with the existing reliance on custom code, ██████ ████████████████ and manual handling.

Initiative 2: SAP ERP Sustainability

This initiative will occur in the latter part of the coming regulatory control period, to transition Powerlink's existing legacy SAP configurations, customisations and integrations consistent with "clean core" principles, in order to retain access to current and emerging product features into the next decade.

This transition will include:

- **Up-front Assessment and Planning**

  A system audit will be undertaken on the S/4HANA implementation as it exists at the time of the investment, with focus on identification and classification of Powerlink's remaining legacy SAP ECC6 configurations, custom code and integrations.

  The target architecture will be confirmed in alignment with contemporary SAP-standard best practices, and a multi-tranche transition plan will be developed to mitigate operational business risk.

- **Residual Custom Code Remediation**

  Legacy customisations that duplicate modern SAP standard functionality will be retired, with associated business process change where required.

  Essential custom logic will be refactored using SAP Business Technology Platform (BTP) extensions in place of core modifications.

- **Data Cleansing and Migration**

  Master data will be validated and cleansed to meet modern SAP Master Data Governance (MDG) standards.

  Transactional and historical data will be transformed to the new standards as required using SAP tooling.

  Revised data governance practices will be implemented where required (building on the new data governance approach being delivered through the related Enterprise Asset Management initiative earlier in the regulatory control period).

- **Process Standardisation**

  Selected legacy bespoke workflows will be retired or replaced with SAP-standard processes, including progressive adoption of SAP best practice templates where prudent and efficient. Business processes will also be aligned with the SAP Fiori User Interface (UX) for consistency and simplicity.

- **Integration Renewal**

  Remaining legacy point-to-point integrations will be refactored to utilise SAP-approved Application Programming Interfaces (APIs) and cloud connectors where applicable. SAP BTP can also be leveraged for extensibility and integration with external systems.

- **Change Management and Training**

  A structured change management program will support the "clean core" transition, to support workforce adoption. This will include training on the use of SAP Fiori and new workflows.

The investment will deliver ongoing platform sustainability, while also emphasising agility, operational simplicity, security and process best-practice.

Initiative 3: GIS Spatial Sustainability

This initiative will also occur in the latter part of the coming regulatory control period, performing a sustainability upgrade of Powerlink's GIS spatial data management platform and data stores. Based on ▉▉▉ GIS product lifecycle and roadmap, by 2030 the ▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉ will have entered the vendor's defined "mature" phase, ▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉▉ ▉▉▉▉▉▉▉▉▉▉▉▉▉

The next generation v12 product is forecast to require a significant upgrade project for Powerlink, including integration with the underlying ▉▉▉▉ spatial data store and all other dependent applications. The upgrade is expected to involve:

- Audit of existing ESRI services, configurations and customisations
- Identification of deprecated components and migration to vendor-supported alternatives
- Planned upgrade of core ESRI components and adaptors
- Validation of hosted services, layers, system integrations and other data sources to ensure compatibility with the new software generation
- Testing, validation and optimisation of the migrated system

3.2.2 Recommended Option – Alignment with Investment Drivers

The extent to which the Recommend Option addresses (or does not address) the identified investment drivers is summarised in Table 3 below.

Alignment with Investment Drivers		
Investment driver	**Extent addressed through Recommended Option**	
Technology Sustainability and Supportability	✓	Powerlink's legacy in-house tools and customisations will be retired or replaced, including retirement of VBA Excel macros and other platform customisations for critical business functions, prior to the tools falling out of vendor support and to mitigate the key-person risks associated with aging custom software. This includes retirement or refactoring of legacy Grid Planning macros and in-house tools, and legacy SAP ECC6-era custom code.
Platform Security, Patches and Updates	✓	Product major-version upgrades will be performed for software vendor currency, ensuring continued access to critical security upgrades, patches and feature updates. This includes upgrades to Powerlink's GIS spatial platform, SAP modules and Grid Planning software.
Contemporary Architecture Integration	✓	System interfaces and integrations will be revised in alignment with contemporary architecture design, to ensure flexibility in hosting, systems interfacing, and compatibility with current generation IT systems support and management practices.

		This includes retirement of legacy custom point-to-point interfacing, with use of supported APIs and SAP BTP.
Business Data Analytics	✓	The upgraded systems will use modern data integration for efficient information management and whole-of-business analytics, leveraging Powerlink's Microsoft Azure Strategic Data Platform (SDP) environment.
Best Practice Enablement	✓	The upgraded systems will adopt "clean core" principles to enable future vendor-supported upgrades and business continuous improvement, through alignment with product-vendor best practices.

Table 3: Recommended Option (Existing Platform Sustainability) Alignment with Investment Drivers

3.2.3 Recommended Option – Assumptions

Bottom-up cost estimates have been developed for each of the three initiatives, using standard labour rates and consistent delivery methods. Costs related to shared activities (including program delivery management, end-to-end design, business process design and program communications) are shared across the estimates for each initiative.

Table 4 to Table 6 (below and over page) detail the resultant estimated phasing and cost breakdown for each of the three (3) constituent initiatives. Table 7 (over page) summarises the total combined cost forecast.

Initiative 1: Grid Planning Systems Sustainability

Duration	Months
Planning and Analysis	2
Design	2
Configure, Build and Test	7
Deployment and Hypercare	1
Total	12

FY27 Real Terms	Capex	Project Opex	Project Total
Labour	■		
Vendors	■		
Software	■		
Infrastructure	-	-	-
Total	■		

Table 4: Phase and Cost Breakdown – Initiative 1 (Grid Planning Systems Sustainability)

Initiative 2: SAP ERP Sustainability

Duration	Months
Planning and Analysis	3
Design	3
Configure, Build and Test	10
Deployment and Hypercare	1
Total	**17**

FY27 Real Terms	Capex	Project Opex	Project Total
Labour	-	████████	
Vendors	-	████████	
Software	-	████████	
Infrastructure	-	-	-
Total	-	████████	

Table 5: Phase and Cost Breakdown – Initiative 2 (SAP ERP Sustainability)

Initiative 3: GIS Spatial Sustainability

Duration			Months
Planning and Analysis			0
Design			4
Configure, Build and Test			11
Deployment and Hypercare			1
Total			16

FY27 Real Terms	Capex	Project Opex	Project Total
Labour	████████		
Vendors	-	████████	
Software	-	████████	
Infrastructure	-	-	-
Total	████████		

Table 6: Phase and Cost Breakdown – Initiative 3 (GIS Spatial Data Management Sustainability)

Support and Sustain Initiative Totals			
FY27 Real Terms	Capex	Project Opex	**Project Totals**
Labour	███████	-	███████
Vendors	███████	-	███████
Software	███████	███████	███████
Infrastructure	-	-	-
Total	$1.86M	$6.49M	**$8.35M**

Table 7: Total Combined Investment Cost Forecast

3.2.4 Recommended Option – Risk Mitigation

This recommended option mitigates the existing inherent risks (as described in Table 1 on page 7) such that the residual risks range from 2 – Low to 3 – Moderate as summarised below.

Inherent Risk	Inherent Risk Rating	Recommended Option Mitigation Controls	Residual Likelihood	Residual Consequence	Residual Risk Rating
Risk R1 System Supportability and Security Risk Risk that existing systems fall out of vendor support, rendering software patches and security improvements unavailable. Unsupported systems also limit the ability to make required software changes to meet new and amended business requirements.	**4 – Significant**	Powerlink's critical business systems will be upgraded to current software versions for supportability and security. "Clean Core" principles will be followed to ensure the features and standardised workflows for these products can be utilised as intended by the product vendors. The planned investments will further retire legacy custom code, to ensure ongoing supportability, mitigating key personnel risks.	**F – Very Rare** With the proposed improvement investments, Powerlink's core systems will be supportable, sustainable and extensible on an ongoing basis, including Grid Planning Systems, the SAP ERP and GIS Spatial Data Management Systems.	**3 – Minor** The nature of risk consequence is unchanged, however due to the proposed investment, the significance of the potential consequence is lower than the inherent level.	**2 – Low**
Risk R2 Operational Compliance Risk Reliance on dated systems, with in-house customisations, ████████ ████████ places	**4 – Significant**	Powerlink will retire the legacy customisations and ████████ mitigating the risk of dated tools, as well as dependence on key personnel.	**E – Rare**	**4 – Moderate**	**3 – Moderate**

Inherent Risk	Inherent Risk Rating	Recommended Option Mitigation Controls	Residual Likelihood	Residual Consequence	Residual Risk Rating
Powerlink's ongoing compliance at risk. This includes obligations for: ■ Transmission network planning, system security and reliability ■ Provision of network constraint and limits advice ■ Network stability management and contingency planning		Manual workflows will also be minimised or retired where prudent.	With the proposed investment, the risk of non-compliance is reduced, but some chance of error remains possible – particularly given the complexity on Grid Planning techniques.	Although the likelihood of this risk is lower, the consequence of it eventuating is unchanged.	
Risk R3 Extensibility and Business Improvement Risk Reliance on dated systems, limits business continuous improvement, through inability to utilise new vendor software product features, or standardised business processes and workflows.	**4 – Significant**	Through upgrades of core software products, use of "clean core" principles, retirement of custom code and progressive adoption of vendor standardised workflows, the investment will effectively enable business continuous improvement on an ongoing basis, including use of new vendor-supported product features and best practices.	**E – Rare** With the proposed improvement investments, the risk of extensibility and improvement limitations will be materially mitigated	**3 – Minor** Although the likelihood of this risk is lower, the consequence of it eventuating is unchanged.	**2 – Low**

Table 8: Recommended Option (Existing Platform Sustainability) Mitigation of Inherent Risks
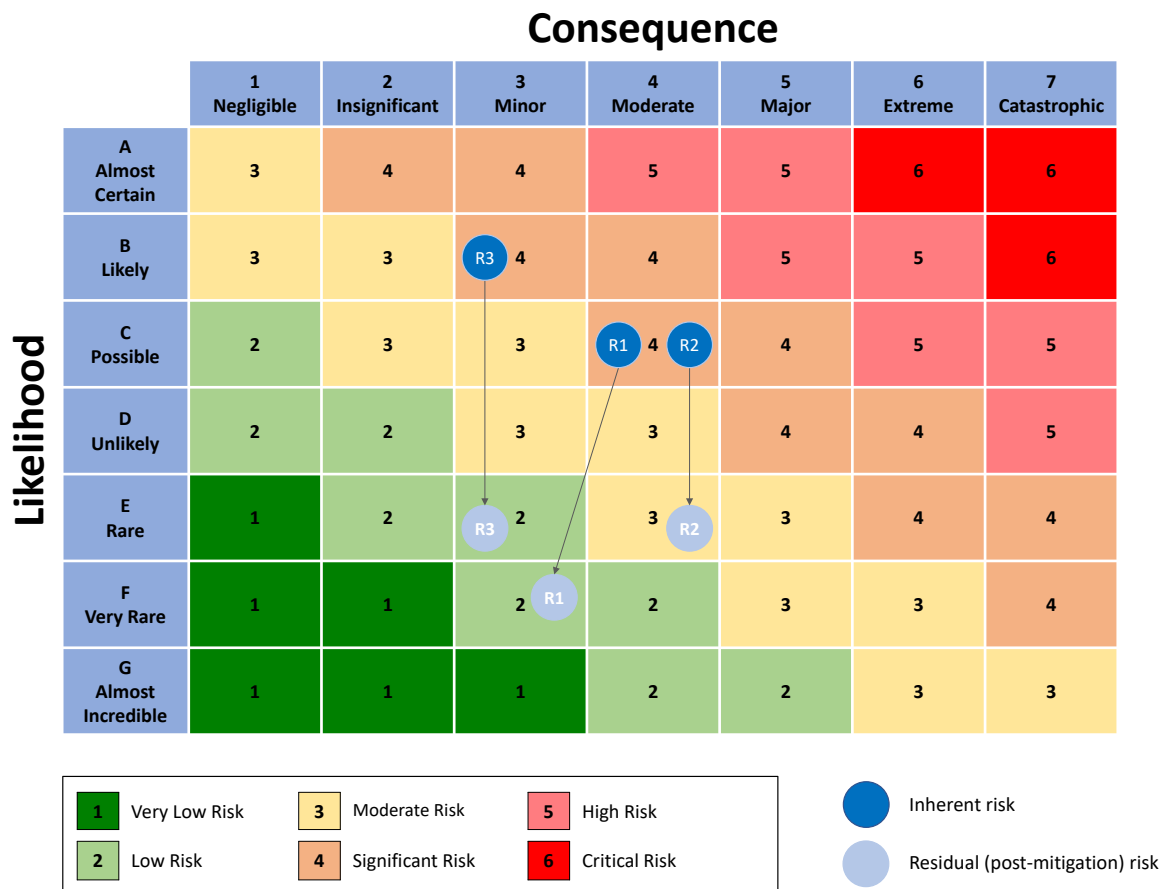
Consequence

Figure 2: Recommended Option (Existing Platform Sustainability) Risk Mitigation Matrix

3.2.5 Recommended Option – Benefits

This recommended option enables benefits as summarised in Table 9 below.

Benefit Description	Benefit Value
B1. System sustainability and extensibility benefit Powerlink will retain access to the supported versions of all Grid Planning, ERP and Spatial Management systems (including SAP, the ███ GIS and various Grid Planning software and tools), thereby ensuring the organisation's core business data and systems remain secure and available.	**Non-Financial Risk Mitigation** See mitigation of inherent risks as summarised in Table 8.

Benefit Description	Benefit Value
B2. Vendor best practice and feature enablement benefit Implementation of current versions of core software products in alignment with "clean core" principles will retire custom code, integrations and in-house custom code. This will enable ongoing business continuous improvement and rapid take-up of new vendor-supported product features and best practices.	**Indirect Financial Operational Efficiency** Contributor towards Powerlink IT and business operational productivity and efficiency
B3. Whole-of-business asset data analytics benefit Upon implementation of current software versions, and retirement of custom code and integrations, core data will be accessible through the Strategic Data Platform (SDP) to enable whole-of-business analytics, reporting and decision support.	**Indirect Financial Operational Efficiency** Contributor towards Powerlink IT and business operational productivity and efficiency

Table 9: Recommended Option (Existing Platform Sustainability) Benefits

3.3 Option 2: Alternative Option (Systems Renewal and Extension)

This Alternative Option (Systems Renewal and Extension) describes an alternative pathway to address the investment drivers described in section 2.1 and the inherent risks described in section 2.2, as described below.

3.3.1 Alternative Option – Scope Description

In this alternative option, Powerlink will undertake a significant renewal activity for the existing core system implementations which will extend the solution capabilities, and automate a range of functions using process orchestration and AI workflow management, to address the investment drivers described in section 2.1, and the inherent risks described in section 2.2.

Initiative 1: Grid Planning Systems Reimplementation

This initiative will undertake a major uplift of Powerlink's core Grid Planning systems, including:

- Reimplementation of ▮▮▮▮ and ▮▮▮▮▮ to ensure ongoing sustainability and support, with reconfiguration for streamlining of business processes and automation of workflows.

- Replacement of Powerlink's legacy custom tools, ▮▮▮▮▮▮▮ and custom workflows used for network augmentation, expansion and contingency planning. This includes the critical Powerlink ▮▮▮▮▮▮▮▮▮ Network Planning scenario model management tool.

- Implementation of a sustainable EMT Power Flow Simulation tool integrated with ▮▮▮▮ and ▮▮▮ for repeatable, accurate power flow studies and scenario analyses.

- Replacement of the Transient Stability Limit Analysis facility, to enable efficient, accurate limit calculations and modelling, including with flexible configuration of renewable energy generation and batteries.

- Enhanced integration with the Powerlink Strategic Data Platform (SDP) analytics environment to provide

uplifted decision support capability for the organisation's network augmentation, expansion and contingency planning functions.

This investment will mitigate the inherent risks associated with the existing reliance on ███████████ with extensive ██████████████, as well as other custom scripting, integrations and manual handling – including for Powerlink's EMT modelling and AEMO Stability Limit analysis. It will also provide a material shift in workflow automation to support operational efficiencies across the Grid Planning function.

Initiative 2: SAP ERP Reconfiguration

This initiative will uplift the SAP ERP system, with business process streamlining using the SAP Business Technology Platform (BTP) and automation of transactions and complex workflows. SAP reconfiguration will be focussed on removing legacy customisations and moving to a "clean core" implementation, to minimise future upgrade complexity and to reduce business change impacts.

This initiative will deliver:

- Integration of data sources and processes in both SAP and non-SAP applications, leveraging the SAP BTP for more efficient transaction processing.

- Ability to deploy low-code/no-code tools and developer environments to build extensions and cloud-native applications without custom code, enabling and maintaining a "clean core" environment for ease of future upgrades.

- Business process automation, enabling improvements in workflow management, enhanced financial forecasting, reduced turn time on operational HCM transactions, and reduction in rework on high volume transactions.

- Configuration of the SAP Joule platform which will deliver generative AI capability to enhance productivity across those business functions utilising the core SAP ERP capability. Functions enabled through the Joule implementation include:
  - Conversational natural language assistance and task automation within the core ERP, to streamline business functions such as financial reconciliations, repetitive financial transactions, staff onboarding and HR approval workflows.
  - AI Agents which will handle cross-functional tasks and complex scenarios, such as managing accounts payable and receivable, HR performance and goal management, generation of management reports and financial analysis.
  - Data analytics providing near real-time and context-sensitive insights across SAP data and integrated third-party data sources.
  - Native ecosystem support, providing seamless integration with non-SAP tools including bi-directional connectivity with Microsoft 365 Copilot for cross-platform data access and workflow automation.

Initiative 3: GIS Reconfiguration

This initiative will undertake a significant reconfiguration of Powerlink's GIS spatial data management platform and data stores to provide a more seamless experience when traversing across data holdings, with a tighter linkage of the spatial, physical, financial and network model data.

As part of the reconfiguration, the ▮▮▮▮ GIS Enterprise platform will be upgraded, including integration with the underlying Azure spatial data store and all other dependent applications. This initiative will deliver the following capabilities:

- Enhanced network modelling for complex electrical transmission networks, enabling the mapping of existing geometric network data for more accurate spatial representation of transmission lines and substations.

- Advanced modelling of equipment-to-structure relationships, with automated business rules to reduce invalid network data connections and network topology errors.

- Ability to perform offline tracing via download and synchronisation tools, enabling field workers to perform edits and traces either in offline or near real-time modes. This will enable improved data accuracy and assist in aligning GIS data to other solutions such as the EAM, OMS and Network Control systems.

- Seamless integration of disparate data sources (e.g. IoT sensors on transmission towers) using the ▮▮▮▮ Data Pipeline.

3.3.2 Alternative Option – Alignment with Investment Drivers

The extent to which the Alternative Option addresses (or does not address) the identified investment drivers is summarised in Table 10 below.

Alignment with Investment Drivers		
Investment driver		**Extent addressed through Alternative Option**
Technology Sustainability and Supportability	✓	Powerlink's legacy in-house tools and customisations will be retired or replaced, including retirement of ▮▮▮▮▮▮ and other platform customisations for critical business functions, prior to the tools falling out of vendor support and to mitigate the key-person risks associated with aging custom software. The core SAP ERP, Grid Planning and GIS platforms will be upgraded and reconfigured providing a high degree of "future proofing" in terms of supportability and software vendor currency.
Platform Security, Patches and Updates	✓	The significant product reconfigurations (including upgrades) to Powerlink's GIS platform, SAP ERP modules and Grid Planning software undertaken in this initiative, ensure critical security upgrades, patches and feature updates can be applied to the solution set.
Contemporary Architecture Integration	✓	The extensive leveraging of the SAP BTP platform enables seamless integration across SAP and non-SAP platforms, enabling the retirement of legacy custom point-to-point interfacing. This enhanced integration enables improved data quality through removal of manual processes and rekeying of data across applications.
Business Data Analytics	✓	The upgraded systems will use modern data integration for efficient information management and whole-of-business data analytics. The application of AI capability through co-pilot capability across the SAP and Microsoft product suites will enable predictive analytics to support improved decision making and identify patterns in data that lead to business improvements and operational efficiencies.
Best Practice Enablement	✓	The uplifted capability, particular leveraging Joule AI, enables Powerlink to enhance its business process automation and support a range of business process efficiencies.

Table 10: Alternative Option (Systems Renewal and Extension) Alignment with Investment Drivers

3.3.3 Alternative Option – Assumptions

Costs have been estimated for each of the three (3) initiatives within this Alternative Option. Costs related to shared activities (including program delivery management, end-to-end design, business process design and program communications) are shared across the estimates for each initiative.

Table 11 to Table 13 (below and over page) detail the resultant estimated phasing and cost breakdown for each of the three (3) constituent initiatives. Table 13 (over page) summarises the total combined cost forecast.

Initiative 1: Grid Planning Systems Reimplementation

Duration	Months
Planning and Analysis	2
Design	4
Configure, Build and Test	12
Deployment and Hypercare	1
Total	19

FY27 Real Terms	Capex	Project Opex	Project Total
Labour	███████	███████	███████
Vendors	███████	███████	███████
Software	███████	███████	███████
Infrastructure	-	-	-
Total	$3.83M	-	$3.83M

Table 11: Phase and Cost Breakdown – Initiative 1 (Grid Planning Systems Reimplementation)

Initiative 2: SAP ERP Reconfiguration

Duration	Months
Planning and Analysis	3
Design	4
Configure, Build and Test	12
Deployment and Hypercare	1
Total	**20**

FY27 Real Terms	Capex	Project Opex	Project Total
Labour	-	███████	
Vendors	-	███████	
Software	-	███████	
Infrastructure	-	-	-
Total	-	$6.75M	**$6.75M**

Table 12: Phase and Cost Breakdown – Initiative 2 (SAP ERP Reconfiguration)

Initiative 3: GIS Reconfiguration

Duration	Months
Planning and Analysis	0
Design	4
Configure, Build and Test	11
Deployment and Hypercare	1
Total	**16**

FY27 Real Terms	Capex	Project Opex	Project Total
Labour	███████		
Vendors	-	███████	
Software	-	███████	
Infrastructure	-	-	-
Total	$0.15M	$3.83M	**$3.98M**

Table 13: Phase and Cost Breakdown – Initiative 3 (GIS Reconfiguration)

Support and Sustain Option 2 Initiative Totals			
FY27 Real Terms	Capex	Project Opex	**Project Totals**
Labour	███████████		██████████
Vendors	███████████		██████████
Software	███████████		██████████
Infrastructure	-	-	-
Total	$3.98M	$10.58M	**$14.56M**

Table 14: Phase and Cost Breakdown – Total Combined Investment Cost Forecast

3.3.4 Alternative Option – Risk Mitigation

This alternative option mitigates the existing inherent risks (as described in Table 1 on page 7) such that the residual risks are all rated 2 – Low as summarised in Table 15 below.

Inherent Risk	Inherent Risk Rating	Alternative Option Mitigation Controls	Residual Likelihood	Residual Consequence	Residual Risk Rating
Risk R1 **System Supportability and Security Risk** Risk that existing systems fall out of vendor support, rendering software patches and security improvements unavailable. Unsupported systems also limit the ability to make required software changes to meet new and amended business requirements.	4 – Significant	Powerlink's critical business systems will be upgraded to current software versions for supportability and security. "Clean Core" principles will also be followed to ensure the features and standardised workflows for these products can be utilised as intended by the product vendors. The planned investments will retire legacy custom code, to ensure ongoing supportability, mitigating key personnel risks.	F – Very Rare With the proposed improvement investments, Powerlink's core systems will be supportable, sustainable and extensible on an ongoing basis, including Grid Planning systems, the SAP ERP and GIS Spatial Data Management systems.	3 – Minor The nature of risk consequence is unchanged, however due to the proposed investment, the significance of the potential risk consequence is lower than the inherent level.	2 – Low
Risk R2 **Operational Compliance Risk** Reliance on dated systems, with in-house customisations, ███████ ███████ places	4 – Significant	Powerlink will retire the legacy customisations and ██████████ , mitigating the risk of dated tools, as well as dependence on key personnel.	F – Very Rare	4 – Moderate	2 – Low

Inherent Risk	Inherent Risk Rating	Alternative Option Mitigation Controls	Residual Likelihood	Residual Consequence	Residual Risk Rating
Powerlink's ongoing compliance at risk. This includes obligations for: ■ Transmission network planning, system security and reliability ■ Provision of network constraint and limits advice ■ Network stability management and contingency planning		Manual workflows will be minimised through adoption of process automation capability in SAP BTP and Joule AI. Data quality will be improved through use of tighter integrations and embedded business rule validation to detect and automatically rectify incorrect data.	With the proposed investment, the risk of non-compliance is reduced, but some chance of error remains possible given the complexity on Grid Planning techniques.	Although the likelihood of this risk is lower, the consequence of it eventuating is unchanged.	
Risk R3 Extensibility and Business Improvement Risk Reliance on dated systems, limits business continuous improvement, through inability to utilise new vendor software product features, or standardised business processes and workflows.	**4 – Significant**	Through reconfiguration (including upgrade) of the GIS, ERP and Grid Planning solutions, coupled with the used of advanced AI and integration capability, a range of business efficiency opportunities will be harvested. This investment will also reduce the cost and time associated with extension of the solution set.	**F – Very Rare** With the proposed improvement investments, the risk of extensibility and improvement limitations will be materially mitigated	**3 – Minor** Although the likelihood of this risk is lower, the consequence of it eventuating is unchanged.	**2 – Low**

Table 15: Alternative Option (Systems Renewal and Extension) Mitigation of Inherent Risks
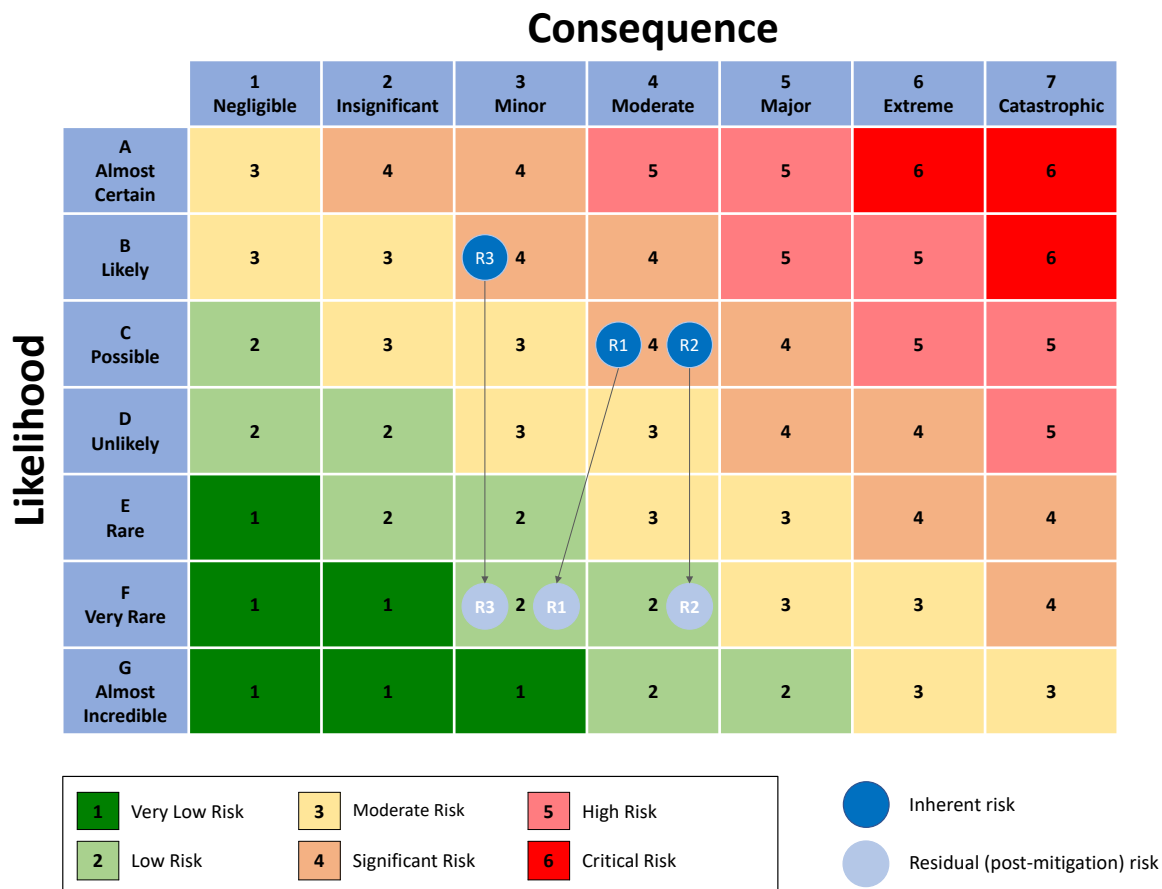
Consequence

Figure 3: Alternative Option (Systems Renewal and Extension) Risk Mitigation Matrix

3.3.5 Alternative Option – Benefits

This Alternative Option enables benefits as summarised in Table 16 below.

Benefit Description	Benefit Value
B1. System sustainability and extensibility benefit Powerlink will retain access to the supported versions of all Grid Planning, ERP and Spatial Management systems (including SAP, the ▮▮▮▮▮ and various Grid Planning software and tools), thereby ensuring the organisation's core business data and systems remain secure and available.	**Non-Financial Risk Mitigation** See mitigation of inherent risks as summarised in Table 15

Benefit Description	Benefit Value
B2. Accelerated Business Improvement Delivery Reconfiguration (including upgrade) of the ERP, GIS and Grid Planning solutions will enable the retirement of point-to-point integrations and in-house custom code. Once this is achieved, the implementation of continuous improvement initiatives leveraging AI and business automation capability can be rapidly deployed resulting in greater efficiency benefits within the subsequent regulatory control period.	**Indirect Financial** **Operational Efficiency** Contributor towards Powerlink's operational productivity and efficiency
B3. Whole-of-business asset data analytics benefit The reconfigured ERP, GIS and Grid Planning solutions, coupled with seamless integration of the associated data stores and AI capability, will provide enhanced capability to analyse complex data sets. This will result in identification of more efficient business processes and improve the quality of data across the disparate data holdings.	**Indirect Financial** **Operational Efficiency** Contributor towards Powerlink IT and business operational productivity and efficiency

Table 16: Alternative Option (Systems Renewal and Extension) Benefits

3.4 Base Case: Counterfactual

This Base Case summarises the counterfactual scenario that would eventuate if Powerlink does not proceed with investment in either the Recommended Option or the Alternative Option to address the business and technical drivers described in section 2.1 and the inherent risks described in section 2.2.

3.4.1 Base Case – Alignment with Investment Drivers

The extent to which the Base Case scenario addresses (or does not address) the identified investment drivers is summarised in Table 17 below.

Alignment with Investment Drivers		
Investment driver	**Extent addressed through this Base Case (Counterfactual)**	
Technology Sustainability and Supportability	✗	Powerlink's legacy in-house tools and customisations will not be retired or replaced. The organisation will therefore retain reliance on custom code, including ▮▮▮▮▮▮▮▮▮ and other in-house tooling, for critical business functions. As such, the risk of tools falling out of vendor support and key-person software code risks, will remain unmitigated. This includes retaining legacy Grid Planning macros and in-house tools, and legacy SAP ECC6-era custom code.
Platform Security, Patches and Updates	✗	Product major-version upgrades will not be performed for software vendor currency. As such, continued access to critical security upgrades, patches and feature updates will be limited.
Contemporary Architecture Integration	✗	System interfaces and integrations will not be revised in alignment with contemporary architecture design. This includes retention of various legacy custom point-to-point interfacing and manual integrations.

Business Data Analytics	✗	Business data analytics will remain as-is, including a combination of manual data reporting and spreadsheet-based analysis.
Best Practice Enablement	✗	Core systems, including the SAP ERP, will not be aligned with "clean core" principles. This will therefore limit the opportunity to accept and utilise new vendor-supported featured and product-vendor best practices.

Table 17: Base Case (Counterfactual) Alignment with Investment Drivers

3.4.2 Base Case – Assumptions

The following assumptions are made for this Base Case (Counterfactual) scenario:

- No targeted investments will be made in the selected systems and related process improvements.
- Powerlink will continue to maintain and enhance the existing custom code, legacy configurations, ███ ████ and integrations to address emerging or changed business requirements. This will involve interim work-around investments as assumed below.
    a) Interim custom code extensions and workarounds to address near term requirements for EMT Power ████████████████████████████ E scenario management – at an assumed interim cost of $600,000 over the regulatory period.
    b) Interim SAP custom code changes and enhancements – at an assumed interim cost of $750,000 over the regulatory period
    c) ████ GIS interim works and support extension – at an assumed interim cost of $500,000 over the regulatory period
    d) Other ad hoc system customisation and urgent data rectification works – at an assumed interim cost of $250,000 over the regulatory period
- Although this Base Case (Counterfactual) scenario does not make targeted investments in the existing systems or related process improvements, this does not avoid the need for investment indefinitely into the future. Therefore, this Base Case (Counterfactual) scenario assumes that the investment proposed in "Option 1 (Recommended)" excluding the GIS upgrade would still be undertaken 4 years later (i.e. in the following regulatory period), at the equivalent cost in real terms. Given the criticality of the GIS solution and the impending end-of-life of the currently implemented solution, the upgrade to the GIS platform will commence under this option at the beginning of the 2032-37 regulatory control period.

3.4.3 Base Case – Risk Mitigation

As no material actions are taken in the base case to mitigate the existing inherent risks (as described in Table 1 on page 7), the residual risks remain unchanged as depicted in Figure 4 below (over page).
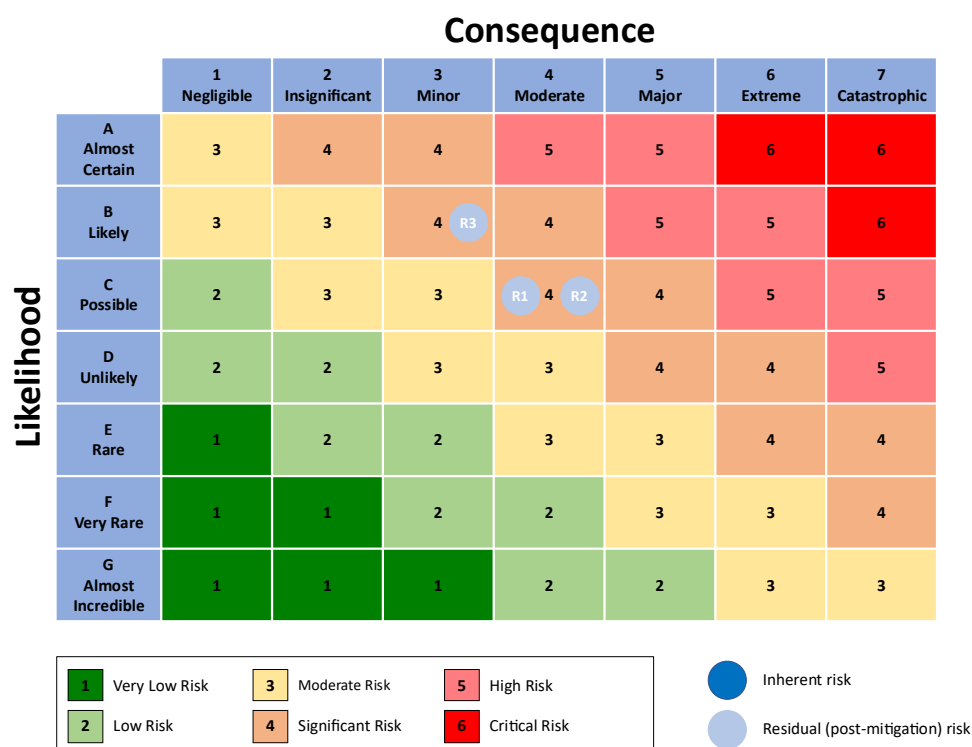
Consequence

Figure 4: Base Case (Counterfactual) Risk Mitigation Matrix

3.5   Option Comparison

Table 18 below compares the extent to which the options (including the base case) address the identified investment drivers, and also provides the resultant Net Present Value (NPV) for each option over a 10-year analysis period.

As depicted in the table, Option 1 addresses all of the identified investment drivers and is the recommended option.

Alignment with Investment Drivers			
Investment driver	Option 1: Recommended Option (Existing Platform Sustainability)	Option 2: Alternative Option (Systems Renewal and Extension)	Base Case (Counterfactual)

Technology Sustainability and Supportability	✓	✓	✗
Platform Security, Patches and Updates	✓	✓	✗
Contemporary Architecture Integration	✓	✓	✗
Business Data Analytics	✓	✓	✗
Best Practice Enablement	✓	✓	✗
NPV	-$4.8M	-$8.0M	-$5.8M

Table 18: Options Comparison

Comparison conclusion

Option 1 "Existing Platform Sustainability" is recommended on that basis that it:

(a) Addresses all the identified business and technical investment drivers, and

(b) Represents the best NPV investment over the analysis period.

Option 2 "Systems Renewal and Extension" is also a suitable response to the investment drivers, but the higher cost of this alternative option likely outweighs the possible incremental future benefits that may be enabled.

4. Other Considerations

4.1 Governance

Funding for the Support and Sustain investment proposed through this business case is ultimately governed by the Digital Technology Executive Committee (DTEC) which has the accountability for delivery of the IT investment portfolio. DTEC oversees the management of IT programs and projects through an assigned Program Executive.

The Program Executive is accountable for successful delivery of the program, and achievement of planned program outcomes. The Program Executive is supported by Senior Suppliers, Senior Users and the Program Director in delivery of the program.

The Program Executive will chair a Program Board, with a charter to monitor the progress of the program, to address escalated delivery issues and to support coordination of inter-program dependencies. This governance structure provides ongoing oversight into the running of both the program and the individual constituent initiatives.

4.2 Delivery Schedule

Figure 5 below depicts the proposed high-level delivery schedule, comprising the five coordinated initiatives as described in section 3.2.

Prior to execution of the program, a detailed Program Management Plan (PMP) will be established with an accompanying program schedule.

Investment Program	2027-32 Regulatory Control Period					5yr Total
2026/27 $M Real	2027/28	2028/29	2029/30	2030/31	2031/32	5yr Total
Support & Sustain			Grid Planning Sustainability ▮	SAP ERP Sustainability ▮	GIS Spatial Sustainability ▮	$8.4M

Figure 5: High-level Delivery Schedule