30 November 2023

Ausgrid's 2024-29 Revised Proposal

Attachment 5.9.1 – ERP Upgrade Program

Empowering communities for a resilient, affordable and net-zero future.

Ausgrid

Summary of how we have responded to the Draft Decision

In the draft determination the Australian Energy Regulator (**AER**) proposed that only the technical upgrade option should be undertaken in FY25-29. Ausgrid's recommended transformative Enterprise Resource Planning (**ERP**) option was rejected on the basis that it did not represent the best value for customers following adjustments made by the AER to the Net Present Value (**NPV**) calculation.

The Revised Regulatory Proposal incorporated the AER's feedback to remove contingency and adjust the benefits calculation, and following a recalculation of the NPV concludes that the transformative option still represents the best value for customers.

The net effect of adopting the AER's proposed changes reduces the FY25-29 ERP expenditure to $118 million (draft proposal $184 million*) and moves $34 million (23%) into the FY30-34 regulatory period.

Ausgrid identified an escalation error in the presentation of our forecast ERP costs at the Initial Proposal stage. This error undervalued our forecast by $35 million.

Our forecast costs for the ERP program at the Initial Proposal stage should have been $184 million*. This amount was included in our ERP program brief (Attachment 5.9.b) yet a lower amount ($149 million*) was included in our 2024-29 Technology Plan (see attachment 5.9) and our Initial Proposal capex model (attachment 5.1.b).

Ausgrid have corrected this error in our Revised Proposal. The error involved a transposition of incorrect inflation assumptions when escalating expenditure values into real FY24 dollars for our 2024-29 Technology Plan. This misstatement was then included in our Initial Proposal capex model.

How this investment meets the NEO, and the objectives and criteria within the NER

Maintaining a modern, fit-for-purpose ERP (including its EAM and MDM/B components) is a critical enabler to promoting efficient investment in, and efficient operation and use of electricity services. The capabilities these three critical business systems enable, and the benefits and efficiencies they deliver, are in the long-term interest of consumers with respect to price, safety, reliability, and reducing Australian's greenhouse gas emissions (we note that enduring customer benefits are curtailed in the modelling by the application of a 15-year life assumption).

The proposed investment in ERP Program is required for Ausgrid to continue to cost effectively comply with all applicable regulatory obligations, including the various security and critical infrastructure, record keeping, and privacy obligations which apply to our organisation.

The proposed ERP Program investment will allow Ausgrid to continue to cost effectively sustain and enhance the foundational capabilities required to maintain the quality, reliability and security of supply of standard control services, and maintain the safety of the distribution system. The ERP Program further achieves these objectives by enabling the business to cost effectively adapt to and accommodate new technologies and market structures and offer new and emerging services that are in the long-term interests of the consumers we serve.

Our extensive options analysis and supporting detailed cost estimates, developed with the support of industry leading subject matter experts with extensive recent experience implementing similar programs in comparable network businesses, demonstrates that the forecast costs are efficient, and represent the costs that a prudent operator would require to achieve the capital expenditure objectives.

Overview	Project summary
ERP Upgrade Program Brief	Ausgrid's ERP covers three major systems: Meter Data Management and Billing (**MDM/B**), core ERP (finance, people, supply chain, procurement, and other core business functions), and Enterprise Asset Management (**EAM**).

* Our forecast costs for the ERP program at the Initial Proposal stage should have been $184 million. This amount was included in our ERP program brief, yet a lower amount $149 million. Refer to **Attachment 5.1, ERP costings correction, page 33-35**.

	The existing ERP system is reaching end of life by 2027 and needs to be upgraded to remain secure and supported. All options considered address this requirement.

FY25-29 $m, real FY24	Initial Proposal	Draft Decision	Revised Proposal
Capex	$76.0m	$4.0m	$59.0m
Implementation opex	$73.0m	$11.8m	$59.0m
Total	$149.0m	$15.8m	$118.0m

Trend analysis	Why our Revised Proposal meets the needs of customers
Our revised proposal is: • **22% less than our Initial Proposal**	Our Revised Proposal of $59 million is 22% less than our Initial Proposal ($76 million). In putting forward a lower forecast, Ausgrid believes the Transformative option remains the best value for customers based on sensitivity analysis and we have responded to the feedback in the AER's Draft Decision by: • Modelling benefits over a 15-year timeframe; • Removal of a 20% contingency from our forecast ERP forecast; and • Phasing the project over 2 regulatory periods to improve deliverability, while focusing on delivering significant value in this regulatory period.
AER draft decision	**How we have responded**
Contingency should not be included in the calculation. Ausgrid's submission included a 20% contingency to reflect project complexity. **Insufficient time has been allowed for "hypercare" periods to embed the changes that the program will deliver.**	The Revised Regulatory Proposal reflects the removal of the 20% contingency. Extension of the delivery timetable to minimise concurrent activity between technical upgrade, MDM/B, ERP and EAM activities resulting in a program that runs into the subsequent regulatory period (FY30-34). The net effect of delivering the program across seven financial years (four in the draft proposal) and reducing the cost by 20% is to improve the NPV of the transformation option as calculated by the AER. This occurs despite the curtailment of benefits and means that the transformation option represents the best value for customers. Adopting these changes reduces the FY25-29 ERP expenditure to $118 million (draft proposal $184 million) and moves $34 million (23%) into the FY30-34 regulatory period. This represents delivery of considerable value during FY25-29 period.
All benefits should be calculated over the 15-year useful life of the asset.	The Revised Regulatory Proposal reflects the curtailment of all benefits after 15 years and Ausgrid notes that this assumption is conservative. Ausgrid's standard NPV model for evaluating investments extrapolates opex benefits in perpetuity to reflect the nature of benefits that flow to customers over time. This approach is standard as any *future* system replacement investment is assessed against the cost baseline at the time of investment, *inclusive of efficiencies delivered by current investment being considered.* Notwithstanding this, in this instance, and in response to AER feedback Ausgrid has used the 15-year benefit curtailment approach, noting that even when this assumption is relaxed, the recommended option still represents the highest NPV and the best value for customers.

Table of Contents

1. Document governance

1.1. Purpose of this document

The purpose of this document is to outline the program brief for a proposed program of work that may, subject to investment governance processes, form part of our 2025-29 regulatory proposal.

Related documents

Document	Version	Author
Attachment 5.9 - Technology Plan	V3.0	Matthew Erikson
Attachment 5.9.h - ERP Upgrade - CBA model	V1.0	Richard McIntosh
Consolidated Cost Model	V19	Heidi Henderson

Document history

Date	Version	Comment	Person
14/02/2022	V1.1-2	Draft	Richard McIntosh
08/07/2022	V1.3-1.16	Reviewed and updated CBA	Richard McIntosh
24/10/2023	V2.01	Revised Proposal	Richard McIntosh
15/11/2023	V2.02	CIO Review	Ryan Hewlett
30/11/2023	V2.03	Final – Revised Proposal	Richard McIntosh

Approval(s)

Name	Position	Date
Rebecca Ding	Head of Transformation	31/10/2023
Ryan Hewlett	Chief Information Officer	15/11/2023
Junayd Hollis	Group Executive – Customer, Assets and Digital	30/11/2023

2. Executive summary

The Enterprise Resource Planning Program (**ERP Program**) is comprised of the following technology footprint:

- Enterprise Asset Management (**EAM**);
- Enterprise Resource Planning (**ERP**); and
- Meter Data Management and Billing (**MDM/B**).

This investment program plans to modernise these three critical business systems in alignment with our ICT Asset Lifecycle Management Guidelines and our risk appetite. This will unlock multiple ongoing customer benefits in alignment with our customer-centric strategy. This will be achieved through:

- Simplification of technology landscape;
- Streamlined end to end processes with higher level of automation; and
- Better decision making as a result of data quality improvements and data model standardisation.

The ERP Program examined three options in detail and the 'Enhance option' was determined to be the preferred outcome because, by investing in an ERP Transformation, it ensures that our critical business systems will operate securely, efficiently and prudently to drive value for customers.

In the long term, there is a much larger opportunity cost to Ausgrid and our customers if we were to only progress a technical upgrade and forego the benefits that can be enabled from a full ERP Transformation. The complexity of transitioning even a limited set of SAP systems to the Oracle product made the 'New option' prohibitively expensive.

In October 2023, Ausgrid revised the delivery and modelling assumptions for the presented options in response to the AER's feedback in their Draft Decision. The revised assumptions include:

- curtailment of all benefits after 15 years, noting that Ausgrid believes this assumption is conservative and does not reflect the long-term benefit that customers realise from efficiency improvements delivered by an ERP Transformation (given any future ERP replacement investment would be assessed against the cost baseline at that time, and not the cost baseline that existed before the current ERP was implemented);
- removal of the 20% contingency; and
- extension of the timetable to minimise concurrent activity between technical upgrade, MDM/B, ERP and EAM activities resulting in a program that runs into the subsequent regulatory period.

Having applied these changes in assumptions, the Enhance option still represents the best value option for customers.

Options considered	1: Base option- Technical upgrade	2: Enhance option- 'Transformation' (preferred)	3: New option- Migrate to new vendor option
Description	• System conversion only • Maintains current capability • Reduces risk of system failure and cyber breach • 0 applications consolidated	• Transformation of data, process and technology • Unlocks incremental business and customer benefits • Reduces risk of system failure and cyber breach • Consolidation of ~ 43[3] applications	• Existing ECC6 footprint transitioned to Oracle- excludes MDM/B • Replicates current business functionality, • Reduces risk of system failure and cyber breach • Data and process change to fit to new ecosystem (not directly addressing to business needs) • 0 applications consolidated
Total SCS Cost[4]	$(18.1) million	$(152.0) million	$(98.7) million
Quantitative per annum Benefits	-	$18.7 million	$3.5 million
NPV	$(17.0) million	$(2.9) million	$(24.6) million

Table 1 Options considered[5]

[3] *Source: Ausgrid Enterprise Architecture Repository (Abacus) as at 9th August 2022.*

[4] *CAM allocated standard control services component.*

[5] *Total SCS costs from FY25-31.*

Executive summary	
Key Objective(s) of the program	• To ensure our EAM, ERP and MDM/B systems are prudently and efficiently maintained such that they remain sustainable, secure, efficient, and compliant in alignment with our *ICT Asset Lifecycle Management Framework*; • To replace our EAM and ERP system, which the vendor has notified will reach end-of-life/support in 2027 (SAP has notified support will not be available on our current version past 2027); • Standardise business operations with best practices that are proven, documented and ready to use; • To refresh our ERP ecosystem, parts of which will have been in operation for 31 years (from 1996 to our planned replacement date of 2027); • To ensure our ICT systems are provided in a cost-effective and resilient manner; and • To modernise and transform our ICT assets to better support network operations. Our goal is for ICT assets to provide frictionless services to support network operations and customer services.
Customer benefits	• Keeping our EAM, ERP and MDM/B systems up-to-date and supported by vendors, which: – Reduces the risk of system failure or interruptions to services for customers; – Enables a flexible and modern billing system which will help us respond to future tariff reforms; – Enables reliable and consistent data for benchmarking to support regulatory and commercial decisions; – Reduces risk of potential security vulnerabilities by ensuring secured financial, asset, corporate and customer data; – Enables continued delivery of safe and reliable electricity services, and billing to customers; – Improves efficiency and data quality across our MDM/B footprint, resulting in fewer billing enquiries and disputes; and – Allows access to new capability and offers flexibility to better meet customer needs now and in the future. • Reducing customer bills by improving and modernising our EAM capabilities. This will enable us to: – Maintain network opex at current levels by offsetting cost increase in other areas of the business; – Reduce network repex through access to integrated data that helps optimise estimations for network planning and unit rates; and – Reduce other non-maintenance network opex.

Executive summary								
Regulatory requirements	• National Electricity Law (**NEL**) and National Electricity Rules (**NER**) - Ensuring that our ERP is highly available and accessible enables our critical business services to meet these Rules; • Security of Critical Infrastructure Act 2018 and Security Legislation Amendment (Critical Infrastructure) Act 2021 – Keeping our ERP, EAM and MDM/B systems up to date, supported and secured is a key enabler to comply with this Act; and • Privacy Act 1988, Information Privacy Act 2014 - Having up to date and supported ERP and MDM/B systems is a key enabler to appropriately securing corporate, asset and customer information and reducing the risk of a data breach.							
NPV calculations	**Customer:** N/A	**Shareholder:** N/A				**Total:** $(2.9) million		
Program timing	**Program duration**	7 years						
	Program start year	FY25	Q1 ☒	Q2 ☐	Q3 ☐	Q4 ☐		
Expenditure forecast	**($ million)**	**FY25**	**FY26**	**FY27**	**FY28**	**FY29**	**FY30+**	**Total**
	CAPEX	(4.2)	(8.8)	(18.7)	(15.3)	(11.9)	(17.1)	**(76.0)**
	OPEX	(4.2)	(8.8)	(18.7)	(15.3)	(11.9)	(17.1)	**(76.0)**
	Total SCS[6]	(8.3)	(17.6)	(37.4)	(30.6)	(23.7)	(34.3)	**(152.0)[7]**
Program type	**ICT investment**	☒ Yes				☐ No		
	Recurrent ICT	☐ Yes				☒ No or n/a		
	Non-recurrent ICT	☒ Yes				☐ No or n/a		
	One-off SaaS opex	☒ Yes				☐ No or n/a		

Table 2 Executive Summary

[6] *CAM allocated standard control services component.*

[7] *Due to rounding, some totals may not correspond with the sum of the separate figures.*

3. Context

We know the energy market in ten years' time will change dramatically. The quantum of the impact and timing is unknown, but the change will directly impact us and our customers. Our ability to deliver on our strategy will require a foundation of data enablement, integration and automation enabled by a modern ERP, EAM and MDM/B systems that are core to our everyday operations and interacting with our customers.

This program brief considers our ERP Program, which includes the modernisation of the ERP, EAM and MDM/B systems, and transformation of related business processes to:

1. Deliver better customer and partner experiences by modernising critical business systems, it will progress our customer centric strategy unlocking customer benefits over the long term (noting that enduring customer benefits are curtailed in the modelling by the application of a 15-year benefit assumption);
2. Enable risk mitigation – our ICT policy mandates that critical business systems must be supported/operating without vendor support is outside our risk appetite;
3. Respond to and resolve outages and incidents efficiently;
4. Implement modern tools that provide frictionless services to support network operations and customer services; and
5. Enable cost optimisation through the simplification of the technology landscape, streamlined end to end processes with a higher level of automation and better decision making as a result of data quality improvements and data model standardisation.

These systems are closely related and inter-dependent, heavily rely on software systems developed by SAP SE, and are utilised across a significant number of our critical business processes. Our ERP and EAM systems are currently on SAP ERP Central Component version 6 (**ECC6**). This version is due to reach end-of-life/support in 2027 as confirmed by the vendor.

This sets a hard deadline for us to renew these critical systems and associated applications in alignment with our *ICT Asset Lifecycle Management Guideline*. However, it also enables the opportunity to transform the critical functions that these systems support, creating a step-change in capabilities to respond to our changing energy landscape and future network, providing significant benefits to customers.

Section 3.1 details analysis we have completed in identifying the most prudent and efficient approach to our ERP Program.

3.1. Our current landscape

The current landscape is complex and consists of many disparate applications as detailed in **Figure 1 Our current ERP, EAM and MDM/B landscape.**

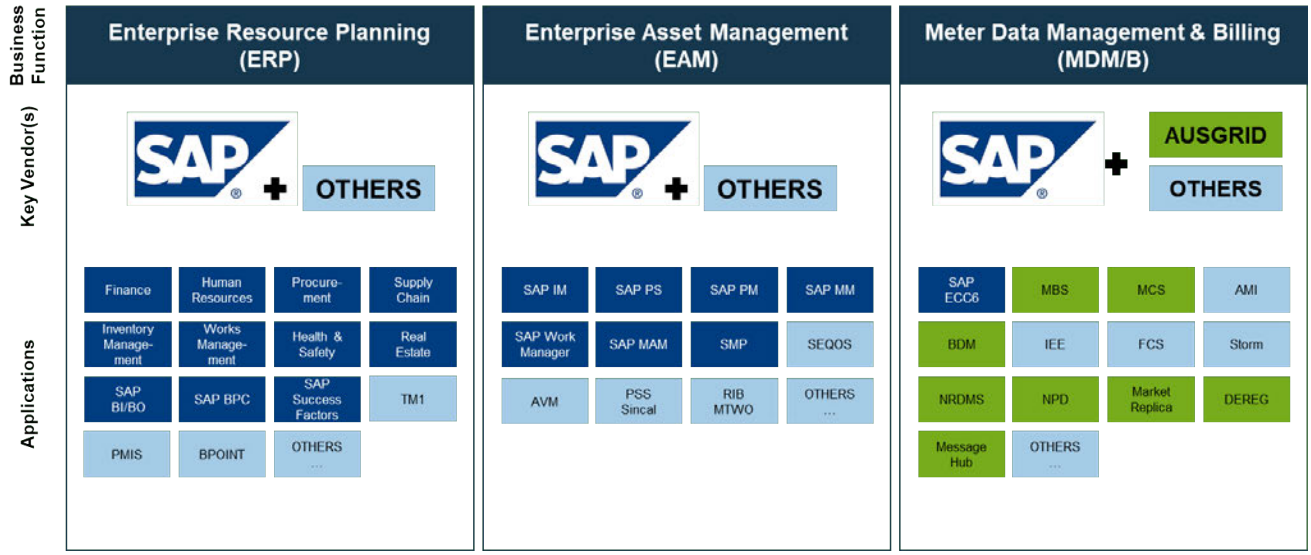


Figure 1 Our current ERP, EAM and MDM/B landscape

Options considered in this analysis were:

- **'Do nothing'.** This option was eliminated – for reasons described below;
- **Option 1: Base option.** Technical upgrade of SAP ECC6 applications to the new, cloud-based version (S/4HANA);
- **Option 2: Enhance option.** 'Transformation' – technical upgrade (Base option) plus a simplification and standardisation of our technical landscape and end-to-end processes. This is the preferred option; and
- **Option 3: New.** Migrate current SAP ECC6 applications to a non-SAP equivalent alternative (equivalent to Option 1, with a new vendor).

3.2. 'Do nothing' option – not considered

This option was eliminated because we are in the process of entering into a new commercial arrangement with SAP called 'RISE with SAP' that enables our current ERP and EAM services to be managed in the cloud until 2027. SAP have advised there will be no support mechanism available beyond 2027 for ECC6.

Whilst we are currently migrating to the cloud to improve security and support until the 2027 retirement of ECC6 system, further action is required beyond this to ensure that these critical systems are supported and that we remain compliant with our licence conditions and address cybersecurity risks:

- Systems that are no longer under vendor support become increasingly vulnerable to cyber-attacks over time;
- Running ECC6 beyond 2027 when vendor support ceases presents a significant risk to our corporate and asset data;
- Our licence obligations require that all critical systems remain secure at all times; and
- If a cyber attack on our systems were successful this puts our critical services and network at risk and could lead to possible outages and supply interruptions.

3.3. Option 1: Base option. Technical upgrade

This option considered an upgrade of SAP-based applications to the new, cloud-based version (S/4HANA), but business processes would remain the same, and there would be no changes to the integration and interoperability of SAP and non-SAP applications. The new technology landscape is largely unchanged as detailed in **Figure 2 Our ERP, EAM and MDM/B landscape under technical upgrade option.**

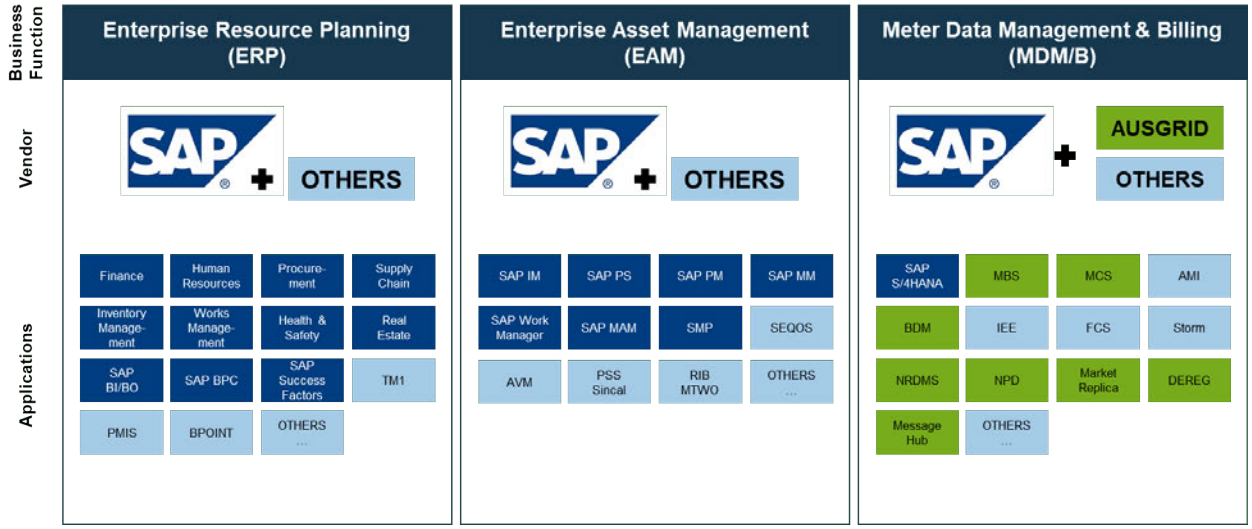


Figure 2 Our ERP, EAM and MDM/B landscape under technical upgrade option

3.4. Option 2: Enhance option. 'Transformation' (preferred option)

This option upgrades existing SAP applications to the new cloud-based version (S/4HANA), and includes the adoption of new SAP applications which will allow us to decommission several legacy and custom-developed applications. This will also enable increased integration and interoperability of systems, reduce the need for manual workarounds (e.g., for reconciliation of billing and invoicing data from multiple systems), increase the use of automation to reduce errors, and improve data quality. There are also a number of system-specific advantages to this such as the integration of near-real-time, Internet of Things (**IoT**) data into our EAM system which will increase asset longevity and reduce network capital expenditures, all of which will be in the long-term interests of our customers (recognising that enduring customer benefits are curtailed in the NPV modelling by the application of a 15-year benefit assumption).

The new landscape under this option is summarised below. This landscape is considerably more efficient and simpler than our current landscape.

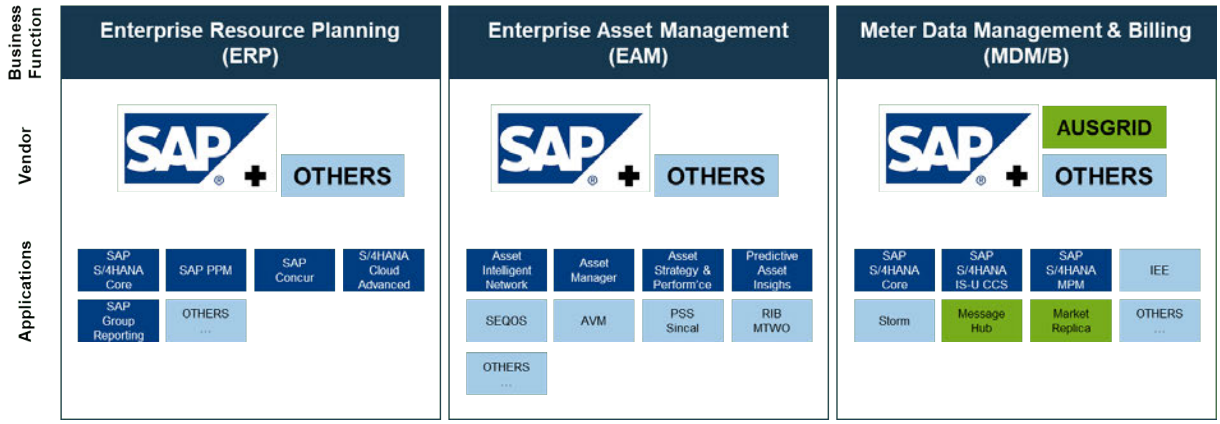


Figure 3 Our preferred ERP, EAM and MDM/B landscape

3.5. Option 3: New option. Migrate to new vendor option

Under this option, we would migrate all SAP applications to a non-SAP equivalent system. The non-SAP equivalent alternative considered was Oracle Cloud Applications. As an asset intensive business we require a tier one solution that provides proficient capabilities across both EAM and ERP to support our critical business operations. Architectural analysis identified that Oracle presented the closest comparison in ERP and EAM capabilities to SAP that is suitable for a Distribution Network Service Provider (**DNSP**).

The scope of this option was limited to the ECC6 application footprint and excludes non-SAP systems. This option has a similar target landscape and capability to the Base option and does not include integration and interoperability improvements, as analysis has identified that the migration to a non-SAP equivalent system alone is of such a high expenditure level that the addition of transformation activities would eliminate it from being viable as it does not meet the prudency and efficiency test. The landscape for this option is summarised below.

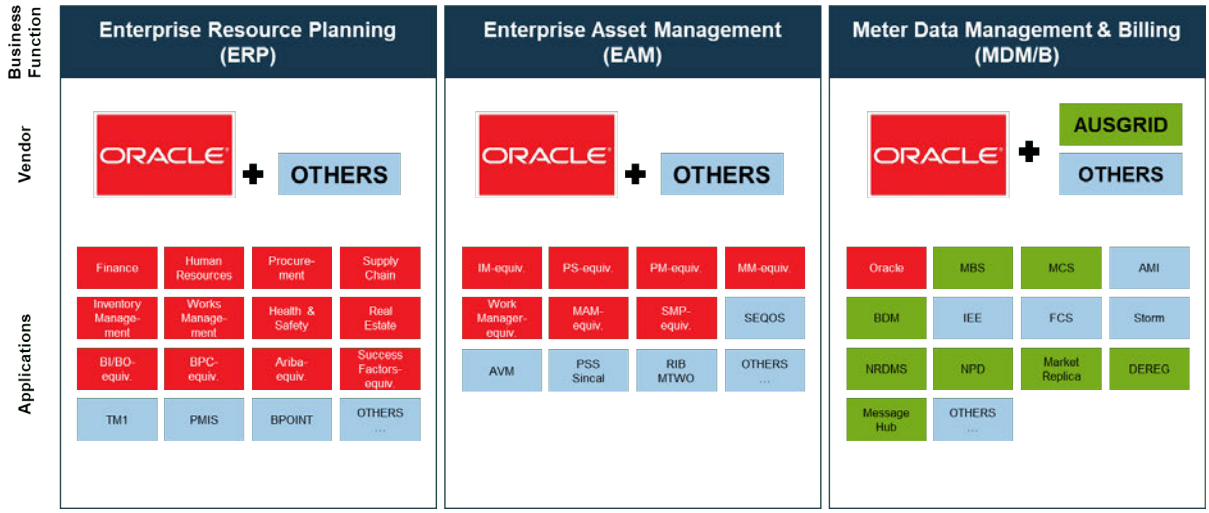


Figure 4 Our ERP, EAM, MDM/B landscape under migrate to new vendor option

4. Program Brief

4.1. Background

4.1.1. EAM

4.1.1.1. What is an EAM system?

EAM systems help organisations to manage the maintenance of physical assets over their lifetime. These systems help to reduce unplanned downtime and extend asset longevity. An EAM system is used to plan, optimise, execute, and track maintenance activities. These systems also communicate and allocate tasks and costs to different business units. EAM system functions can be summarised as:

- Asset lifecycle management;
- Supply chain management;
- Maintenance planning and scheduling;
- Monitoring; and
- Reporting and analytics.

4.1.1.2. Our distribution network assets

We are an extremely asset-intensive organisation. In FY21, our network supplied almost 25TWh of electricity to more than 1.75 million network customers, or over 6 million people. Our distribution area covers an area of over 22,000 square kilometres and includes the Sydney, Central Coast, Hunter Valley and Newcastle regions of NSW. A schematic which provides an overview of the network asset we manage using our EAM system has been included in **Appendix 3 Schematic of our network assets**.

Increasingly, physical assets are fitted with sensors, instruments and other devices which collect and share data over the internet, known as IoT. This allows organisations to move away from traditional asset management strategies, with predetermined asset lifetimes for example, and begin incorporating real-time information. Access to real-time data allows organisations to identify unusual data trends to address and mitigate defects that could lead to asset degradation.

4.1.1.3. Our EAM system

Our current EAM system is based largely on software systems developed by SAP SE, with SAP's core asset management system implemented in 2009. Our EAM systems heavily interface with a range of other central enterprise systems such as finance, human resources, procurement, supply chain, our Geographic Information System (**GIS**), Supervisory Control and Data Acquisition (**SCADA**), field applications, Advanced Distribution Management Systems (**ADMS**), Integrated Works Management System (**IWMS**) and our Property Management Information System (**PMIS**). However, integration with other asset management tools for planning and analysis is very limited.

As of 2022, all data and information relating to this software system is stored on-premises, with Ausgrid responsible for hosting and infrastructure management, associated costs, and risks[8].

The key EAM applications currently used by Ausgrid are:

- SAP Investment Management (**IM**);
- SAP Project System (**PS**);

[8] As noted in other sections, we will enter into a new commercial agreement termed 'RISE with SAP' before the start of the 2025-29 regulatory period which will see us move all SAP-based applications from on-premises to cloud-based.

- SAP Plant Maintenance (**PM**);
- SAP Material Management (**MM**);
- SAP Work Manager;
- SAP Mobile Asset Management (**MAM**),; and
- SAP Mobile Platform (**SMP**).

Further information regarding these can be found in **Appendix 5 SAP based EAM applications**.

4.1.2. ERP

4.1.2.1. What is an ERP system?

An ERP system is core system of record for managing corporate information. It comprises several applications that interact across business functions. We use our ERP system to help consolidate data/information from multiple business functions into one centralised database. This data is used for a wide variety of tasks by different business functions. An ERP system improves cross-business function visibility, employee collaboration, data quality and creates efficiencies with people spending less time searching for data. For example, employees from the finance and procurement business functions can rely on the same information for their specific needs.

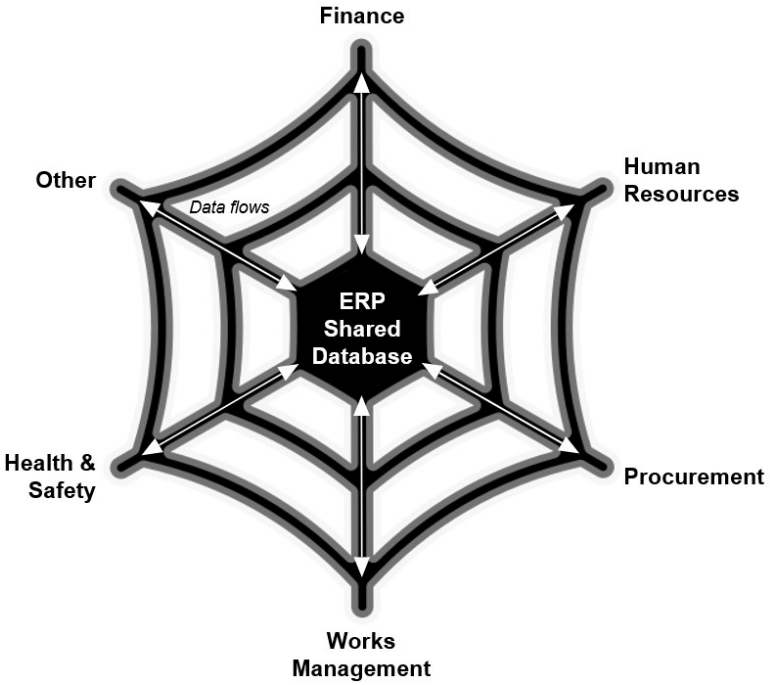


Figure 5 ERP system improves cross-function visibility and create efficiencies

4.1.2.2. Our ERP system

Our current ERP system is based predominantly on software applications developed by SAP SE, including SAP software-as-a-service (**SaaS**) applications. However, it also consists of many applications from other providers.

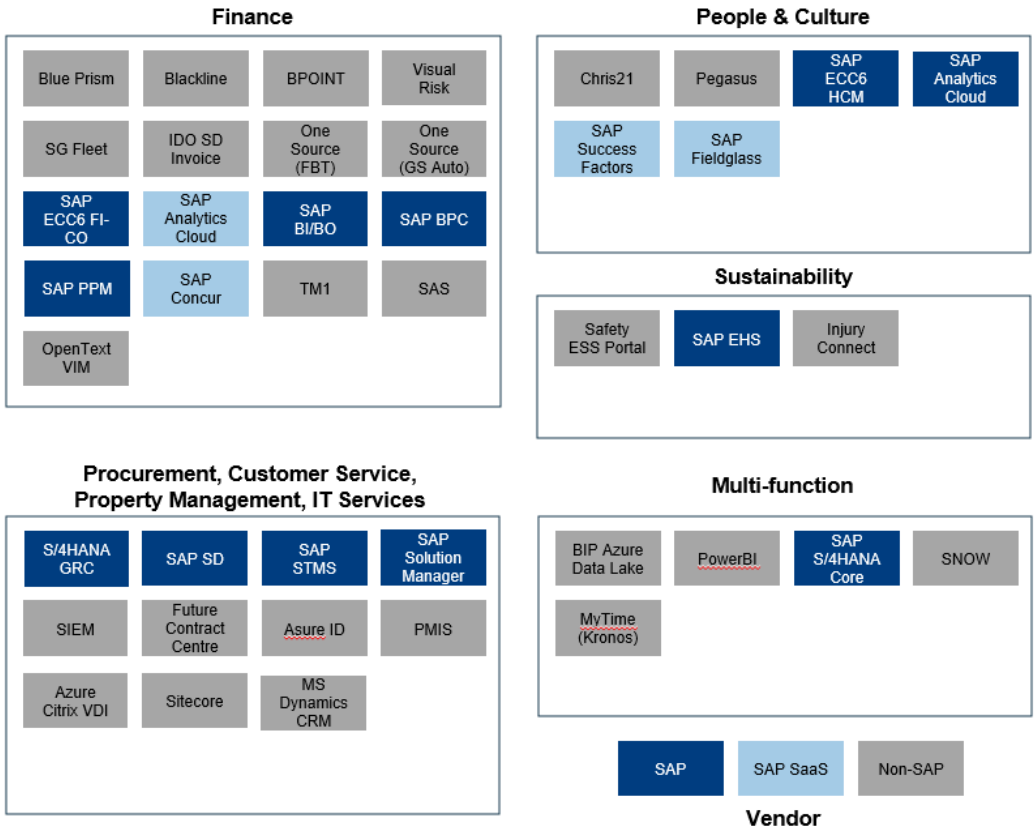


Figure 6 Our ERP landscape

Our use of SAP-based ERP system dates back to 1996 when an earlier version, R/3, was implemented for finance, procurement and inventory management. All data and information relating to our SAP ERP software system is stored on-premises, with Ausgrid responsible for hosting and infrastructure management, associated costs and risks.

SAP's ERP software comprises several modules (opt-in, at an additional cost) which can be integrated to support a number of business, planning and management functions. The key modules activated for us are described below.

The key ERP applications currently used by us are:

- SAP Financial Accounting-Controlling (**FI-CO**);
- SAP Analytics Cloud;
- SAP Business Insights/Business Objects (**BI/BO**);
- SAP Business Planning and Consolidation (**BPC**). BPC will be decommissioned in FY2022 and will be replaced with SAP Analytics Cloud;
- SAP Portfolio and Project Management (**SAP PPM**);
- SAP Concur;

- SAP Sales and Distribution (**SD**);
- SAP Transport Management System (**STMS**);
- SAP Solution Manager;
- SAP Governance, Risk, and Compliance (**GRC**);
- SAP Human Capital Management (**HCM**);
- SAP Success Factors;
- SAP FieldGlass; and
- SAP Environment Health Safety Management (**EHS**).

Further information regarding these can be found in **Appendix 6 SAP based ERP applications**.

Our current ERP system is functional, but it contains a number of legacy and duplicate applications. Some, including some SAP modules, are not properly integrated and several are approaching end of support/life. This creates a risk of poor data governance, resulting in poor data quality and control. These issues can be summarised as:

- A lack of process automation with multiple, manual steps involved in process flows, end-to-end processes not integrated/with gaps;
  - For example, numerous time-consuming steps are required to do financial period close and consolidation;
- Disparate systems resulting in customised and inconsistent processes;
  - Opportunities to improve master data governance to avoid complex and disjointed data sources for reporting;
  - There is no enterprise-wide common process for budgeting and forecasting. There are a high number of off-system activities, in addition to using tools like TM1, a business performance management software;
- Systems are not optimally integrated;

  For example, Finance master data is complex and customer master data governance needs to improve to ensure ongoing compliance, data quality and integrity are maintained. Currently there is a need to use multiple systems to manage the master data across different domains.

4.1.3. MDM/B

4.1.3.1. Our meter data management and billing systems

We currently operate a suite of 44 third-party and internally developed MDM/B applications and systems which are vital to our market management. These applications collect and provide central storage and validation of electricity meter and customer data. These systems also manage communications and data sharing with other market participants and billing with customers. MDM/B applications ensure we deliver on mandatory compliance obligations as a DNSP, Metering Coordinator (**MC**), Metering Provider (Accreditation B – MPB) and Meter Data Provider (**MDP**) and are fundamental to maintaining our licence to participate in the Australian National Energy Market (**NEM**).

The capabilities provided by the MDM/B suite of applications can be summarised as:

- Meter data management and processing;
- Distribution network data maintenance;

- Australian Energy Market Operator (**AEMO**), Market Settlement and Transfer Solutions (**MSATS**) and other market interactions;
- Network billing;
- Regulatory/compliance recording and reporting (including life support obligations);
- Processing dis/connection applications for customers; and
- Network response call handling.

The MDM/B applications currently supporting these capabilities are:

- Metering Business System (**MBS**);
- Meter Configuration System (**MCS**);
- NEM Payload Distributor (**NPD**);
- Field Collection System (**FCS**);
- Billing Data Management (**BDM**);
- Messagehub;
- SAP IS-U/CCS;
- Network Reconciliation & Dispute Management System (**NRDMS**); and
- Itron Enterprise Edition Meter Data Management (**IEE**).

Further information regarding these can be found in **Appendix 7 MDM/B applications**.

4.1.3.2. How do MDM/B systems interact with SAP

The diagram below shows how SAP ECC6 applications are an integral part of our network billing process. Network billing processed from meters in our network area is greater than $150 million per month.

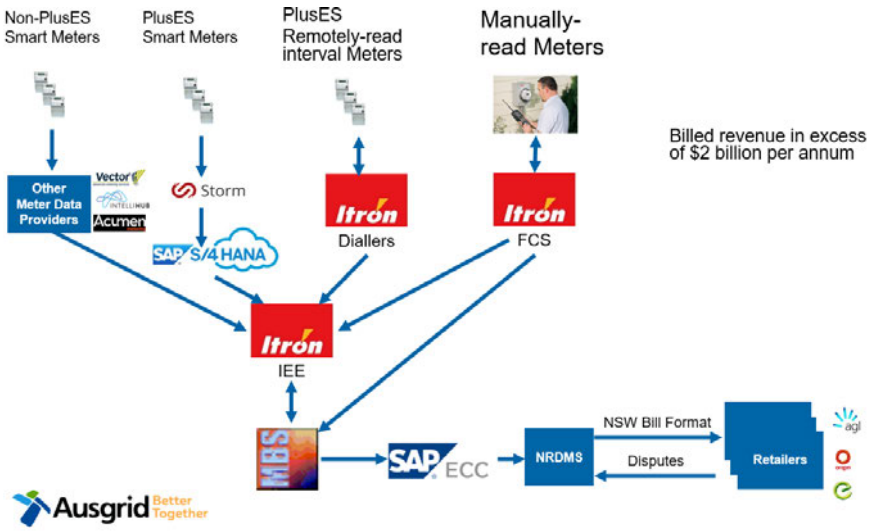


Figure 7 Our Network Billing Process Diagram

4.2. Problem / opportunity

4.2.1. SAP ECC6 reaching end of life

Our EAM, ERP and MDM/B systems are all core systems of record that are critical in supporting our day-to-day network operations as a DNSP. As confirmed by the vendor, our current SAP version ECC6 will reach end-of-life/support in 2027.

The risks associated with unsupported EAM, ERP and MDM/B systems present an unacceptable risk exposure to our customers and our workforce. An example of this could include degradation or failure of network assets due to delays in maintenance activities. Such risks could translate into major disruptions, outages, or failures across the network impacting overall reliability of the network.

A system outage or failure could also impact the following back-office functions:

- Billing – resulting in a delay or inability to correctly calculate, report and communicate cash receivables and payables or process payroll transactions in a timely manner;
- Finance systems - facilitating the settlement of Network Billing with other participants;
- Human resources systems – resulting in a delay or inability to resolve workforce issues, record and ensure that our staff receives appropriate training (including safety training);
- Procurement systems – resulting in a delay or inability to acquire essential materials/services needed to ensure continued delivery of safe and reliable electrical services to customers;
- A number of other systems which interface with our ERP system and are essential in delivering safe and reliable electrical services to customers;
- Our ability to comply with regulatory, financial and human resources requirements; and
- Cyber-security – An unsupported ERP system (which is integrated across all parts of our business) significantly increases the risk of:
    - System vulnerabilities not being patched exposing us to potential exploitation of these vulnerabilities;
    - Undetected data corruption, manipulation or loss of system availability;
    - Ex-filtration or disclosure of personal or sensitive information;
    - Loss of control of ERP application components; and
    - Threat of hostile takeover (such as Ransomware).

4.2.2. EAM

The Problem

In its current state, our EAM system stores asset activity and lifecycle information, but does not capture near-real-time information that can be used to further develop asset intelligence and better assess asset performance. We are also unable to easily integrate customer asset information from Consumer Energy Resources (**CER**). CER is growing in our network and better asset information will be an integral part of our future network to drive value and affordability for our customers.

Other issues with our current EAM system include:

- Our asset system landscape is highly fragmented meaning multiple systems are required to manage assets; and
- Asset maintenance planning is manual with limited automation or machine learning to support sophisticated and efficient decision making.

Our EAM system is key to the continued safe and efficient operation of the network. The system is integral to the planning, management and recording of asset maintenance activities which enable us to operate the network efficiently and ensure that network expenditure is optimised as not to cause unnecessary price pressure to our customers.

4.2.3. ERP

The Problem

Our ERP system is key to business planning and management functions which enable us to operate efficiently. In its current state, our ERP system is fragmented with heavily manual processes needed to reconcile and consolidate data from multiple systems. Manual intervention increases data quality issues and risks the integrity of our data, which can impact our ability to make the prudent decisions for our customers. This additional effort also results in unnecessary overheads which have a negative cost impact on bills for our customers.

Other issues with our current ERP system, specific to finance include:

- Need to manually access multiple non-integrated systems to obtain data for reporting and presentation purposes;
- Unable to easily present business results in multiple views (e.g. for Board, the regulator, and for intercompany reporting); and
- Intercompany elimination and financial consolidation processes are highly manual and time consuming.

Other issues with our current ERP system, specific to health and safety include:

- Inconsistent capturing and management of EHS information e.g. Some users complete PowerApps forms, whilst field staff still use paper;
- Health assessment/checks information and history is captured manually and stored across multiple third-party providers and spreadsheets; and
- EHS systems are poorly integrated with other key business systems to easily link EHS data to asset and locational information.

4.2.4. MDM/B

The Problem

In its current state, our current MDM/B landscape is complex and relies on multiple systems and technologies to deliver services. Some legacy elements are becoming increasingly difficult to maintain and source expertise in and ensure ongoing support for. Key issues as a result of this include:

- Inconsistent data exists across systems requiring manual reconciliation of network billing and invoicing that increases the risk of human error and can negatively impact our data integrity;
- Incorrect billing data results in customer disputes which consume large amounts of time and negatively impact our customer's experience;
- There is no single view of billing and invoicing transactions which makes it difficult for us to efficiently respond to customer enquiries in a timely and accurate manner; and
- Manual intervention results in complex and laborious reporting.

The Opportunity

Our MDM/B systems support our metering and billing functions and are a core system of record for all meter data and billing information. Prudent and good industry practice ICT asset lifecycle management requires us to ensure this system is maintained and kept up to date to avoid escalating risks of system performance degradation. Furthermore, proper maintenance

of MDM/B systems lowers the risk of disruption to market and business operations, reduces cost of processing bills, and provides better and more accurate information to support our future billing capabilities that enable us to efficiently manage more complex pricing and tariff structures.

There is an opportunity for us to achieve economies of scale in upgrading and modernising ageing and heavily customised MDM/B applications due to the heavy integration and downstream dependencies with SAP ECC6. In doing so, we would be more agile in responding to future regulatory and market changes and tariff reforms. We would also avoid ICT costs related to system/programming adjustments on an ad-hoc basis. This would provide ongoing positive impacts to customer billings by avoiding high ICT related costs normally associated with these changes. A modernised system would also result in improved data quality and data security, thereby reducing disruption risks to us and our customers.

4.3. Investment objectives

Under the proposed programs of work, by 2029 we are aiming:

- To ensure our EAM, ERP and MDM/B systems are prudently and efficiently maintained such that it remains sustainable, secure, efficient, and compliant in alignment with our *ICT Asset Lifecycle Management framework*;
- To replace our EAM and ERP systems, which the vendor has notified will reach end-of-life/support in 2027;
- Standardise business operations with best practices that are proven, documented and ready to use;
- To ensure our ICT systems are provided in a cost-effective and resilient manner; and
- To modernise and transform our ICT assets to better support network operations. Our goal is for ICT assets and services to be invisible tools providing frictionless services to support network operations and customer services. This will:
  - Provide a transformed MDM/B system which will reduce complexity and improve integration and interoperability across enterprise and field operations applications by rationalising and consolidating our MDM/B footprint;
  - Remove technical debt[9] and ensure that compliance is maintained at existing service levels into the future by modernising and augmenting bespoke applications that rely on obsolete technology; and
  - Ensure we have modern MDM/B systems that are able to adapt to future regulatory changes thereby reducing ICT costs for configuration and integration when required.

4.4. Customer outcomes

Through a co-design process with customer advocates, we identified themes that will define our business into the future. The themes that are positively impacted by the ERP Transformation Program are detailed below.

Objectives	Actions	Measures

[9] In the case of Ausgrid's ERP ecosystem, technical debt exists in the extensive customisations that have been made to the SAP technical environment to solve business problems across the 20-year lifespan of this environment. This has resulted in a complex architecture which is difficult to maintain and costly to change. Analogous with monetary debt, if technical debt is not repaid, it can accumulate "interest", increasing support costs and making it more costly to implement changes in the future.

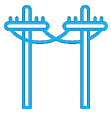
Thriving Communities ***Listen and understand to exceed customer expectations*** 	• Support our customers to build resilient communities with a safe and reliable network • Strive to resolve customer issues quickly and meet changing expectations • Support customer choice by providing options and information • Continue to build trust and collaborate with our stakeholders	• Customer confidence score • Partner confidence score • Service ease score • Service resolution score
Valued People ***Put our people at the heart to make Ausgrid a great place to work*** 	• Harness our knowledge and resources to work safely and efficiently • Be inclusive, capable and informed with our diverse, trusted workforce • Enable our people to work smarter by simplifying processes and systems • Collaborate and support each other	• Zero fatalities • Total Recordable Injury Frequency Rate (**TRIFR**) • Employee engagement • Female people leaders
Optimised Assets & Operations **Excel at operations to deliver safe and affordable services** 	• Improve operational efficiency • Lift our digital and data capabilities to make fast, evidence-based decisions • Enhance effectiveness of internal services • Grow revenue by leasing our assets	• Standard Control Services (**SCS**) opex • Delivery of network CAPEX program

Table 3 Summary of Customer Outcomes Themes

On these, this program of work is aligned to the following themes:

- **Thriving Communities** - Ensuring the safe, reliable, efficient, and compliant continued functionality of our EAM, ERP and MDM/B systems by investing in a system-wide upgrade will provide significant resilience benefits to customers including:
  - By taking a consolidated approach to the ERP/EAM upgrades and MDM/B modernisation we can gain economies of scale and drive further long-term efficiencies for our customers by transitioning much of the MDM/B footprint to SaaS. This will also enable future network and CER initiatives related to dynamic billing and pricing that will give customers more options and choice.
  - An EAM system upgrade mitigates the potential for network interruptions and maintenance delays caused by security vulnerabilities in an out-of-date system; and
  - An ERP system upgrade mitigates potential security vulnerabilities by keeping security patches are up to date, thereby reducing the risk of unauthorised access resulting in data loss or loss of business services to customers (such as payment services).
- **Valued People –** The capabilities enabled by the ERP Transformation Program will enable our people to work safer, more efficiently and smarter. This will be achieved through:
  - System upgrades improving safety, reliability, and network security by enabling business processes to be supported with optimised technology solutions that have appropriate service level agreements (SLAs), and prevents degradation of assets (EAM) and performance (ERP) and possible disruption to core business and network services; and
  - Modernisation of processes enables our people to focus on the things that matter such as customer interactions. It will also provide accurate visibility of data and insights that will help us with responding to customer enquiries and improve customer experience.
- **Optimised Assets & Operations –** By utilising modern capabilities in the EAM, we will be able to better leverage data near-real-time data from CERs in our network to better inform asset management decisions related to asset planning and performance. This will help reduce costs on customer's bills through better optimisation of network assets and enabling informed decisions on where investment deferrals can be made.

4.5. Business drivers

The key business drivers behind this proposed investment are that by 2029 we will need to be able to:

- Maintain reliability of services;
- Ensure critical business systems are secure and up-to-date mitigating unnecessary vulnerabilities; and
- Adapt to changing business and regulatory demands (e.g., future network, remote working, cloud connectivity to third party services, increased data, and service loads).

4.6. Compliance requirements

The proposed program of work is required to meet regulatory obligations. The obligations, along with a brief description of the requirement, relating to the obligation are set out below.

Obligation	Description of Requirement
Security of Critical Infrastructure Act 2018	The Security of Critical Infrastructure Act 2018 (SOCI) applies in managing national security risks relating to critical infrastructure. The Security Legislation Amendment (Critical Infrastructure) Bill (SLACI) 2021 introduces new requirements: additional positive security obligations for critical infrastructure assets, including a risk management program, to be delivered through sector-specific requirements, and mandatory cyber incident reporting; enhanced cyber security obligations for those assets most important to the nation, described as assets of national significance; and government assistance to relevant entities for critical infrastructure sector assets in response to significant cyber-attacks that impact on Australia's critical infrastructure assets[10]. Consultation on the second amendment to the SLACI Bill has occurred in early 2022 and impacts on the prioritisation of cyber security uplift investments that will be required, including the replacement of legacy infrastructure detailed in this program brief are currently being reviewed. Keeping our critical EAM, ERP and MDM/B systems up-to-date supported and secured is a key enabler of complying with this act.
Record Keeping	The State Records Act 1998 (NSW) directs that all organisation records are stored in a way that makes sure the organisation meets its legislative and regulatory requirements. Under Section 11(1) of the State Records Act "each public office must ensure the safe custody and proper preservation of the State records that it has control of". Keeping our critical EAM, ERP and MDM/B systems up to date, supported and secured is a key enabler of complying with this act.
Privacy Act 1988	As specified in the *Privacy Act 1988*, we are required to maintain strong controls and security on the accessibility of customer data as well as ensuring appropriate availability of data. Keeping our critical EAM, ERP and MDM/B systems up to date, supported and secured is a key enabler of maintaining these controls.
NEL and NER	The NEL requires us to promote efficient investment in, and efficient operation and use of electricity services for the long-term interests of consumers of electricity with respect to price, quality, safety, reliability, and security of supply of electricity as per the National Electricity Objective. The long-term interest of consumers now extends to the achievement of Commonwealth, State and Territory targets for reducing Australian's greenhouse gas emissions. The operating and capital expenditure objectives set out in the NER require us to maintain both the quality, reliability, and security of supply of standard

[10] Security Legislation Amendment (Critical Infrastructure) Bill 2021 Explanatory Memorandum: JC000738.pdf;fileType=application/pdf (aph.gov.au)

Obligation	Description of Requirement
	control services and the safety, reliability and security of the distribution network.

Table 4 Summary of Compliance Requirements obligations

5. Options

This section provides an overview of a select number of options which could credibly address the need to update our EAM, ERP and MDM/B systems. The NPV associated with each option is also noted.

5.1. Overview of options

Three options have been considered, which are listed in the table below. All options considered will be vendor supported with current vendor software maintained and security patching applied mitigating support risk while reducing the risk of system failure and cyber security breaches.

In this context, a "modernised system" is one that is at current or near-current version, having enhanced application functionality, modern API-based integration, latest cyber security controls, and hosted on scalable, consumption-based cloud infrastructure. This description applies to Options 2 and 3.

Under option 1, the ERP, EAM and MDM/B footprints and landscapes remains unchanged, fragmented and heavily customised. Option 1 does not include any business process change as further outlined in section 5.2.1.

The preferred option is 'Option 2: Enhance', based on quantitative analysis demonstrating that it will modernise and transform our core EAM, ERP and MDM/B systems to better support network operations and servicing our customers at the lowest cost. Both Option 1 and 3 do not enable us to transform our EAM, ERP and MDM/B systems or our business.

Option	Component		Description	NPV
Option 1: Base Case	EAM ERP	Technical upgrade of SAP ECC6 applications to S/4 HANA	• Our legacy EAM and ERP systems will undergo a system conversion, often referred to as a "brownfield" approach whereby the existing ECC6 EAM/ERP system is converted to S/4HANA but does not include any business/systems transformation; • This option maintains current capabilities and does not include process transformation or related efficiency gains; and • Our EAM and ERP landscapes remain unchanged, fragmented and heavily customised. However, this option does reduce the risk of system failure and cyber security breaches.	**($17.0) million**

Option	Component		Description	NPV
	MDM/B	Maintain current legacy and bespoke MDM/B systems & perform technical upgrade of SAP ECC6	• We will maintain the 44 bespoke and legacy MDM/B systems which currently interface with SAP ECC6. We will perform a technical upgrade of SAP ECC6 applications to the new S/4HANA version, but not include any business/systems transformation; • Our MDM/B applications will continue to be hosted on-premises; and • Our MDM/B applications will still also require technical updates to remain supportable.	
Option 2: Enhance (Preferred)	EAM	Full EAM transformation	• Our legacy EAM and ERP systems will undergo a system conversion, from ECC6 to S/4HANA; • Our heavily customised and fragmented EAM and ERP landscapes will be consolidated and simplified to automate several manual processes; and • Various additional capabilities such as those related to asset performance management and modernised billing will be enabled providing significant benefits to customers. This will provide more transparent and efficient financial and asset data, and reporting processes, and reduce costs on bills through enabled ICT, back office, and network savings.	**$(2.9) million**
	ERP	Full ERP transformation		

Option	Component		Description	NPV
	MDM/B	Upgrade and consolidate MDM/B systems in S/4HANA	• We will upgrade and migrate MDM/B applications to SAP S/4HANA modules (where possible). • Key initiatives include: – Decommissioning bespoke and legacy MDM/B systems; – Replacement of these systems with S/4HANA IS-U metering and billing modules; and – Migration, where possible, of MDM/B systems to target cloud state.	
Option 3: New	EAM	Migrate SAP ECC6 applications to Oracle	• This option will transition the existing SAP ECC6 footprint; • This would be similar in business functionality coverage, however, would be underpinned by Oracle's data model; and • This option is similar to Option 1 in scope but would involve significantly higher costs and training to transfer our core, mission-critical business functions to an entirely new operating system.	**($24.6) million**
	ERP			
	MDM/B	NA	• No changes to the existing MDM/B systems would occur in this option.	-

Table 5 Summary of options

The table below shows the number of applications rationalised per option.

	Process area	Number of applications reduced	Commentary
1: Base option - Technical upgrade	N/A	0	No reduction of applications was assumed in this option. Technical upgrade applies the S/4HANA run-time to the existing SAP ECC6 environment.
2: Enhance option - 'Transformation' (preferred)	ERP, EAM, MDM/B	~43[11]	Application reductions assumed as follows: ERP (17), EAM (1), MDM/B (25) in the Transformation target state. Target state was approved by the ICT Technology Review Group (ICT) in February 2022.
3: New option - Migrate to new vendor option	**N/A**	**Unspecified**	No reduction of applications was assumed in this option. Migration to Oracle was assumed to be a like for like replacement of existing applications.

Table 6 Summary of applications reduced per option

The key differences between the three options are:

- **EAM:** In all options, our existing EAM landscape is modernised. However, in Option 2 it is also simplified, automated, significantly increases our EAM maturity level in line with DNSP peers and, improves our ability to better manage the future network. Option 1 leaves our EAM landscape and footprint largely unchanged;
- **ERP:** In all options, our existing ERP landscape is modernised. However, in Option 2 our ERP landscape is fully consolidated, reducing the number of disparate systems and reporting mechanisms that require manual workarounds, and enabling us to have end-to-end visibility of all corporate data required to efficiently manage our corporate services. Option 1 leaves our ERP landscape and footprint largely unchanged; and
- **MDM/B:** In Option 2, our MDM/B landscape is simplified, automated, modernised and migrated to the cloud. Option 1 leaves our MDM/B landscape and footprint largely unchanged.

A 'do nothing' option was considered but deemed unviable due to the application support for ECC6 application on the SAP RISE platform ceasing by 2027. As ERP, EAM and MDM/B are all critical business systems, if left unsupported this would also not align to our *ICT Asset Lifecycle Management Guideline* or our *Group Risk Appetite* and we feel the impacts of the associated risks impacting customers is too high. For these reasons, costs associated with this option have not been included in the financial analysis of this program brief. In particular, the risk related to system failures and cyber security risks that could either cause major impacts in our ability to deliver energy services to our customers, or could expose customer data.

[11] Source: Enterprise Architecture Repository (Abacus) as at 9th August 2022

5.2. OPTION 1: Base case

5.2.1. Description

This option mitigates application support risks beyond 2027. Under this option, our legacy systems will undergo a system conversion. This is often referred to as a "brownfield" approach, i.e., an implementation method that is fulfilled by taking the existing SAP ECC6 system (hosted in RISE) and converting it to the new version, SAP S/4HANA. This means that our existing master and transactional data, custom development objects, and system customisations will be migrated to the new SAP S/4HANA system.

This option results in no material changes or transformation to business processes and therefore, EAM, ERP and MDM/B processes will remain practically the same. This option also doesn't enable new EAM capabilities that leverage IoT, and real-time data collection (such as from CER), nor does it enable more transparent, visible and efficient financial data and reporting processes.

EAM and ERP will continue to use S/4HANA existing core modules and MDM/B processes will interact with the newer S/4HANA system. Our MDM/B applications currently hosted on-premises will remain.

Costs:

The estimated total expenditure (totex) of this option is $(18.1) million with a market NPV of $(17.0) million. This is made up of:

- **EAM totex:** $(3.9) million;
- **ERP totex:** $(4.4) million; and
- **MDM/B totex:** $(9.7) million.

Benefits	Risks
• Mitigates risks of application support beyond 2027 for us EAM and ERP systems. ERP system heavily interfaces with MDM/B systems; • Mitigates security risk with access to all the enhancements (including security patches, bug fixes); and • This is the lowest cost option.	• General risks – No business/process change; – No incremental transformational benefits; and – High strategic/innovation risk for EAM and ERP systems as it does not provide the system agility needed to seize future opportunities • EAM and ERP systems – High data quality risk as the underlying data model does not change i.e., only technical upgrade to S/4HANA. • MDM/B system – Ongoing costs to maintain bespoke and legacy systems.

Table 7 Option 1 – Summary of benefits and risks

5.2.2. Option 1 assumptions

For the EAM and ERP systems, under Option 1, we would invest in the following programs from 2025-29 regulatory control period.

- **Program Implementation Costs** – this includes third-party and internal implementation costs. Major sub-projects include System Integration Testing (SIT) and User Acceptance User (UAT) support, UAT testing and project management costs;
- **Implementation: Software and Infrastructure Hosting Fees** – this relates to additional transitional infrastructure costs;
- **Implementation Initiatives** - the major sub-projects include S/4HANA brownfield migration, technical services provided by third parties, functional support costs, application security modification and remediation and new UX experience implementation costs; and
- **Contingency** – Ausgrid's initial ERP Program proposal included 20 percent contingency within the total project cost. In the revised submission, based on the AER's feedback, contingency has been removed.

For the MDM/B system, under this option, we would continue operating the MDM/B footprint as it currently operates. Historic costs have been used to forecast these costs. Major costs include:

- End of life application upgrades;
- Ongoing need to operate and maintain our own datacentre capability (networking, firewalls, storage, compute, backup services) and the data centres themselves;
- Continuous improvement programs; and
- Adjustments to market and enterprise systems to conform with regulatory changes.

5.2.3. Option 1 costs

Construction Cost and Scope Assumptions

$ million	Component	FY25	FY26	FY27	FY28	FY29	Total
Direct labour	EAM	(0.6)	-	-	-	-	**(0.6)**
	ERP	(0.7)	-	-	-	-	**(0.7)**
	MDM/B	-	-	-	-	-	-
	TOTAL	**(1.4)**	-	-	-	-	**(1.4)**
Materials	EAM	(0.2)	-	-	-	-	**(0.2)**
	ERP	(0.3)	-	-	-	-	**(0.3)**
	MDM/B	-	-	-	-	-	-
	TOTAL	**(0.5)**	-	-	-	-	**(0.5)**
Contract services	EAM	(1.1)	-	-	-	-	**(1.1)**
	ERP	(1.2)	-	-	-	-	**(1.2)**

$ million	Component	FY25	FY26	FY27	FY28	FY29	Total
	MDM/B	-	-	-	-	-	-
	TOTAL	**(2.4)**	-	-	-	-	**(2.4)**
Other	EAM	-	-	-	-	-	-
	ERP	-	-	-	-	-	-
	MDM/B	-	-	-	-	-	-
	TOTAL	-	-	-	-	-	-
Contingency	EAM	-	-	-	-	-	-
	ERP	-	-	-	-	-	-
	MDM/B	-	-	-	-	-	-
	TOTAL	-	-	-	-	-	-
TOTAL CAPEX	EAM	(2.0)	-	-	-	-	**(2.0)**
	ERP	(2.2)	-	-	-	-	**(2.2)**
	MDM/B	-	-	-	-	-	-
	TOTAL	**(4.2)**	-	-	-	-	**(4.2)**[12]

Table 8 Option 1 - Summary of construction costs

Operating Cost Assumptions

$ million	Component	FY25	FY26	FY27	FY28	FY29	Total
Direct labour	EAM	(0.6)	-	-	-	-	**(0.6)**
	ERP	(0.7)	-	-	-	-	**(0.7)**
	MDM/B	-	-	-	-	-	-
	TOTAL	**(1.3)**	-	-	-	-	**(1.3)**
Materials	EAM	(0.2)	-	-	-	-	**(0.2)**
	ERP	(0.3)	-	-	-	-	**(0.3)**
	MDM/B	-	-	-	-	-	-
	TOTAL	**(0.5)**	-	-	-	-	**(0.5)**
	EAM	(1.1)	-	-	-	-	**(1.1)**

[12] Rounding of totals may occur on this table.

$ million	Component	FY25	FY26	FY27	FY28	FY29	Total
Contract services	ERP	(1.2)	-	-	-	-	**(1.2)**
	MDM/B	(1.9)	(1.9)	(1.9)	(1.0)	(1.9)	**(9.7)**
	TOTAL	**(4.3)**	**(1.9)**	**(1.9)**	**(1.9)**	**(1.9)**	**(12.1)**
Other	EAM	-	-	-	-	-	-
	ERP	-	-	-	-	-	-
	MDM/B	-	-	-	-	-	-
	TOTAL	-	-	-	-	-	-
Contingency	EAM	-	-	-	-	-	-
	ERP	-	-	-	-	-	-
	MDM/B	-	-	-	-	-	-
	TOTAL	-	-	-	-	-	-
TOTAL OPEX	EAM	(2.0)	-	-	-	-	**(2.0)**
	ERP	(2.2)	-	-	-	-	**(2.2)**
	MDM/B	(1.9)	(1.9)	(1.9)	(1.9)	(1.9)	**(9.7)**
	TOTAL	**(6.1)**	**(1.9)**	**(1.9)**	**(1.9)**	**(1.9)**	**(13.9)**

Table 9 Option 1 – Summary of operating costs

5.2.4. NPV analysis

The NPV analysis below is assessed over a ten-year period. Option 1 is considered the base or 'baseline' option that is based on recurrent expenditure on which other options are compared to. As such no benefits are included in this option's NPV. The NPV of this option is ($17.0) million.

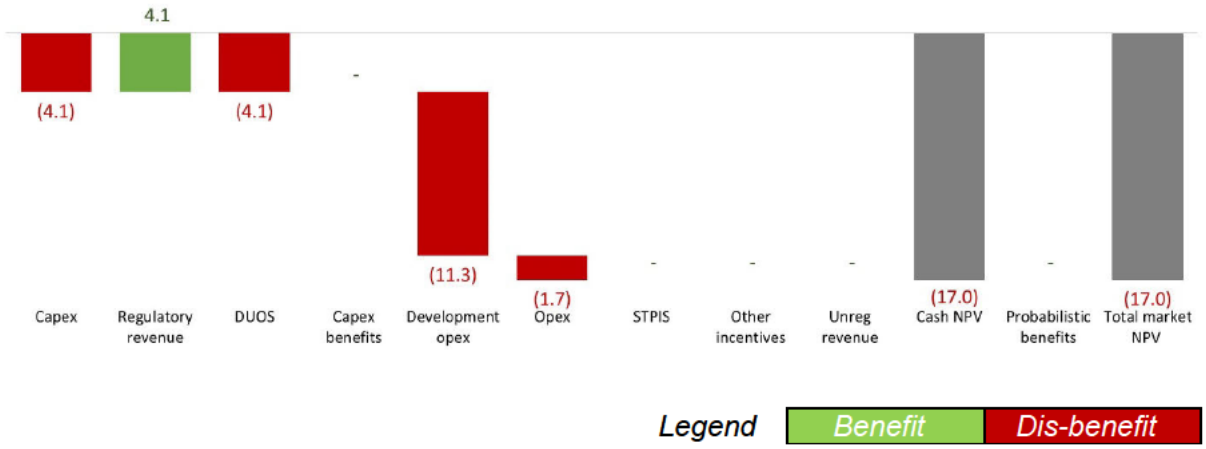


Figure 8 Option 1 – NPV ($' millions, real FY24)

5.3. Option 2: Enhance (Preferred)

5.3.1. Description

The scope of change for this option extends beyond the upgrade to SAP S/4HANA. This investment migrates current ERP and EAM SAP ECC6 modules to S/4HANA, and will remove modules which been grandfathered by SAP. It will also introduce new modules across ERP, EAM and MDM/B leading to a more simplified landscape with many opportunities to automate manual processes and drive additional value through integrated business transformation. Through this transformation, we will modernise our ERP, EAM and MDM/Billing capabilities, enabling integrated systems and processes, that drive business and network efficiencies which reduce costs on customer's bills and improve both our customer and Partner's experience when engaging with us.

Costs: The estimated totex of this option is $(152.0) million with a market NPV of $(2.9) million (noting that the application of the 15-year benefit curtailment assumption decreases real world benefits that would otherwise contribute to higher NPV outcomes). This is made up of:

- **EAM totex:** $(43.9) million;
- **ERP totex:** $(49.4) million; and
- **MDM/B totex:** $(58.6) million.

Functional area	Benefits
Cross functional	• Simplification and modernisation of ERP, EAM, and MDM/B landscape; • Mitigate application support issues beyond 2030; • Improved interoperability with other systems; • Improved data quality and reliability; • Optimised, streamlined and automated processes; • Improved responsiveness resulting in reduced outage durations for customers; • Improved connection processing time: a transformed ERP system will simplify our ICT landscape and improve turnaround time for customer connection process through better access to quality meter data for customers; and • Improved customer experience: Through faster and more automated processes, better data and satisfied employees all crucial to improving our responsiveness and delivering an optimum service to customers.
EAM	• Reduction in planned Network repex capex through better integrated visibility and work management; • Reduction in network repex related to replacement of distribution mains; • 2% reduction in other non-maintenance network opex (Other Operations/Overheads); • Improved quality and consistency of asset master data; • More efficient, secure and consistent data through better integration between SAP and external sources; • Ability to derive better financial and investment insights by integrating asset and financial data; • Timelier & accurate network investment deferrals with no impact on network reliability or customer experience; • Ability to better prioritise network asset investment against customer needs; and • Enable energy transition for our customers without causing negative cost impacts on bills.
ERP	• ICT opex reduction by sharing certain support costs with our affiliate entity, PLUS ES – this is assumed to be a 25% reduction in application maintenance support costs; • ICT opex reduction through decommissioning of systems; • Health and Safety opex reductions due to reduced overheads through consistent processes and avoided data duplication resulting in increased labour productivity;

Functional area	Benefits
	• Commercial finance opex reductions through integrated reporting and mitigation of manual reconciliation activities; • Corporate opex reductions due to automation of regulatory reporting; • Property opex reduction through reduced overheads from automation and integration of property systems; • Improved employee experience when capturing and accessing corporate information; • Enable consistent benchmarking data to support regulatory and commercial decisions; • Better end to end visibility of health and safety data and how it relates to our assets and people; and • Flexible billing systems to support future tariff reforms.
MDM/B	• ICT capex reduction for MSATS related ICT expenditure; • ICT Capex avoidance for Minor Capital Enhancements (**MCE**); • Reduced opex through reduction of overheads associated with processing billing disputes; • ICT opex in licencing reductions through decommissioning legacy MBS applications; • Enable a solid foundation on which to build a dynamic billing capability; • Enable the use of meter data as part of the DSO; • More efficient route management; • Increased staff engagement; and • Increased ability to process data from modern meters without increasing data errors.

Table 10 Summary of benefits

Functional area	Risks
Cross functional	• Resourcing risk – scarcity and availability of affordable resources with specific/niche skillset within required timeframes; • Implementation risks – complex digital transformation with many dependencies; and • Ability to manage and govern third party services.

Table 11 Summary of risks

Transformation will also bring significant benefits to customers:

The modern S/4HANA version is built with the customer as the fundamental entity in its design. We can use this transformation project as a catalyst to transform our customer experience. A key element of this is around the improvement of the core customer service capabilities and a fundamental shift in the cost to serve in our operations. Our fundamental driver is long-term

benefits to its customers. Creating a customer-centric view is fundamental to being able to deliver this.

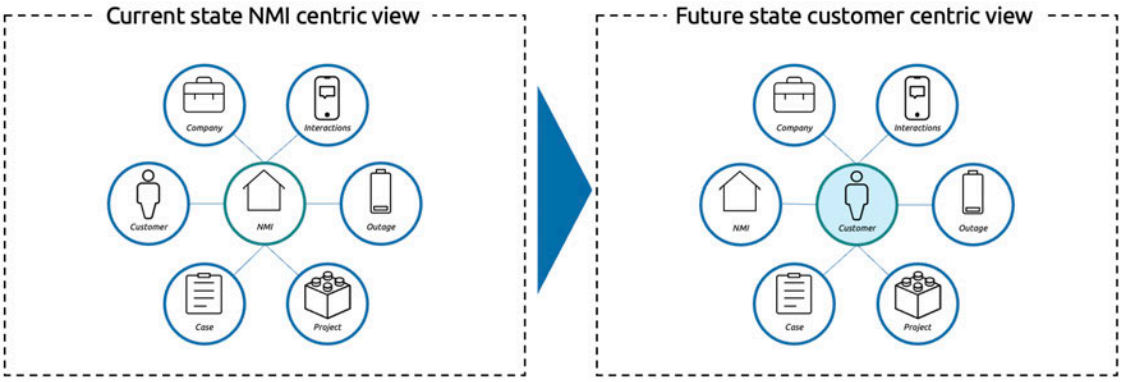


Figure 9 Transformation from an NMI-centric view to a Customer-centric view

A transformation across ERP, EAM and MDM/B enables us to improve the customer experience by:

- Improving process efficiency and automation;
- Shifting to a single source of customer data;
- Improving data security against emerging threats;
- Digitising the customer experience; and
- Enable development of future services and products.

5.3.1.2. EAM

Key transformational activities that will be enabled by the EAM components of this option include:

- Initiate predictive maintenance and service solutions which will increase equipment reliability and improve asset usage;
- Improve master data integrity and creating an integrated application environment for assets. Currently multiple systems (**GIS, SCADA, SAP ECC**) used in the creation of asset master data;
- Optimise the work management application within the EAM module and improve process efficiency and enable real time reporting. Currently, the EAM Work Management Process has limited capabilities with many workflows not properly utilised; and
- Improve the accuracy and visibility of cost recovery for each service and streamlining business processes for handling service and repair orders. Currently, we do not have customer contract process in our systems and all services are managed through service notification and service orders. Multiple services are performed through a single service order.

Additional new EAM SAP modules which will enable these initiatives include:

- SAP Predictive Asset Insights
  - Enables move from reactive to predictive maintenance through real-time analysis of asset condition to predict maintenance and service needs. Real-time IoT/sensor data which record the wear and tear of critical components of an asset can be analysed to improve maintenance schedules.
- SAP Asset Strategy and Performance Management

  - Measure and improve asset performance and optimise maintenance strategies through risk and criticality analysis (assess asset criticality based on risk score), reliability centred maintenance (**RCM**) and failure mode and effect analysis (**FMEA**).

- SAP Asset Manager
  - Centralises asset master data such as equipment, class or specifications, functional location, attributes, etc. And plan maintenance activities.

5.3.1.2. ERP

Additional new ERP SAP modules include: S/4HANA Group Reporting; and S/4HANA Advanced Financial Closing.

The Group Reporting module which will enable more transparent and efficient close and group consolidation and will replace TM1 as the corporate financial reporting tool.

The Advanced Financial Closing module will provide team members and managers better visibility of financial closing process by acting like a control centre for all entity closing processes, covering closing tasks like depreciation and posting of reserves. Below we outline the key capabilities these new modules will enable:

- Reducing complexity in master data maintenance and improving flexibility in reporting. Currently business results are presented in different ways by different business functions, often using different data;
- Simplify General Ledger Chart of Accounts master data and cost elements through S/4 HANA universal journals, remove any manual reconciliation efforts and enable faster financial period close. Currently period close requires numerous time-consuming steps and reconciliations. Many batch processes are only run at period end delaying the management and statutory reporting;
- Remove manual efforts in managing dependencies and sequencing and enable system-based monitoring and tracking progress. Currently, period close month end timetable is managed using SharePoint and overseen by the Financial Control team and execution of process steps are coordinated manually;
- Develop a single source of truth and utilise real-time reporting. Currently employees need to access a number of non-integrated systems to obtain data for reporting. Transactional applications are distinct to analytical applications;
- Implement an integrated financial planning solution and eliminate off-system activities and adopt standardisation. Currently Financial Planning and Budgeting Processes are scattered across TM1 and Excel. There are a number of off systems process steps and complicated models:
  - Improve cost allocation efficiency and accuracy, reduce master data and system refresh delays in completing the process. Cost allocation and distribution are cumbersome at present. Some processes are manual in spreadsheets with many inputs from across the business.
  - Eliminate disjointed steps in the approval process and enable authorisation within the payment application for improved auditing. Currently payment instructions to banks for outgoing payments are approved via COMM bank online application BPOINT;
  - Implementation of S/4HANA Group Reporting module which will enable more transparent and efficient close and group consolidation. Group Reporting will replace TM1 as the corporate financial reporting tool; and
  - Implementation of S/4HANA Advanced Financial Closing module which acts like a control centre for all entity closing processes, covering closing tasks like depreciation and posting of reserves. Financial closing tasks are tracked and monitored via a

financial close overview KPI-based dashboard, providing team members and managers visibility of the financial closing process.

5.3.1.3. MDM/B

In this option we will replace and consolidate bespoke, legacy and on-premises MDM/B systems with the cloud-hosted S/4 HANA meter data management and billing modules. This will enable us to maintain reliability of market transactions and billing processes in line with its obligations and to easily adjust to changing market drivers. The modernised billing module will also enable us to establish dynamic billing and pricing in support of CER growth in our network and increased value and choice for our customers.

Furthermore, modernisation of MDM/B systems will enable us to be more responsive to future regulatory and market changes reducing the need for large system related costs, through more agile configuration and integration capabilities.

MDM/B modules to be implemented in this option include:

- Market Process Management (**MPM**) for Utilities [replacement of current systems with S/4HANA]; and
- Customer Billing [upgrade from ECC6 to S/4HANA].

Key transformational initiatives for this option include:

- Streamlining meter data management:
  - Energy and interval data are currently handled in multiple systems. In S/4HANA meter data management (including NMIs and connection points) can be centralised, providing process efficiency.
- Improve end-to-end billing process:
  - Our current billing process is in many systems which do not integrate properly. Introduction of SAP S/4HANA IS-U and decommissioning of some systems will provide a modern integrated system and improve the billing process making us more agile to future billing and network changes; and
  - Our current billing process currently requires significant manual workarounds. Integration with S/4HANA IS-U and finance modules will automate these processes improve data quality and controls, and will reduce the number of billing disputes.
- Address functionality gaps:
  - We currently use an application known a Billing Data Management (**BDM**) to act as an intermediary between IEE and MBS systems to process interval billing requests. With the deployment of S/4HANA this can be retired.
- Enable real-time pricing (**RTP**) for very large customers who negotiate network tariffs directly with us:
  - SAP Energy Data Management (**EDM**) can enable RTP. We will be able to perform real time simulations across tariff offerings and provide value to customers by advising the most appropriate tariffs based on accurate current and past consumption patterns.

5.3.2. Option 2 assumptions

Ausgrid has reviewed proposed options to deliver option 2 by taking into consideration the AER's feedback on the timeline and associated risks of delivering a program of this complexity. The revised program duration has been extended from 5 years in the draft proposal to 7 years in the final submission to allow for elongated "hypercare" periods to embed the changes that the program will deliver.

To reduce and manage delivery risk, Ausgrid proposes to complete the technical upgrade component first followed by a sequenced delivery of transformative modules, therefore reducing the overall complexity of delivery, and enabling greater cost control.

The revised schedule focuses on the areas of highest risk and value first. By addressing the technical upgrade, the issue of system obsolescence and SAP support is addressed.

The Meter Data Management and Billing (MDM/B) systems will then be upgraded to remove more than 40 existing applications and enable greater efficiency in our ability to deliver changes in tariff structures, unlocking significant benefits for customers.

Towards the end of the regulatory period, we will begin the transformation of the ERP and Enterprise Asset Management (EAM) systems, with that work expected to be finalised in FY30-34. Our forecast is that up to 23 percent of the program or $34 million will be deferred into FY30-34. See appendix 1 for the proposed implementation timeline.

- **Program Implementation Costs** – this includes third-party and internal implementation costs. Major sub-projects include business support, project management and training costs;
- **Implementation: Software and Infrastructure Hosting Fees** – this relates to additional SAP RISE environment costs for this option;
- **Customisation & Preparation work** – this includes integrated business design and technical support costs;
- **Implementation Initiatives** - This relates to implementation costs for S/4HANA modules; and
- **Contingency** – Ausgrid's initial ERP Program proposal included 20 percent contingency within the total project cost. In the revised submission contingency has been removed and risk will instead be managed by lengthening the timeline over which the program is delivered.

5.3.3. Option 2 costs

Construction Cost Assumptions

$ million	Component	FY25	FY26	FY27	FY28	FY29	FY30+	Total
Direct labour	EAM	(0.4)	-	-	-	(0.9)	(3.5)	**(4.8)**
	ERP	(0.5)	-	(0.2)	(2.7)	(1.7)	(0.2)	**(5.4)**
	MDM/B	-	(1.9)	(3.8)	(0.6)	-	-	**(6.4)**
	TOTAL	**(0.9)**	**(1.9)**	**(4.1)**	**(3.3)**	**(2.6)**	**(3.7)**	**(16.5)**
Materials	EAM	(0.1)	-	-	-	(0.2)	(0.7)	**(0.9)**
	ERP	(0.1)	-	(0.1)	(0.5)	(0.3)	(0.1)	**(1.1)**
	MDM/B	-	(0.4)	(0.7)	(0.1)	-	-	**(1.3)**
	TOTAL	**(0.2)**	**(0.4)**	**(0.8)**	**(0.7)**	**(0.5)**	**(0.8)**	**(3.2)**
Contract services	EAM	(1.5)	-	-	-	(3.0)	(11.8)	**(16.3)**
	ERP	(1.6)	-	(0.8)	(9.2)	(5.8)	(0.8)	**(18.3)**

$ million	Component	FY25	FY26	FY27	FY28	FY29	FY30+	Total
	MDM/B	-	(6.5)	(13.0)	(2.2)	-	-	**(21.7)**
	TOTAL	**(3.1)**	**(6.5)**	**(13.9)**	**(11.3)**	**(8.8)**	**(12.6)**	**(56.2)**
Other	EAM	-	-	-	-	-	-	**-**
	ERP	-	-	-	-	-	-	**-**
	MDM/B	-	-	-	-	-	-	**-**
	TOTAL	-	-	-	-	-	-	**-**
Contingency	EAM	-	-	-	-	-	-	**-**
	ERP	-	-	-	-	-	-	**-**
	MDM/B	-	-	-	-	-	-	**-**
	TOTAL	-	-	-	-	-	-	**-**
TOTAL CAPEX	EAM	**(2.0)**	**-**	**-**	**-**	**(4.0)**	**(16.0)**	**(22.0)**
	ERP	**(2.2)**	**-**	**(1.1)**	**(12.4)**	**(7.9)**	**(1.1)**	**(24.7)**
	MDM/B	**-**	**(8.8)**	**(17.6)**	**(2.9)**	**-**	-	**(29.3)**
	TOTAL	**(4.2)**	**(8.8)**	**(18.7)**	**(15.3)**	**(11.9)**	**(17.1)**	**(76.0)**

Table 12 Summary of construction cost

Operating Cost Assumptions

$ million	Component	FY25	FY26	FY27	FY28	FY29	FY30+	Total
Direct labour	EAM	(0.4)	-	-	-	(0.9)	(3.5)	**(4.8)**
	ERP	(0.5)	-	(0.2)	(2.7)	(1.7)	(0.2)	**(5.4)**
	MDM/B	-	(1.9)	(3.8)	(0.6)	-	-	**(6.4)**
	TOTAL	**(0.9)**	**(1.9)**	**(4.1)**	**(3.3)**	**(2.6)**	**(3.7)**	**(16.5)**
Materials	EAM	(0.1)	-	-	-	(0.2)	(0.7)	**(0.9)**
	ERP	(0.1)	-	(0.1)	(0.5)	(0.3)	(0.1)	**(1.1)**
	MDM/B	-	(0.4)	(0.7)	(0.1)	-	-	**(1.3)**
	TOTAL	**(0.2)**	**(0.4)**	**(0.8)**	**(0.7)**	**(0.5)**	**(0.8)**	**(3.2)**
	EAM	(1.5)	-	-	-	(3.0)	(11.8)	**(16.3)**

$ million	Component	FY25	FY26	FY27	FY28	FY29	FY30+	Total
Contract services	ERP	(1.6)	-	(0.8)	(9.2)	(5.8)	(0.8)	**(18.3)**
	MDM/B	-	(6.5)	(13.0)	(2.2)	-	-	**(21.7)**
	TOTAL	**(3.1)**	**(6.5)**	**(13.9)**	**(11.3)**	**(8.8)**	**(12.6)**	**(56.2)**
Other	EAM	-	-	-	-	-	-	**-**
	ERP	-	-	-	-	-	-	**-**
	MDM/B	-	-	-	-	-	-	**-**
	TOTAL	-	-	-	-	-	-	**-**
Contingency	EAM	-	-	-	-	-	-	**-**
	ERP	-	-	-	-	-	-	**-**
	MDM/B	-	-	-	-	-	-	**-**
	TOTAL	-	-	-	-	-	-	**-**
TOTAL OPEX	EAM	**(2.0)**	**-**	**-**	**-**	**(4.0)**	**(16.0)**	**(22.0)**
	ERP	**(2.2)**	**-**	**(1.1)**	**(12.4)**	**(7.9)**	**(1.1)**	**(24.7)**
	MDM/B	**-**	**(8.8)**	**(17.6)**	**(2.9)**	**-**	-	**(29.3)**
	TOTAL	**(4.2)**	**(8.8)**	**(18.7)**	**(15.3)**	**(11.9)**	**(17.1)**	**(76.0)**

Table 13 Option 2 – Summary of Operating costs

5.3.4. NPV analysis

Approach to NPV analysis

The NPV for Option 2 is $(2.9) million, as shown in the diagram below. Refer to this section in Option 1 for more information on the approach to NPV modelling. In this revised NPV model, Ausgrid has curtailed benefits to 15 years in response to the AER's feedback in their Draft Decision. Ausgrid believes this curtailment assumption is conservative and notes that extending the opex benefits into perpetuity would materially improve the NPV of Option 2, and more appropriately reflect the value realised by customers over time. Extending opex benefits into perpetuity is appropriate as any future ERP investment will be assessed against the cost baseline at that time, inclusive of the efficiencies delivered by the current ERP investment. However, given there is no change in the recommended option, Ausgrid has relied on the NPV values based on the curtailed benefits approach throughout this report.

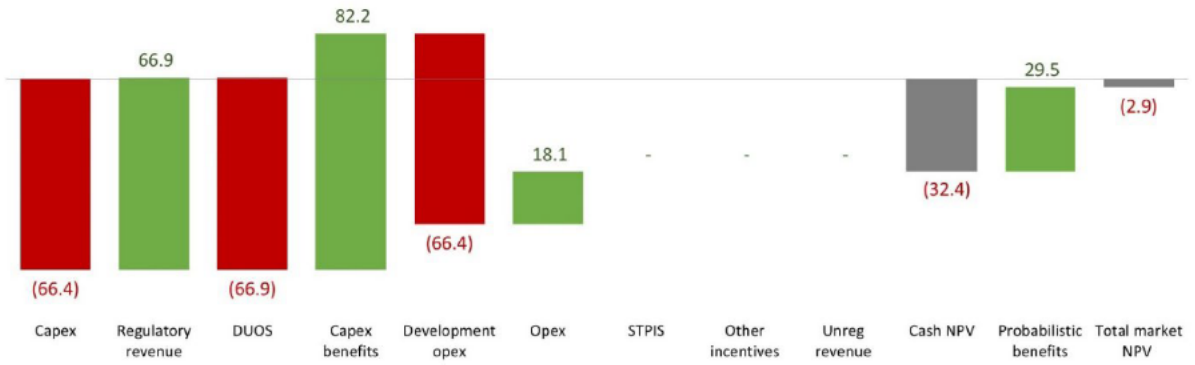


Figure 10 Option 2 – NPV ($' millions, real FY24)

5.4. Option 3: New

5.4.1. Description

For this option, a non-SAP equivalent alternative considered, called Oracle Cloud Applications. Oracle Cloud Applications is a mature enterprise application suite with a similar functionality coverage when compared with SAP and is considered to have the next best functionality. Oracle Cloud Applications is a Software-as-a-Service (**SaaS**). This means that the applications are hosted and managed in the public cloud by Oracle using "one solution for all". With this option, our business processes will have to change to conform to the standard out-of-the-box processes that come defined within the Oracle Cloud Application Suite.

In this model, customisations and extensions are possible but would be costly and challenging. The scope of this option is limited to the ECC6 application footprint and excludes non-SAP systems. Only ECC6 will be decommissioned, all other related systems will be retained.

Costs: The estimated total expenditure (totex) of this option is $(98.7) million with a market NPV of $(24.6) million.

This is made up of:

- **EAM totex:** $(45.9) million;
- **ERP totex:** $(52.8) million; and
- **MDM/B totex:** $0.0 million.

The license and subscription cost estimates are based on Oracle's list price and does not represent a negotiated rate. The estimated cost includes data migration, integration, testing, and change management. The implementation is complex due to the change in product and vendor, the underpinning data models, and structures. Therefore, no further scope for transformation was included in Option 2 given the already prohibitive estimated cost. The shift to a new product presents a significant risk.

Benefits	Risks
• Tier-1 product; and • Simplification and modernisation of ERP and EAM landscape; • Mitigate application support issues beyond 2030; and • Improved data quality and reliability.	• Significant change for the organisation to switch to a non-SAP option i.e., high implementation and business adoption risk; • High systems integrator risk due to relatively higher complexity and scope; • Does not optimise our SAP investments and existing skillset; and

	• New vendor relationship could lead to less buying power.

Table 14 Option 3 - Summary of benefits and risks

5.4.2. Option 3 assumptions

Under Option 3, we would invest in the following programs during the 2025-29 regulatory control period:

- **Program Implementation Costs** – this includes third-party and internal implementation costs. Major sub-projects include business support, integration and project management costs;
- **Implementation: Software and Infrastructure Hosting Fees** – this relates to new Oracle environment costs for this option;
- **Implementation Initiatives** - This relates to implementation costs for Oracle ORMB, Analytics, SCM cloud and other Oracle applications; and
- **Contingency** – Ausgrid's initial ERP Program proposal included 40 percent contingency within the total project cost. In the revised submission, based on the AER's feedback, contingency has been removed.

5.4.3. Option 3 costs

Construction Cost and Scope Assumptions

$ million	Component	FY25	FY26	FY27	FY28	FY29	Total
Direct labour	EAM	(3.4)	(2.5)	-	-	-	**(5.9)**
	ERP	(3.9)	(2.8)	-	-	-	**(6.7)**
	MDM/B	-	-	-	-	-	**-**
	TOTAL	**(7.3)**	**(5.3)**	**-**	**-**	**-**	**(12.6)**
Materials	EAM	(0.9)	(0.7)	-	-	-	**(1.6)**
	ERP	(1.0)	(0.8)	-	-	-	**(1.8)**
	MDM/B	-	-	-	-	-	**-**
	TOTAL	**(1.9)**	**(1.5)**	-	-	-	**(3.4)**
Contract services	EAM	(7.3)	(4.9)	-	-	-	**(12.2)**
	ERP	(8.4)	(5.6)	-	-	-	**(14.0)**
	MDM/B	-	-	-	-	-	**-**
	TOTAL	**(15.7)**	**(10.5)**	-	-	-	**(26.2)**
Other	EAM	-	-	-	-	-	**-**

$ million	Component	FY25	FY26	FY27	FY28	FY29	Total
	ERP	-	-	-	-	-	-
	MDM/B	-	-	-	-	-	-
	TOTAL	**-**	**-**	**-**	**-**	**-**	**-**
Contingency	EAM	-	-	-	-	-	-
	ERP	-	-	-	-	-	-
	MDM/B	-	-	-	-	-	-
	TOTAL	**-**	**-**	**-**	**-**	**-**	**-**
TOTAL CAPEX	EAM	(11.7)	(8.1)				**(19.7)**
	ERP	(13.3)	(9.2)				**(22.6)**
	MDM/B	-	-	-	-	-	-
	TOTAL	**(25.0)**	**(17.3)**	**-**	**-**	**-**	**(42.3)**[13]

Table 15 Option 3 – Summary of construction cost

As noted in this section for Option 1, in the NPV analysis below, recurring costs which are common across all options are excluded from NPV as they cancel out. These costs are about $5 million per year. Refer to this section of Option 1 for more details.

Operating Cost Assumptions

$ million	Component	FY25	FY26	FY27	FY28	FY29	Total
Direct labour	EAM	(3.4)	(2.5)	-	-	-	**(5.9)**
	ERP	(3.9)	(2.8)	-	-	-	**(6.7)**
	MDM/B	-	-	-	-	-	-
	TOTAL	**(7.3)**	**(5.3)**	**-**	**-**	**-**	**(12.6)**
Materials	EAM	(0.9)	(0.7)	-	-	-	**(1.6)**
	ERP	(1.0)	(0.8)	-	-	-	**(1.8)**
	MDM/B	-	-	-	-	-	-
	TOTAL	**(1.9)**	**(1.5)**	-	-	-	**(3.4)**
	EAM	(10.5)	(8.1)	-	-	-	**(18.6)**

[13] Rounding of totals may occur on this table.

$ million	Component	FY25	FY26	FY27	FY28	FY29	Total
Contract services	ERP	(12.2)	(9.5)	-	-	-	**(21.7)**
	MDM/B	-	-	-	-	-	**-**
	TOTAL	**(22.8)**	**(17.6)**	**-**	**-**	**-**	**(40.4)**
Other	EAM	-	-	-	-	-	**-**
	ERP	-	-	-	-	-	**-**
	MDM/B	-	-	-	-	-	**-**
	TOTAL	**-**	**-**	**-**	**-**	**-**	**-**
Contingency	EAM	**-**	**-**	**-**	**-**	**-**	**-**
	ERP	**-**	**-**	**-**	**-**	**-**	**-**
	MDM/B	**-**	**-**	**-**	**-**	**-**	**-**
	TOTAL	**-**	**-**	**-**	**-**	**-**	**-**
TOTAL OPEX	EAM	(14.9)	(11.3)	-	-	-	(26.2)
	ERP	(17.2)	(13.1)	-	-	-	(30.3)
	MDM/B	-	-	-	-	-	-
	TOTAL	**(32.0)**	**(24.4)**	**-**	**-**	**-**	**(56.4)** [14]

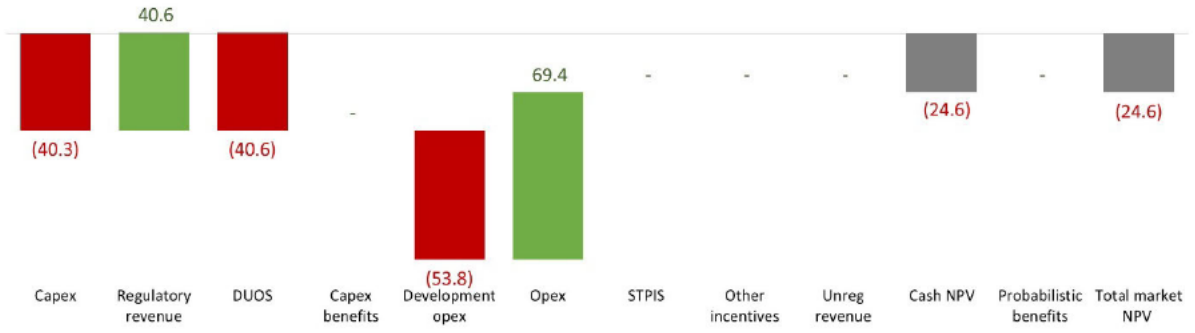
Table 16 Option 3 – Summary of operating costs

5.4.4. NPV analysis

Approach to NPV analysis

The NPV for Option 3 is ($24.6) million, as shown in the diagram below. Refer to this section in Option 1 for more information on the approach to NPV modelling.

[14] Rounding of totals may occur on this table.



Legend Benefit | Dis-benefit

Figure 11 Option 3 – NPV ($' millions, real FY24)

6. Recommendation

6.1. Recommended solution

Our proposed option is Option 2 because it represents the best value for customers, consistent with the AER's ICT capex expenditure guidelines and has:

- The strongest NPV of the three options at $(2.9) million;
- Is consistent with the National Electricity Objective (**NEO**) - considering that enduring benefits are not reflected by the application of the 15-year benefits curtailment assumption used in NPV modelling;
- Meets our regulatory and other obligations;
- Enables our future network and the ability to optimise and interrogate data from CER to drive further value for our customers;
- Demonstrates prudent and efficient management of our critical ICT systems in alignment with our *ICT Asset Lifecycle Management Guidelines*; and

6.1.1. Program delivery risks

Risk #	Risk Category	Description	Inherent Risk Level	Mitigation Plan	Residual Risk level
01	New Technology	If new technology is being introduced as part of this program, the skillset might not be sufficient to support it after the program of work has completed.	Medium	Plan and ensure that skillset is developed to ensure that technology can be supported in the future.	Low
02	Scope Expansion	Expectation that the scope might include features that were not originally planned for which might extend the timeline of the project.	Medium	Set scope expectations early on and define boundaries. If additional requirements arise, scope new project.	Low
03	Costs	Project Costs are estimated based upon market knowledge in FY22, and costs could increase as the project is executed in FY25-29.	Medium	Undertake a Gate 3 Business Case prior to executing the program and revise costs with costs at the time of execution.	Low

Risk #	Risk Category	Description	Inherent Risk Level	Mitigation Plan	Residual Risk level
04	Key Resources	Availability of suitable cloud and S/4 HANA resources within local market. Effects of the COVID19 pandemic have caused a skill shortage locally and specialist resources may not be readily available.	Medium	Define resource requirements early and leverage existing relationships with strategic partners.	Low
05	Key Resources	COVID 19 or other pandemic impacts on key resources.	Medium	Ensure appropriate resource levelling is applied across the program to maintain deliverability.	Low
06	Key Resources	Other significant initiatives at the same time	Medium	Ensure appropriate resource levelling is applied across the program to maintain deliverability.	Low

Table17 Summary of program delivery risks

6.1.2. Program assumptions

#	Type	Description
01	**Resourcing**	EAM, ERP, MDM/B and third-party resources will be available as required during the program and for ongoing operations. Resourcing costs have been priced based on economies of scale achieved though delivering ERP, EAM and MDM/B as part of the same program over a four year delivery period.
02	**Commitment**	We are committed to executing delivery of the EAM, ERP and MDM/B program initiatives.
03	**Priority**	The EAM, ERP and MDM/B programs are considered a high priority program as part of the overarching S/4HANA ERP Program, due to the nature of the risks and the potential consequences of failures or disruptions to business operations caused by aging EAM, ERP and MDM/B applications and systems.
04	**Scope**	This program brief scope and its pricing assumes that the EAM, ERP and MDM/B components will all be delivered as part of this program and therefore economies of scale are achieved in pricing. Any removals of these major scope items could have a negative impact to the overall pricing for the remaining components.

Table 18 Summary of program assumptions

6.1.3. Program dependencies

#	Type	Description
01	**Program**	**Cyber Security Program:** Inability for us to keep its EAM system supported by the vendor may expose us to additional cyber security risks. This includes exposure to vulnerabilities within legacy technologies if patching is not available. This will have a direct impact on the goals and targets of the Cyber Security Program. This may require elevated cyber security monitoring and services to manage these risks.
02	**Program**	**GIS Upgrade**: Delays in the GIS program may impact some of the downstream EAM asset data integration regressing testing and will need to manage accordingly.
03	**Program**	**ICT CER:** The Dynamic Pricing and Billing initiative as part of the ICT for CER requires modern billing capabilities as a foundation to establishing more complex and dynamic billing. As ECC6 functionality currently does not provide this, delays in the delivery of this ERP Program could have significant impact on our ability to enable the Dynamic Pricing and Billing capability and more fit-for-purpose billing and pricing for our customers. This will impact the following capabilities required for this initiative: • Locational pricing, triggered by postcode other geographic reference • Critical peak pricing, where different pricing is applied for a short period based on network initiated events • Interval based dynamic pricing, where the prices change throughout the day, week, month • Reward and charge price components on the same tariff code (currently SAP can't do this) • Billing across aggregated NMIs, and virtual NMIs
04	**Program**	**Data and Analytics Program:** As this program relies upon a significant amount of data that is drawn from our ERP, EAM and MDM/B systems, any major changes to the data models that support these systems (such as the asset hierarchy) would have flow on impacts to the Data and Analytics program.

Table 19 Summary of program dependencies

6.1.4. Business area impacts

#	Impacted Group	Description
01	**All Ausgrid**	Subject matter resources will be required in support of the ERP, EAM and MDM/B process re-design and implementation activities.
02	**All Ausgrid**	Where possible the ERP Program initiatives will be managed with go-lives that minimise the amount of (or any) disruption to business operations due to technology transition downtimes (e.g., planned out of hours etc.).

Table 19 Summary of business area impacts

7. Glossary

Shortened Form	Extended Form
AEMO	Australian Energy Market Operator
AESCSF	Australian Energy Sector Cyber Security Framework
BDM	Billing Data Management
Capex	Capital Expenditure
CER	Consumer Energy Resources
DNSP	Distribution Network Service Provider
EAM	Enterprise Asset Management
EHS	Environment Health Safety Management
ERP	Enterprise Resource Planning
ECC6	ERP Central Component version 6
FCS	Field Collection System
FI-CO	Financial Accounting and Controlling
FY25-29	Financial Year 2025 to Financial Year 2029
GIS	Geographic Information System
HCM	Human Capital Management
ICT	Information and Communications Technology
IOT	Internet of Things
IEE	Itron Enterprise Edition Meter Data Management
IM	Investment Management
IWMS	Integrated Works Management System
MBS	Metering Business System
MCS	Meter Configuration System
MDM/B	Meter Data Management and Billing
MM	Material Management
MSATS	Market Settlement and Transfer Solutions

Shortened Form	Extended Form
NEL	National Electricity Law
NER	National Electricity Rules
NPD	NEM Payload Distributor
NPV	Net Present Value
NRDMS	Network Reconciliation & Dispute Management System
Opex	Operating Expenditure
PM	Plant Maintenance
PMIS	Property Management Information System
PS	Project System
SaaS	Software-as-a-Service
SAP PPM	SAP Portfolio and Project Management
SAP SE	**German multinational software company**
SCADA	Supervisory Control and Data Acquisition
SD	Sales and Distribution
SMP	SAP Mobile Platform
SLA	Service level agreements
STMS	SAP Transport Management System

Table 20 Glossary of terms used in the document

8. Appendices

Appendix 1 Proposed S/4HANA transformation roadmap

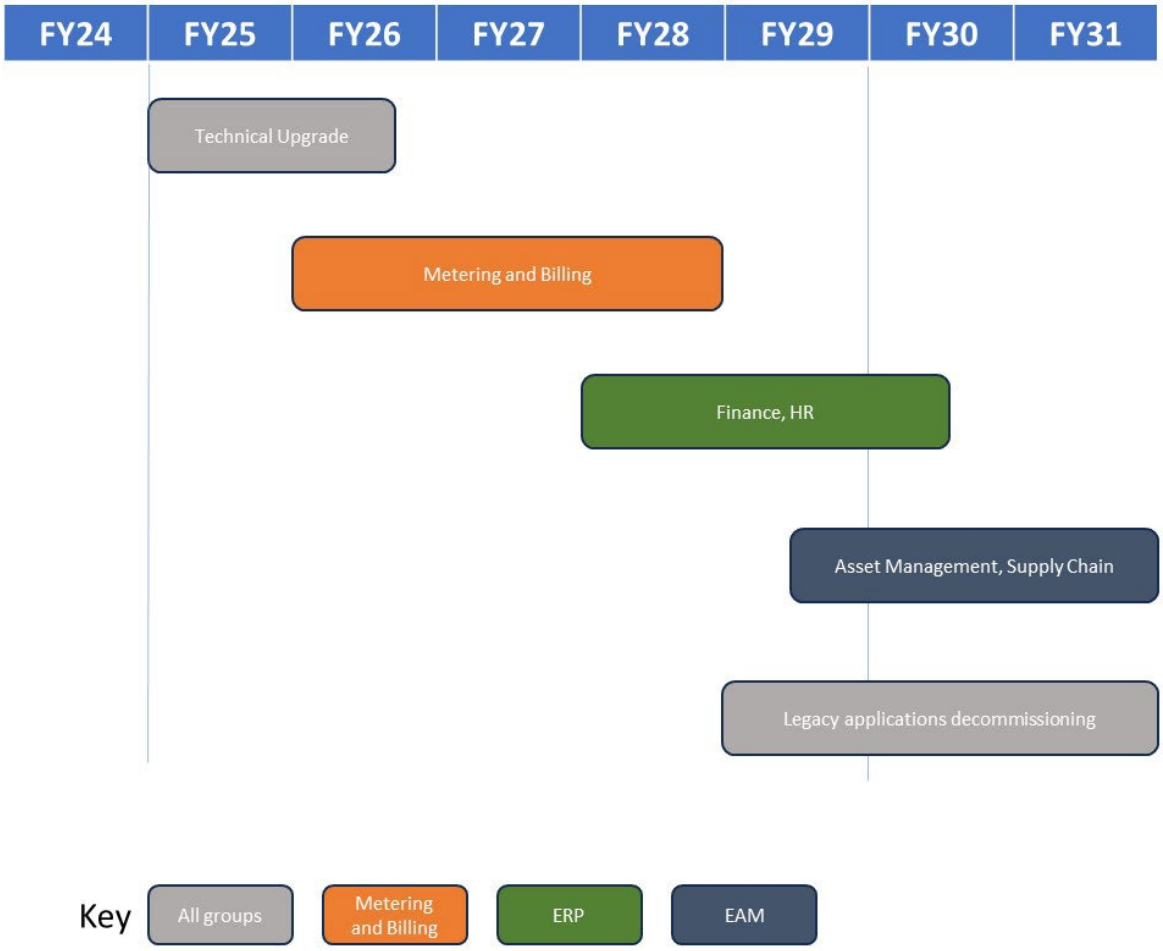


Figure 12 Proposed S/4HANA transformation roadmap

Appendix 2 Does MDM/B impact our affiliate company, PLUS ES?

Our MDM/B system also interfaces with ICT systems in our affiliate entity, PLUS ES Partnership (**PLUS ES**). We and PLUS ES provide some services to one-another in accordance with the Australian Energy Regulator's Ring-fencing Guidelines and Cost Allocation Method (**CAM**) via a Corporate Services Agreement.

For example:

- We provide a number of corporate services to PLUS ES such as general administration, human resources, payroll, finance, ICT and more. Many of these services utilise our ERP system.
- PLUS ES is our appointed contracted service provider for a number of services including metering services. As such, Ausgrid's and PLUS ES' meter data management systems interact.

The diagram below provides some explanation of the corporate relationship between us and PLUS ES.

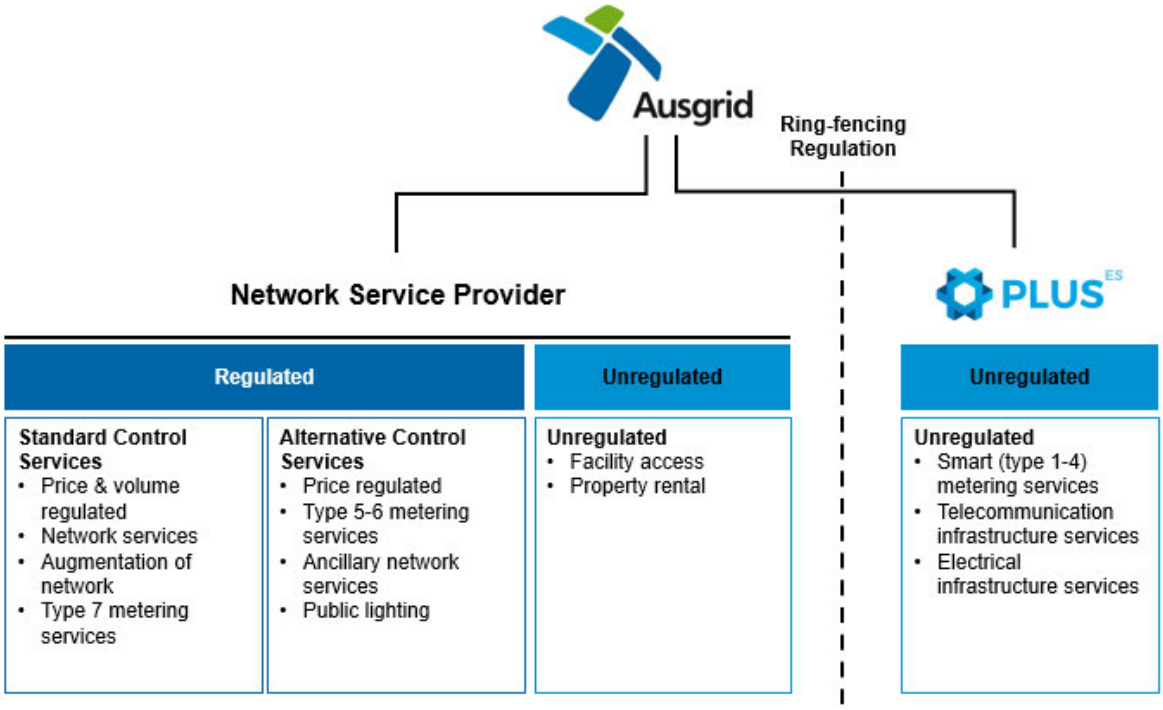


Figure 13 Our PLUS ES Corporate Structure

PLUS ES manages its (unregulated) MDM/B functions using SAP's newest ERP software system, S/4HANA. S/4HANA was implemented for PLUS ES in April 2019 to manage metering processes associated with its role as a Metering Coordinator.

The system PLUS ES uses is mentioned in this program brief because there are significant cost synergies available to both PLUS ES and us if both entities operate the same MDM/B system.

Appendix 3 Schematic of our network assets

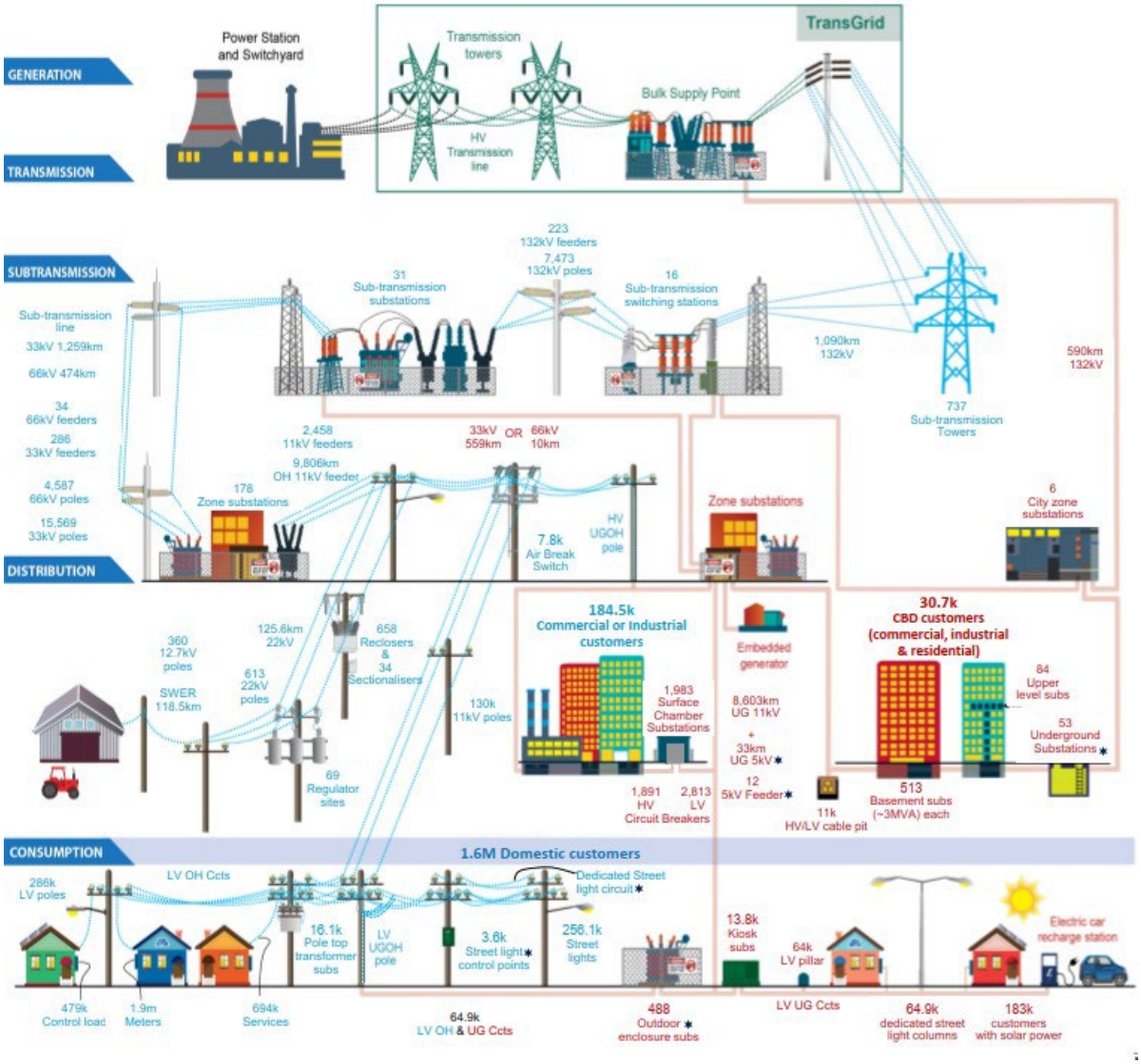


Figure 14 Schematic of our network assets

[redacted]

[redacted]

[redacted]

Appendix 5 SAP based EAM applications

Application/ System	Description
SAP IM	SAP IM component provides functions to support the planning, investment, and financing processes for: 1) Capital investments, such as the acquisition of fixed assets as the result of-house production or purchase, (2) Investments in research and development, (3) Projects that fall primarily under overhead, such as continuing education of employees or establishing new markets, (4) Maintenance programs.
SAP PS	SAP PS is a project management software tool that integrates with other components of our ERP system.
SAP PM	SAP PM is a software product that manages all maintenance activities for us. Key functions include inspection, notifications, corrective and preventative maintenance, repairs, and other measures.
SAP MM	SAP MM supports all phases of materials management, consumption based planning and control, purchasing, goods receiving, inventory management, and invoice verification.
SAP Work Manager	Provides the mobility solution by which SAP applications can be accessed by field staff on various mobile devices.
SAP MAM	SAP Mobile Asset Management is a full offline mobile application. This application is used by field maintenance technicians in performing their daily activities to customer site and all the needed data synchronised onto their PDA device. We plan to decommission this application in early FY23.
SAP SMP	SMP is used to build and deploy mobile apps for our mobile devices. This industry-leading mobile application development platform solves mobility challenges, supports mobile apps that fit your business-to-enterprise (**B2E**), or business-to-consumer (**B2C**) use case, and helps balance device user requirements with enterprise requirements.

Table 21 SAP based EAM applications

Appendix 6 SAP based ERP applications

Application/ System	Description
SAP FI-CO	SAP Financial Management is the core module of the SAP ERP solution platform. Key components of SAP Financial Management consist of following modules: • SAP FI Module - this module delivers your regulatory books of record including: General ledger, Book close, Tax, Accounts receivable, Accounts payable, Asset Management (**SAP AM**), Consolidation, Special ledgers; • SAP CO Module – this module allows you to manage your internal cost/management accounting, including: Cost elements, Cost centres, Profit centres, Internal orders, Activity based costing, Product costing.
SAP Analytics Cloud	SAP Analytics Cloud solution combines BI, augmented, and predictive analytics, and planning capabilities into one cloud environment.
SAP BI/BO	SAP BI/BO is a centralised suite of reporting and analytics tools for business intelligence (**BI**) platforms. It consists of several reporting applications that allow users to discover data, perform analysis to derive insights and create reports that visualise the insights. We plan to decommission this as part of the Data and Analytics program early in the 2025-29 regulatory control period.
SAP Analytic Cloud	It provides a single view of financial and operational data and a unified solution that supports Performance Management processes like adjust plans and forecasts or speed up the budget and closing cycles.
SAP PPM	SAP PPM is the platform to manage projects of new product development by tracking time, cost, and resources.
SAP Concur	SAP Concur solutions provide real time visibility of your cash flow, automate invoice, expense, and travel processes for businesses of all sizes.
SAP SD	The SD function of SAP is part of the logistics area and contains the processes that help a company integrate with their customers. These processes include providing quotations to customers, receiving sales orders via phone, internet, or EDI, shipping the finished goods, and finally billing the customer for the goods that they have received.
SAP STMS	SAP STMS is used to design, configure, and manage the system landscape in SAP environment. The transport process is exporting objects from source SAP systems and importing objects into the target system.
SAP Solution Manager	Offers end-to-end application lifecycle management to streamline business processes and proactively address improvement options, increasing efficiency and decreasing risk within SAP customers' existing maintenance agreements and managing the application lifecycle.

Application/ System	Description
SAP GRC	SAP GRC (governance, risk, and compliance) is a set of solutions and products that help you manage enterprise resources in a way that minimises risk, builds trust, and lowers compliance costs.
SAP HCM	SAP HCM is a human resources management system. It contains all functions that are relevant for personnel administration, payroll, applicant management, and personnel development.
SAP Success Factors	SAP SuccessFactors is a cloud-based HR solution that helps organisations manage various HR operations with ease. It is based on the SaaS model.
SAP Field Glass	SAP FieldGlass is a cloud-based vendor management system to manage services procurement and external management programs.
SAP EHS	SAP EHS is a software solution that was developed to manage industrial safety and hygiene.

Table 22 SAP based ERP applications

Appendix 7 MDM/B applications

Application/ System	Description
MBS	At the heart of our MDM/B systems lies the MBS. It is an internally developed system that was first deployed in 1996. Its prime responsibility is processing and management of Type 6 manual meter reading, data validation, meter installation management, network standing data management, customer data with supplying data to the NEM. MBS is populated with data for over 2.8 million installations and 5.1 million meters. MBS primary functions: ▪ Meter data management; ▪ Interactions with the Market (AEMO, MSATS, B2B); ▪ Key part of network billing process; ▪ Metering service order scheduling and processing; ▪ Manual meter reading management; ▪ Meter asset management, including meter testing; ▪ Database of record for customer (including life-support customers); and ▪ Customer access to data.
MCS	The MCS is a web front-end system for the management of metering assets and interfaces with IEE, NPD and MBS.
NPD	NPD is responsible for publication of interval data to the NEM and for customer contracts.
FCS	The FCS is a package developed by Itron for the management of manually read meter data.
BDM	A meter data application which processes interval billing requests and interfaces to MBS
MessageHub	MessageHub is a market gateway to support the interactions between MDM/B systems, AEMO, MSATS and other partners.
NRDMS	NRDMS delivers network billing data from SAP ECC6 primarily to retailers. It is also used to manage retailer disputes and remittances.
IEE	IEE is a head-end system and the MDM system for interval meters which performs the extraction, validation and storage of meter data pertaining to interval meters for us. It also processes Type 5 MRIM data.
SAP IS-U/CCS	SAP Industry Solution for Utilities Customer Care and Services

Table 22 MDM/B applications