31 January 2023

# Attachment 5.9: Technology plan for 2024-29

## Ausgrid's 2024-29 Regulatory Proposal

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

**Ausgrid**

# Table of Contents

## Version History

| Date | Document Version | Cost Model Version | Description | Contact |
|------|------------------|--------------------|-------------|---------|
| 31/01/2022 | 0.1 | V01-17 | Draft for discussion and feedback | ICT Manager |
| 27/10/2022 | 2.0 | V18 | IGC Feedback and Final CIO Review | ICT Manager |

## Related documents

| Document | Version | Author |
|----------|---------|--------|
| 2022-35 Corporate Strategy | V1.0 | Head of Strategy |
| 2022-29 Technology Strategy | V1.0 | CIO |
| 2022-25 Cyber Security Strategy | V1.0 | CISO |
| Attachment 5.9.a - Geographic Information Systems Program | V1.0 | ICT Manager |
| Attachment 5.9.b - ERP Upgrade | V1.0 | ICT Manager |
| Attachment 5.9.c - Cyber Security Program | V1.0 | ICT Manager |
| Attachment 5.9.d - Customer Information Systems Program | V1.0 | ICT Manager |
| Attachment 5.9.e - ICT & Infrastructure Program | V1.0 | ICT Manager |
| Attachment 5.9.f - Data & Analytics Program | V1.0 | ICT Manager |
| Consolidated Cost Model | V18.0 | ICT Manager |

## Approval(s)

| Name | Position | Date |
|------|----------|------|
| CIO | Chief Information Officer | 31/10/2022 |
| CFO | Chief Financial Officer | 30/11/2022 |

## 1. Executive summary

Information, Communications and Technology (**ICT**) is a key enabler for meeting our customer needs and in driving prudent and efficient delivery and management of our electricity distribution network.

In June 2022, the Australian Government announced a world-leading climate change target to reach net zero greenhouse emissions by 2050. This means that Australia will need to deploy evolving low carbon technologies such as solar panels, community batteries and electric vehicles. ICT is a key enabler of this future. Our proposed ICT program for the 2024-29 period is targeted at keeping pace with the digital transformation of the energy system, maintaining existing service levels through recurrent investments, and responding to changing expectations from our customers, including those from Culturally and Linguistically Diverse (**CALD**) backgrounds. We are investing in technologies that personalise the experience customers have with Ausgrid including simplifying our CALD customer experience.

Customers will be able to choose from a range of smart technologies, dynamic tariffs, and services to maximise their use of renewable energy whilst keeping their bills low. The benefits of this future 'flexible' low carbon energy system are significant – faster and lower cost decarbonisation, and lower bills for customers. However, it will only be possible if we harness the power of data and digitisation across our energy system.

The Technology Plan 2024-29 is to enable Ausgrid's 2035 vision and provide a suite of investments for digitisation of the energy system. In line with a refresh of our overarching corporate strategy, we have updated our supporting technology and cyber security strategies. These strategies explain why we need to digitise the energy system and the benefits for doing so for decarbonisation, customers (including CALD), and the economy. Together these strategies have a strengthened focus on using prudent and efficient ICT and cyber security investments as key enablers for us to meet our strategic objectives.

We have aligned all planned ICT investments with our corporate priorities and objectives, whilst taking a customer-centric approach for all ICT investments. This approach aligns to the National Electricity Objective (**NEO**) to promote prudent investment in, and efficient operation and use of electricity services for the long-term interests of customers of electricity with respect to:

- Price, quality, safety, reliability, and security of supply of electricity; and

- Reliability, safety, and security of the electricity system.

In reference to the current 2019-24 period, non-recurrent investment is estimated to be $132 million. This is driven by significant non-recurrent expenditure in response to accelerated transformation initiatives, an accelerated adoption of cloud technologies and the changing cyber threat landscape. By the end of this regulatory control period, our non-recurrent ICT investment is forecasted to be $132 million and recurrent ICT investment expenditure is forecasted to be $157 million for a total of $289 million, which is 67% above Australian Energy Regulator (**AER**) Capex Allowance.

As a prudent and efficient critical infrastructure asset operator, it is essential that we apply a proportionate, risk-based approach for supporting and securing the safe supply and restoration of energy. For 2024-29, Ausgrid's proposed investments are underpinned by the mitigation of our two Group Risks (Failure of Internal ICT Services and Significant Protective Security Incident).

ICT investment for 2024-29 comprises of $318 million non-recurrent investment ($191 million investment - capex and $127 million investment - opex[1]) and $140 million recurrent

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[1] Investment – opex refers to the Software-as-a-Service (SaaS) configuration costs that are considered as opex under new International Financial Reporting Standards (IFRS) guidance published in April 2021.

expenditure ($110 million investment - capex and $30 million investment - opex), for a total of $458 million ($301 million investment - capex and $157 million investment - opex).

Non-recurrent investment for the upcoming 2024-29 period is a 142% uplift versus the current forecast for the 2019-24 period. This is driven primarily by the Enterprise Resource Planning (**ERP**) program that is a key enabler for enterprise-wide business transformation. This will benefit our customers by quicker resolution of customer inquiries and complaints, enabling flexible dynamic tariffs for customers to have greater control over bills and enabling smarter maintenance decisions, reducing outages and lowering energy bills for customers.

This program will transform our ERP, Enterprise Asset Management (**EAM**), and Meter Data Management and Billing (**MDM/B**) systems. Once these systems are embedded within the business, this will result in a downwards trend in our overall ICT recurrent and non-recurrent expenditure from FY28 onwards. This is achieved by regular access to new feature and security releases, and therefore removal of the need for large cyclic ICT capex upgrades and renewal events.

Whilst we recognise that the transformation program is driving a short-term increase in annual ICT investment from FY25-28, this is similar to peers during large scale ERP and EAM program implementations. Furthermore, from FY29, our Totex Per Customer will outperform the industry benchmark average.[2] These transformational ICT investments, particularly in As-a-Service offerings, sets us in a strong position that creates a sustainable annual level of ICT totex, supporting positive downward pressure on our customers' electricity prices.

Digitisation offers many benefits for both energy systems and clean energy transitions. Rapid growth of connected devices and customer energy resources is expanding the potential cyber-attack surface of electricity systems, raising cyber risks. The nature of these cyber risks is also changing because of increasing connectivity and automation and a shift to the cloud. This has required an uplift in our Cyber Security investment to achieve best in class Security Profile 3 (**SP-3**) per the Australian Energy Sector Cyber Security Framework (**AESCSF**).

Cyber Security non-recurrent expenditure is forecasted to be $68 million ($29 million - investment - capex and $38 million investment - opex), 184% above the current regulatory period and recurrent expenditure is forecasted to be $23 million ($15 million investment - capex and $8 million investment - opex), 31% above the current regulatory period.

*Table 1 – Forecast FY25-29 ICT Total Investment and Figure 1 – ICT Investment Summary* provides a summary of the forecasted ICT opex and capex planned for the 2024-29 period (Standard Control Services only).

| $M 2024 Real | FY25 | FY26 | FY27 | FY28 | FY29 | TOTAL[3] |
|---|---|---|---|---|---|---|
| Investment - Capex | 74.2 | 98.5 | 58.9 | 35.9 | 33.6 | **301.1** |
| Investment - Opex[4] | 40.3 | 48.9 | 31.1 | 20.8 | 15.7 | **156.8** |
| **ICT Investment** | 114.5 | 147.4 | 89.9 | 56.7 | 49.3 | **457.9** |

*Table 1 Forecast FY25-29 ICT Total investment*

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[2] Based on FY20 Annual RIN Benchmarking.

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

[4] Software-as-a-Service (SaaS) configuration costs are, under some circumstances, considered as opex under new International Financial Reporting Standards (IFRS) guidance published in April 2021.
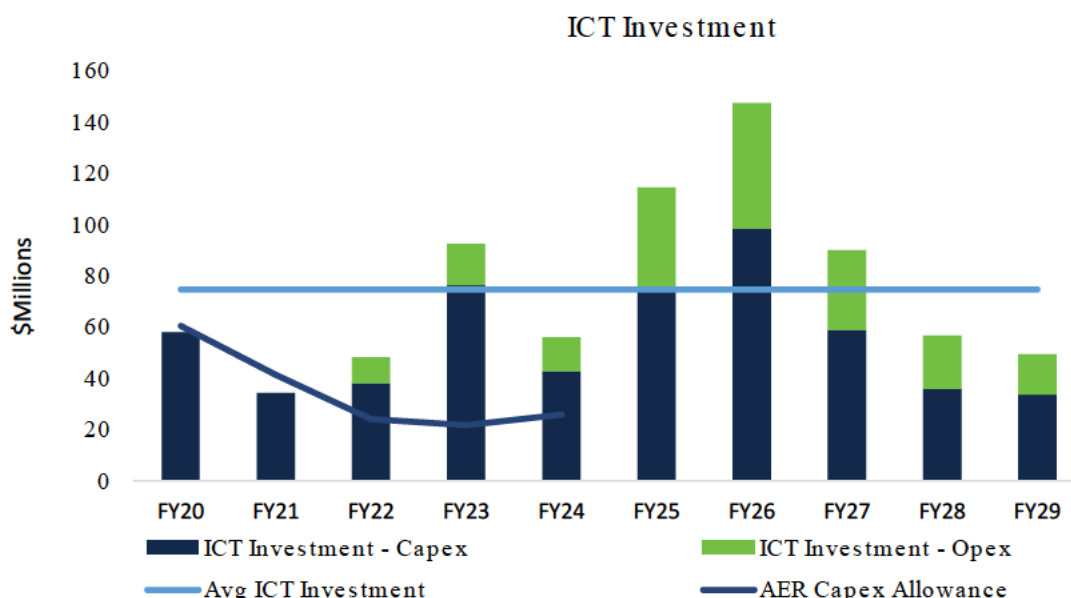
**ICT Investment**



*Figure 1 ICT Investment Summary (current and forecast periods)[5]*

Two opex step changes are proposed for FY25-29 and include changes resulting from the accounting treatment decision regarding treatment of Software-as-a-Service (**SaaS**) expenditure and increased opex as a result of achieving SP-3 maturity for cyber security.

Accounting classification changes to align with the International Financial Reporting Standards Interpretation Committee (**IFRIC**) decision (**IFRIC Decision**) on the accounting treatment of SaaS implementation related expenditure has driven a total increase of $157 million in ICT opex from 2014-29 period. As per the AER advice, this is reported separately as ICT investment – Opex and ICT investment – Capex.

Uplift in cyber security licensing and support costs to achieve and maintain Security Profile 2 and SP-3 has resulted in a total increase of $21 million in ICT opex from 2024-29 period, driven by the need for further investment in new advanced cyber tools capability, advanced monitoring and detection, investing in resources with specialist skills, and investing in evolving cyber awareness training programs for staff to protect themselves and the organisation from cyber-attacks.

Ausgrid believes the 2024-29 Technology Plan will provide customers and the economy with a clear vision, direction, and shared approach to accelerate our transition to a fully digitised, net zero energy system.

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[5] Excludes Operational Technology (**OT**) and Advanced Distribution Management System (**ADMS**) expenditure.

## 2. Purpose

### 2.1. Scope

This plan summarises:

- Our Technology Plan objectives;

- How customer needs and expectations are considered in the development of this plan;

- Our ICT financial, operational and delivery performance for the current regulatory control period against the current AER Determination; and

- Forecast plans for both recurrent and non-recurrent ICT capital and operational investment programs[6].

### 2.2. Purpose of this document

This document provides justification for our proposed non-network ICT investment capex and opex for the upcoming 2024-29 period. It outlines how our proposed ICT expenditure is prudent, efficient and in the long-term interests of our customers. It also outlines how our primary business objectives underpin this ICT expenditure to enable our distribution system and services to remain reliable, safe, and secure.

### 2.3. Relationships to other documents

*Figure 2 - Relationship to other ICT supporting documents* demonstrates how the Technology Plan links to our corporate strategies and Distribution System Operator (**DSO**) vision as well as our overarching Technology and Cyber Security Strategies.

It also shows the relationship to supporting ICT Program Briefs for all major ICT investments during the 2024-29 period, and the Technology Expenditure Cost Model which provides a comprehensive overview of our planned and historical ICT expenditures.
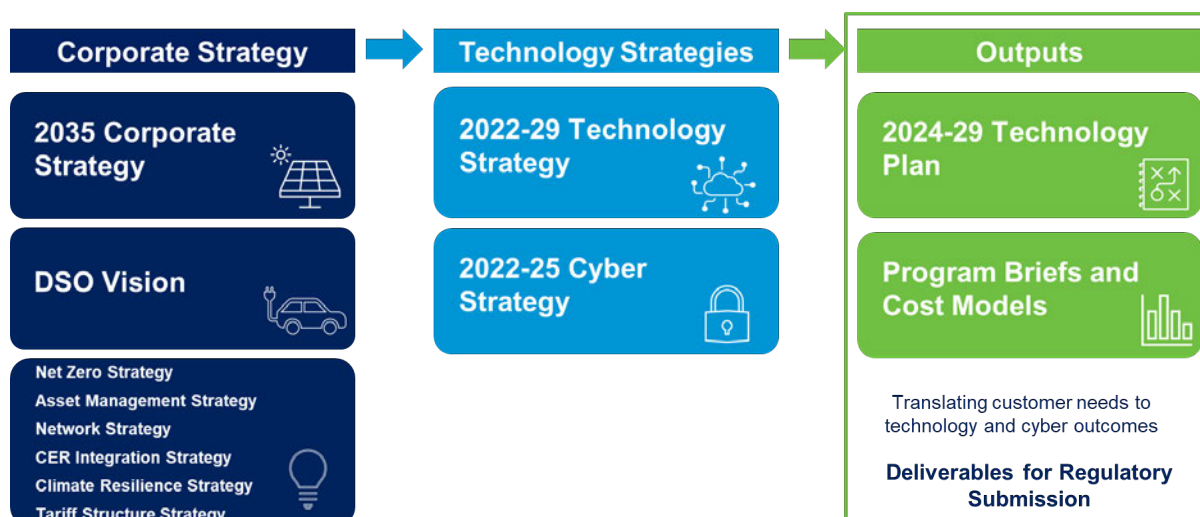


*Figure 2 Relationship to other ICT supporting documents*

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[6] All financials in this plan are Standard Control Services Direct Costs only and presented in FY24 real $.

## 3. Planning and customer engagement

*Figure 3 - Approach to prudent and efficient ICT investment* shows that as an electricity distribution network service provider (**DNSP**), we are dependent on reliable and efficient ICT systems and services to meet all our regulatory[7] and customer obligations. Continuous detailed planning, prioritisation and review of ICT investments and ongoing expenditure will confirm that these are both prudent and efficient in meeting those obligations.
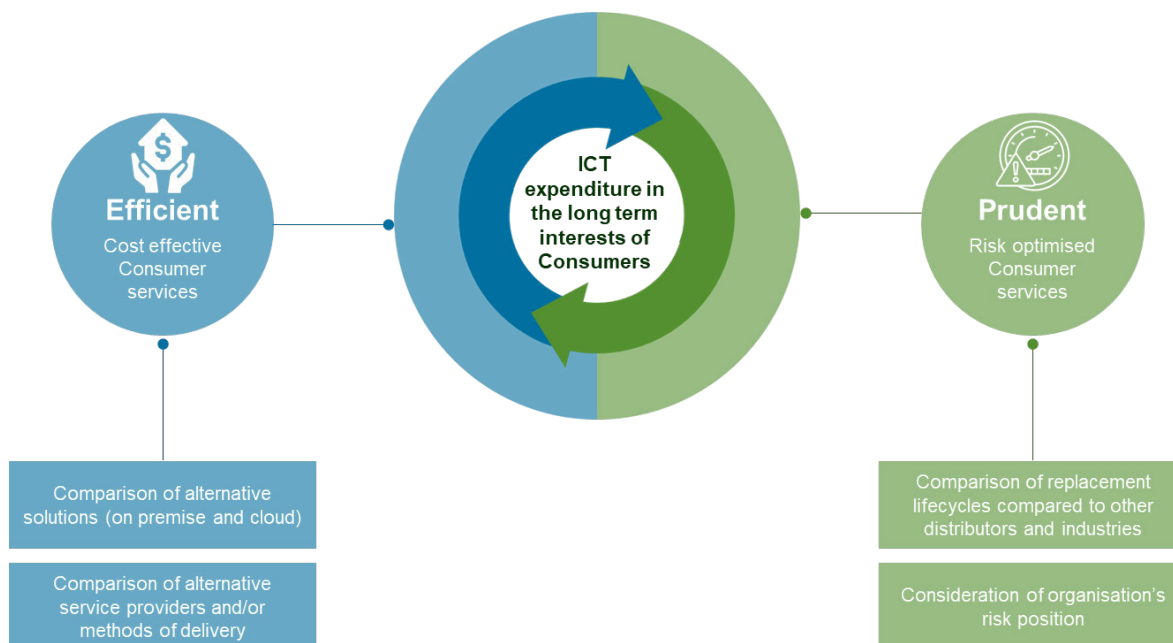


*Figure 3 Approach to prudent and efficient ICT investment*

## 3.1 Drivers of ICT planning

Planning and identification of strategic priorities and ICT investments to support our 2024-29 Technology Plan have been completed in conjunction with our overarching corporate business planning. We adopted this approach strategically, to align all planned ICT investments with our corporate priorities and objectives, whilst taking a customer-centric approach for all ICT investments.

2024-29 ICT investments have been grouped into functions that align to business capabilities and major investments of >$2 million for each function have then been prioritised based on a risk and value-based approach. This has identified six major ICT investment programs which are further detailed in *Section 10 – ICT Program Overviews*, along with the associated supporting program briefs.

Furthermore, the performance and revision of this plan and the supporting investments will be assessed and revised annually as part of our annual business planning activities to confirm it remains prudent, efficient, and relevant to customer and business needs.

## 3.2 Customer needs and expectations

We have been proactive in engaging with customer advocates through ongoing dialogue, providing an overview of our planned ICT expenditure for the next regulatory control period in consideration of the *Customer Engagement Framework.*

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[7] Such as: NEO, DNSP Licence Conditions, Security of Critical Infrastructure Act and the Electrical (Consumer Safety) Act

*Figure 4 - Overview of our approach to community engagement* demonstrates how ICT engaged with Customer Advocates to inform the 2024-29 expenditure to ensure customer interests are considered and incorporated where applicable.



*Figure 4 Overview of our approach to community engagement*

We are confident that this collaborative engagement approach will provide a robust and achievable 2024-29 Technology Plan that will deliver tangible value to our customers.

## 4. Strategic focus

In line with a refresh of our overarching corporate strategy, we have updated our supporting technology and cyber security strategies. Together these strategies have a strengthened focus on using prudent and efficient ICT and cyber security investments as key enablers for us to meet our strategic objectives both now and into the future.

The changing energy landscape, customer needs, and cyber security risks that have emerged and accelerated over the current regulatory control period are key drivers for these strategies.

This trend is likely to continue into the upcoming regulatory control period with new customer demands of the distribution network including 'prosumers'[8] consuming and producing energy in new ways, realignment as a DSO, and an exponential increase in the volume and exchange of data across the network and with customers.

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[8] A prosumer is an energy consumer that both produces and consumes energy

## 4.1. Changing Industry Trends

### 4.1.1 *Customer Energy Resources (CER)*

Increasing focus on decarbonisation and a transition to both customer and industrial CER driven by customers, such as the adoption of rooftop photovoltaics (**PV**) or solar, has accelerated much faster in metropolitan Sydney than predicted during the current regulatory control period[9]. This is coupled with emerging adoption of consumer and industrial use of batteries, and electric vehicles. Microgrids also continue to grow and will begin to accelerate over the next decade as consumers drive towards a more decentralised energy model.

These trends will significantly change the way we operate the network and require that critical systems within our ecosystem such as Advanced Distribution Management System (**ADMS**) and MDM systems are modernised and augmented.

This is coupled with uplifting technology and cyber security capabilities to manage increased data consumption and transaction levels, to confirm control and reliability of the network remains stable and compliant.

### 4.1.2 *Digital ecosystems*

Real time interaction with the Australian Energy Marker Operator (**AEMO**) and industry peers across the value chain such as Transmission Network Service Providers (**TNSPs**) and retailers has always been a core part of our ecosystem.

However, the emergence of CER and smart devices across the network, increased focus on customer's own digital experiences, and the emerging rise of the prosumer, all require us to leverage modern and efficient data management, sharing and storage solution that can scale.

Timing of this trend has fortunately aligned with extensive growth and options in affordable and flexible cloud-based platforms and services that provide us with an opportunity to respond to the changing data needs without a significant incremental price impact to customers.

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**Customer Insight**

**Get up to speed on E-mobility**

E-mobility holds the key to sustainable transport, more liveable cities and successfully fighting climate change.

By 2035, Ausgrid forecasts **1,280,128 million\*** electric vehicles in use within our serviceable geography.

Find out more about how technology is enabling e-mobility in the **ICT Consumer Energy Resources Program Brief**.

**\*Source: Internal Ausgrid Forecasting data as at June 2022**

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**Customer Case Study**

**Adapting to a changing energy landscape, digitally.**

During 2019-24, Ausgrid built the foundation for enhanced outage information sharing with Customers.

Commercial and Industrial customers requested technology integration so that they can personalise their customer experience.

*"Technology integration (API\*) capability enables nbn Co Limited to personalise our connection customer experience with accurate outage restoration information".*

In 2024-29, Ausgrid will be focusing on enabling greater access to accurate outage information with technology integration API.

\*Application Programming Interface – enables integration between technology services.

**Source: Voice of Community Survey 2022**

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[9] Source: Australian Energy Council (2021) Solar Report: https://www.energycouncil.com.au/media/cz3fz3je/australian-energy-council-solar-report_q2-2021.pdf

### 4.1.3 *Customer affordability*

Whilst customer expectations regarding quality and security of service remain high, the focus on affordable energy consumption has seen a continuing trend for some residential and industrial customers to invest in CER to offset overall energy prices. This has required us to commence investing in advanced Artificial Intelligence (**AI**) and Machine Learning technologies (**ML**) as well as analytics to improve asset scenario, planning, maintenance, and operational activities to confirm affordability and reliability of the network is maintained for all customers.

### 4.1.4 *Customer experience*

When we talk about customer experience, we broaden the traditional view of 'customer experience.' To Ausgrid, customer experience encompasses the full spectrum of how Ausgrid engages and interacts with our community. Who Ausgrid should be and working towards in our 2024-29 regulatory reset should reflect our community's expectations and aspirations.

We want to promote the aspirations of our communities by:

- Better understanding community's unique needs to enable the provision of high-quality, personalised support;

- Working with our delivery partners to develop a coordinated approach to rebuilding consumer trust in the energy sector; and

- Optimising the engagement of our workforce as better employee experiences.

When a community member engages with Ausgrid, we want to provide a seamless and empathetic experience every time. However, we know we are not there yet. This is particularly the case for CALD customers and indigenous communities. We know we need to do more to support these customers to engage with us. This is particularly the case for minority and diverse customers.

Our 2024-29 investments for Customer Information Systems (**CIS**) are aiming to increase service resolution with least amount of customer effort and resolution at the first point of contact where possible (first visit or first call resolution) for all customers, including CALD customers.

**Customer Insight**

**Energy markets are rapidly transforming towards low-cost renewables and new digital technologies**

Decentralised generation and storage, combined with the rise of internet-enabled devices, is changing the way our customers interact with us and use energy at home and in their businesses.

We are developing a leading data and analytics capability to connect millions of distributed assets and data points to provide more personalised and value-add services to our customers.

Source: Australian Renewable Energy Agency – Australian Government

**Customer Case Study**

**Better understanding customers' unique needs**

Ausgrid's network serves some of the most culturally and linguistically areas in Australia and we are committed to developing a strategy to improve our services for these communities.

In 2019-24, key activities commenced included providing training to front line staff on how to work with telephone interpreters and translated Life support material into the 10 most common languages within our network.

Ausgrid recognise Technology can simplify our CALD customer experience and in 2024-29, we plan to introduce CALD friendly omni-channel services and personalisation that remembers CALD customer preferences.

Source: Voice of Community Survey 2022

### 4.1.5 Market and regulatory changes

The current regulatory control period has seen significant reforms and market changes such as (but not limited to) the introduction of 5-minute settlements in the wholesale energy market, and administrative changes such as the AER's release of a Standardised Model for both Standard Control and Metering services. It is expected that the following reforms and changes will flow into the upcoming regulatory control period because of the reform program being overseen by the Energy Security Board (**ESB**) including:

- **Updating of CER technical standards in the NER** – part of the CER Implementation that expects to establish mandatory compliance for new solar PV and storage systems (including interoperability and cyber standards, electric vehicle smart charging standards).

- **Introduction of Dynamic Operating Envelopes (DOEs) –** this program of work includes a phased introduction of guidelines, capacity allocation and dynamic connection agreements, rules for new CER to comply with DOEs and publish DOEs.

- **Demand side participation** – this broad program of work seeks to enable a two-sided market through flexible trading arrangements, local network services exchange and structured procurement for CER network services, publication of network visibility to improve planning and location CER investment.

Whilst it is expected that most of the ESB's CER related reforms which are currently in consultation will be formalised and established by 2025, there is also a possibility that rule changes may not take effect until after this date. In response to these changes, we will need to accelerate integration with CER, supported by modern data and analytics and integration capabilities to meet our customer's expectations and needs.

### 4.1.6 New ways of working

2020 onwards saw accelerated global changes in Ways of Working due to forced lockdowns and daily changing of legislation and rules.

This not only changed the way that customers engage and interact with us, but also or employees' digital interactions with other employees, contractors, partners, and vendors in maintaining a safe and reliable network and supporting technologies.

These changes have driven increased focus on technologies that improve the overall customer and user experience, whilst providing reliable, secure, and private communication channels. We see this trend continuing beyond 2025 and have focused our customer information systems investments to address these evolving needs.

**Customer Case Study**

**Driving towards Net Zero**

Transport is one of the largest contributors to the climate crisis, accounting for 28% of all emissions*.

**Transport for NSW** expects to establish 7,000 charging stations over the next 4 years and anticipates 50% of new vehicle sales being electric by 2030.

Ausgrid has been involved right from the start. Companies that were once start-ups working with us in small-scale trials are now established charge point operators.

Market reforms are expected with new technical ICT and Cyber standards prescribing how Ausgrid should operate in the market.



*https://www.climatecouncil.org.au
Source: Voice of Community Survey 2022

**Customer Case Study**

**Our customers expect choice when receiving the right information at the right time**

During 2019-24, Ausgrid upgraded our Website. Verbatim Customer feedback shows Ausgrid is interpreting our Customer needs, but further improvements are required.

*"The outage map page is fantastic. To make and provide a page this good shows outstanding customer focus. The information being fed into it though is wildly inaccurate and makes it almost useless. I'm not talking about a fluid situation that is evolving, I mean just random info being updated on an hourly basis."*

In 2024-29, we will be focusing on enabling industry-leading access to self-service digital solutions and network data and information.



Source: Voice of Community Survey 2022

## 4.2. Technology strategy

Our 2022–29 Technology Strategy and underlying strategic technology objectives support Ausgrid's Corporate Objectives. It enables the digitisation of our energy delivery services with reliable, affordable, and secure technologies with minimal price impact to customers, while meeting future customer needs.

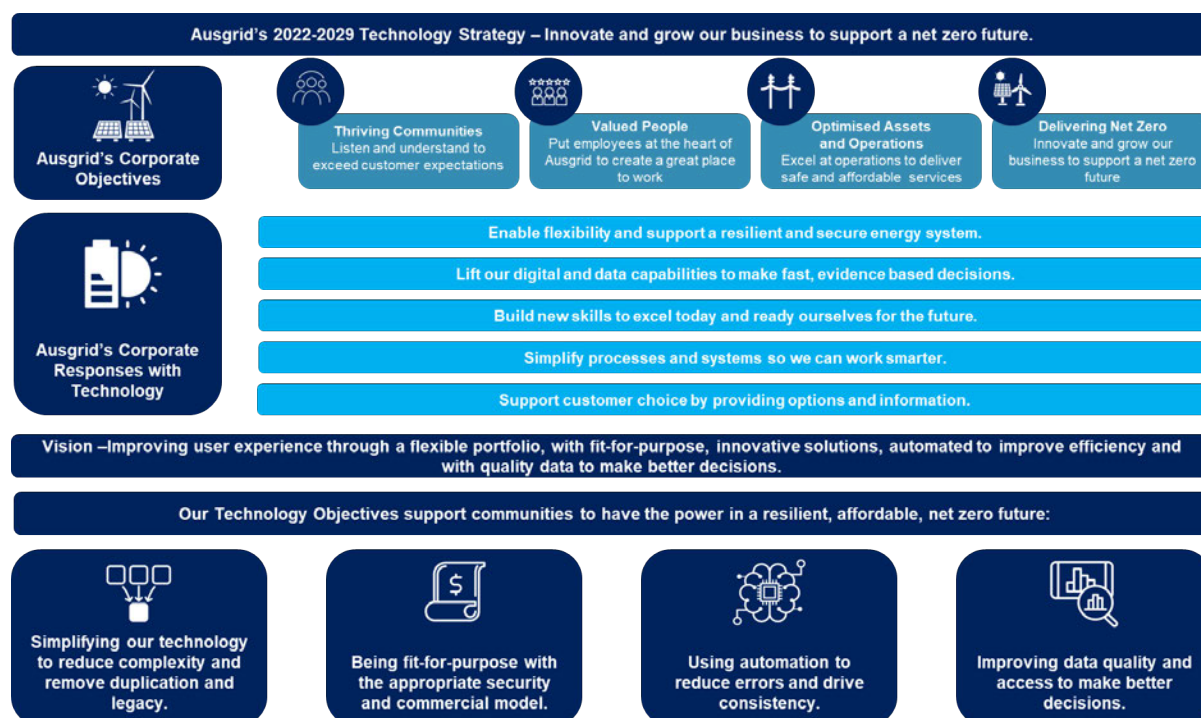This is further detailed in *Figure 5 - Alignment between our corporate and technology strategic responses.*



*Figure 5 Alignment between our corporate and technology strategic responses*

Our Technology Strategy targets four major outcomes, all of which are primarily focused on the National Electricity Objective – to ensure efficient investment in, and efficient operation and use of, electricity services for the long-term interests of consumers of electricity with respect to price, quality, safety and reliability and security of supply of electricity:

- **Simplifying** – Simplifying our technology to reduce complexity and remove duplication and legacy;

- **Fit for purpose** – Fit-for-purpose solutions with the appropriate security and commercial model;

- **Automation** – Automation to reduce errors and drive consistency; and

- **Data Management & Analytics** – Improve data quality and access to make better decisions.

These outcomes are delivered through our Governance processes which enforce the use of Technology Principles consistently in the selection and execution of all ICT initiatives.

A detailed overview of each of the key objectives and their related outcomes and success measures that underpin our Technology Strategy are provided in *Appendix 2 – 2022-29 Technology Strategy Summary.*

*Figure 6 Overview of Technology Principles*

The Technology Principles are designed to ensure that all ICT expenditures deliver the four technology outcomes, and hence customer benefits outlined above.

The principles are enforced through our pre-project initiation governance. All capital and network maintenance investment proposals which exceed $2.5 million must be reviewed by the Investment Governance Committee (**IGC**) with two primary objectives, that:

- an appropriate level of due diligence has been undertaken and that the expenditure is financially prudent and in line with Ausgrid's Investment Governance Framework, AER regulatory requirements, and Business Plan; and

- that all reasonable options in prioritising and selecting the optimal portfolio of capital and network maintenance projects and programs has been duly considered. This will be achieved through the use of consistent investment evaluation principles.[10]

Specifically, the IGC's evaluation principles include architectural signoff - making sure standard endorsed tools/technologies are used. No proposal will be approved for budget at "Gate 3" in the IGC's approval process without endorsement by the Ausgrid Technical Design Authority (**TDA**) committee. The TDA endorsement process also extends to all ICT projects that require a Gate 3 approval for release of funds irrespective of financial value.

Preconditions for TDA endorsement are that solution architectures are:

- reviewed on whether they comply with Enterprise Architecture principles;

- reviewed on whether they comply with Application and Technology Reference Manual which identifies the set of technologies / tools that are endorsed for use within Ausgrid;

- reviewed by other Solution Architects and Enterprise Architects to ensure that standard endorsed patterns are used; and

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[10] *Investment Governance Committee Charter*, Ausgrid, 7/12/20

- peer reviewed by domain experts, Enterprise Architects, Solution Architects, and other subject matter experts.[11]

The IGC also requires signoff by Procurement: at least three quotes for any purchase > $30,000 and full "Request for Proposal" >$250,000. This ensures that costs are efficient, and market tested[12].

We have also used Ausgrid's Architectural Principles in the development of options as part of this Regulatory Proposal, with regard to the AER's Guidelines on ICT expenditure assessment in particular the *development of detailed options analysis of all credible options including options of various scopes and timings and identification and quantification of all relevant benefits and residual risks for each option*[13]. In particular, Principles 3, 4, 5 and 7 support the discovery of prudent and efficient options:

- Vendor partnering to realise customer benefits as quickly as possible;

- Extend, buy or build by exception to minimise duplication, maximise re-use and exploit economies of scale;

- Simplify and share common technologies – to contain cost contagion where integration and configuration must be reworked when solutions are modernised; and

- User-centric solutions – to discover the most efficient solution by exploring risk, cost, benefit, performance and user experience options before finalising technical design.

In the context of this regulatory proposal, the strategies, core vendor solutions and architectural frameworks for our Customer Information Systems, Data & Analytics and ICT & Infrastructure Management program briefs reflect the results of detailed options evaluation carried out as part of this governance process.

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[11] *Technical Design Authority Charter*, Ausgrid, July 2020 and *Technology Review Group Charter*, Ausgrid, November 2020

[12] Procedure – Procurement Source to Contract – PL000-P0170

[13] Italics quoted from *Assessing the prudency and efficiency of the project* in *Consultation paper - ICT Expenditure Assessment*, AER, May 2019 p.20

## 4.3. Cyber security strategy

The purpose of the cyber security program for the 2024-29 regulatory control period is to achieve industry defined best in class cyber security maturity across all cyber control domains within the AESCSF. This will provide unconstrained cyber capabilities to enable future technologies, such as CER, and to protect against unknown and evolving threats.

**Customer Case Study**

**Continued decentralised generation and storage, combined with the rise of internet-enabled devices increases Cyber risk**

By 2035, Ausgrid is anticipating a 241% increase of Solar/Battery Customers and a 209% increase of Solar Customers compared to 2022.

Commercial customers are concerned with increased use of decentralised generation and storage. One Commercial and Industrial Customer said:

*"Rapid uptake of Consumer Energy Resources (CER) has meant Cyber Security is secondary and should be carefully considered as there is a perception there is limited Cyber Security for CER resources.*

In 2024-29, we will be investing significantly in uplifting Ausgrid's Cyber Security resilience and Cyber defences.

Source: Voice of Community Survey 2022

The Australian Government has set a minimum compliance level at the lowest level of security maturity SP-1 for entities using the AESCSF framework.

However, ███████████████████████ ████████ and coupled with our risk averse appetite for cyber security threats, we believe it is proportionate that our cyber strategy sets a target state, so far as is reasonably practicable (**SFAIRP**), at the highest-level maturity SP-3 allowing the active management of cyber security threats, by the end of 2029. Refer to *Figure 10 - Overview of Ausgrid's 2022-25 Cyber Security Strategy*.

A cyber-attack could disrupt the distribution of electricity by encrypting all or parts of the operational technology (**OT**) network and taking control of supervisory control and data acquisition (**SCADA**) devices. It could also disrupt the supply of electricity by encrypting all or parts of the ICT network or disabling smart meter controls preventing metering data from being processed.

Cyber-attacks and espionage (illegally gaining access to confidential information) are significant threats to critical infrastructure in Australia due to the country's geopolitical and economic position. Throughout 2022, cyber-attacks and espionage activity have been directed at the Australian Government, critical infrastructure, and financial services institutions alike.

The Australian Cyber Security Centre (**ACSC**) states that in 2021, approximately one quarter of reported cyber security incidents affected entities associated with Australia's critical infrastructure.[14]

Cyber-attacks are increasing in frequency, with a 13% increase in cyber-attacks reported by Australian entities to the ACSC in 2020-21.[15]

There are significant implications of a cyber-attack on us and our customers. Our network is critical to the national economy as it services the Sydney central business district and other critical infrastructure businesses which account for 30% of Australia's gross domestic product (**GDP**).[16]

We initially developed a cyber strategy in 2017 in response to changing ministerially imposed DNSP licence conditions that required minimum cyber security standards to be in place and in response to the introduction of the *Security and Critical Infrastructure Act 2018* (**SOCI**) in 2018. We supported this strategy with a dedicated three-year program to uplift our foundational cyber security services and technology.

The cyber strategy was further revised in 2022, driven by our need to continually enhance our cyber security defensive capability as well as in response to the increased obligations from the Australian Government relating to the SOCI Act.

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[14] ACSC, *ACSC Annual Cyber Threat Report 2021*, 15 September 2021
[15] ACSC, *ACSC Annual Cyber Threat Report 2021*, 15 September 2021
[16] NSW Government, *Sydney Facts*, https://invest.nsw.gov.au/why-nsw/sydney-facts, Accessed: 25 February 2022.

As the threat landscape continues to intensify, the revised strategy includes a set of guiding principles as shown in *Figure 7 - Ausgrid Cyber Guiding Principles* that assist in strengthening our cyber security posture:



**Optimal investment based on risk and business value**
Cyber security decisions follow a risk management approach to provide an appropriate balance between risk, cost and benefit

**Business ownership of risk**
Business functions own risks to proactively manage remediation, buy down or acceptance. All risks captured and tracked in corporate risk register

**Retention of core cyber expertise and outsourcing of commoditised activities**
Responsive team to rapidly resolve issues, identify and contain potential or actual threats

**Regulatory compliance and active internal and external stakeholder management**
Collaboration and cohesion of our decisions to align with regulatory and industry standards

**Proactive cyber threat scenario based risk reduction**
All Cyber technology decisions must increase business value while driving cost effectiveness and efficiency

**Simplify, standardisation and automation of cyber technology and services**
Provide decisions which aim to consolidate our technology to facilitate simpler processes, data integration and encourage rapid delivery

*Figure 7 Ausgrid Cyber Guiding Principles*

As infrastructure owners and operators introduce more technology to bolster innovation and increase efficiencies, the vulnerability of critical assets to digital attacks is also increasing. Targeting critical assets is becoming more common as threat actors, including nation states, are aware of the widespread chaos and disruption this can cause.

The Marsh Cyber Insurance Review report 2022 reported that compared to 2021, the frequency of claims reported to insurers in Australia have increased by 50%. Of the cyber claims notified to insurers for the first half of 2021, ransomware attacks, data breaches (hostile external) and fraud (emails or accounts manipulated) made up most of the cases. Across all ransomware instances, cyber criminals utilising double extortion techniques[17] has become the norm.

The report also reported that "a large volume of claims was a result of a third-party supply chain breach as opposed to their insureds having been targeted by a threat actor group directly substantiating the emerging risk of supply chain threats."

Enablement of our Cyber Security Strategy is defined by the following capabilities:

- **Cyber security foundations**: enabling a new Cyber Security operating model to redefine the ways Cyber Security services are delivered across the organisation;

- **Enterprise capabilities:** equipping our staff with the right tools and information to improve productivity and enhance collaboration so that we can deliver quality outcomes for our customers; and

- **Core service delivery:** creating long term relationships with our customers and broader community through a cyber security strategy of core applications that are modern, fit-for-purpose, integrated and in line with the current threat landscape.

The 2022-25 Cyber Security vision as depicted in *Figure 8 - Overview of 2022 – 25 Cyber Security Strategy* supports the ICT Technology Strategy by 'Delivering the cyber services required to secure Ausgrid's critical infrastructure and secure outcome for our customers'.

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[17] Stealing data and demanding payment to prevent the release of stolen data publicly.

Cyber security is a critical enabler for Ausgrid to meet its strategic objectives and regulatory requirements.

| | | |
|---|---|---|
| Ausgrid's **Business Strategy** vision | > | *"Our vision is for communities to have power in a resilient, affordable, net zero future"* |
| Our **ICT Technology** vision supports the business strategy | > | *"Deliver fit for purpose technology and cyber services providing innovative and secure outcomes for our customers"* |
| **Cyber Security** vision supports the ICT Technology strategy | > | *"Delivering the cyber services required to secure Ausgrid critical infrastructure and services"* |

There are **four cyber security goals** >

| Drive the cyber risk for the business to within risk appetite | Trusted and connected organisational partner | Evolve and enhance cyber defences and resilience | Enhance and accelerate security uplift and performance |
|---|---|---|---|

Centred on **six cyber security Guiding Principles** >

| Optimal investment based on risk and business value | Business engagement and ownership of risk | Retention of core cyber expertise and strong partnerships | Regulatory compliance and stakeholder engagement | Cyber resilience and proactive cyber risk reduction for customers | Simplification and automation of cyber services to protect data |
|---|---|---|---|---|---|

*Figure 8 Overview of 2022 – 25 Cyber Security Strategy*

## 5. Management and delivery of change

### 5.1 ICT operating model

Our ICT operating model has matured over the current regulatory control period to include more modern, agile, and digital ways of working in delivering ICT services. This has been achieved by a blended operating model of in-house and third-party managed services, as well as strong partner and vendor relationships, which has been enhanced with the adoption of more cloud service offerings.

Ongoing quality and performance of services provided by third-party managed service providers is underpinned by an *ICT Supplier Governance Framework* for delivery of prudent and efficient supporting ICT services.

### 5.2 ICT risk management

ICT Risk Management is managed in alignment with Ausgrid's Risk Management Framework. The two Group Risks under management by ICT that have influenced the prioritisation of ICT investments including Cyber, ERP and ICT & Infrastructure Management Programs.

We manage the two Group Risks and keep these within appetite by applying a prudent and efficient approach for prioritising capex investments to reduce risk SFAIRP.

| Group Risk | Description | Risk Appetite Status[18] | Why this is important for Customers? |
|---|---|---|---|
| Failure of Internal ICT Services | The organisation will maintain Information, Communications and Technology to support the safe supply and restoration of energy and to support the day-to-day operations. | Risk Sensitive[19] | Inability to access communication services during prolonged power outages causes inconvenience and delays the power restoration process. ICT services need to be resilient to withstand unplanned impacts and provide ongoing availability of key services for customers. |
| Significant Protective Security Incident | The organisation will restrict unauthorised access (physical and cyber) that results in interruptions to the availability of mission critical network control systems through the adoption of industry best practice for electricity network control systems, as far as is reasonably practicable. | Risk Averse[20] | Cyber-attacks are growing in prevalence and Ausgrid needs to respond to the increasing threat balanced against our Critical Infrastructure asset status proportionately. Achieving best in class cyber security capability to deter and thwart cyber events before they are launched against Ausgrid enables supply to be interruption free and livelihoods of customers and communities to be maintained. |

*Table 2 Overview of Group Risks 11.1 and 4.1*

## 5.3 ICT asset lifecycle management

We consider the asset lifecycle management of our ICT assets as important as the asset management of the critical services and infrastructure it enables. Cyclical renewal of critical core business systems and technologies in conjunction with proactive asset management and periodic maintenance of all supporting ICT strongly positions us to:

| Rationale | Description | Why this is important for Customers? |
|---|---|---|
| Mitigate | Mitigate unnecessary ICT risks, incidents, and disruptions to our operations and services and to our customers. | Residents' inability to access communication services during power outages causes severe distress and delays the recovery process. |
| Remove | Remove exposure to vulnerabilities present when continuing the use of legacy and unsupported systems. | Builds Ausgrid's capability to withstand impacts of Cyber incidents. |
| Reduce | Reduce unnecessary overheads, administration and support costs linked to outdated systems. | Spending less on asset upgrades and replacements today may lead to savings |

---

[18] Per Ausgrid's Risk Appetite Statements as of June 2022.

[19] Risk Sensitive – Limited risk taking wherever possible.

[20] Risk Averse – Avoid risk taking wherever possible.

| Rationale | Description | Why this is important for Customers? |
|---|---|---|
| | Reduce productivity losses from degraded performance of technology that has reached the end of its useful life. | to current customers but higher costs to those in the future. |
| Introduce | Introduce the ability to adopt new features, functions, and efficiencies not available to outdated systems | Those with lived experiences of disruptive events recognise the need to prepare. |

*Table 3 ICT Asset Management Overview*

The effective lifecycle management of our ICT assets means that:

- Defective assets are remediated;

- Asset replacements are planned;

- Change in business criticality, cyber criticality or highest information classification are identified and recorded; and

- For non-network assets, end of life assets are retired.

*Section 6 – Target State Architecture* provides information on how consolidation and retirement of legacy ICT assets are driving optimisation of the technology landscape by 2029.

### 5.3.1  *Application asset lifecycle management guidelines*

Our Enterprise Architecture function models each of our functional applications through lifecycles that are consistent with the rate of change and risk profiles of the relevant business functions that each application supports. This helps us in minimising the need for additional ICT costs such as sustainment support, elevated monitoring, or custom patches for legacy applications, and enables business value to be continuously realised in everyday ICT operations and services.

This approach has resulted in many foundational application upgrades and replacements in the current regulatory control period and is the key driver for major upgrades planned in the 2024-29 period such as the ERP, EAM, MDM/B upgrades which account for supporting several critical business operations.

## 5.4    ICT investment governance framework

Over the current regulatory control period, we have taken proactive steps to streamline the investment governance of our ICT investments to confirm all investments enable prudent and efficient expenditure and drive further value for our customers. Details of how we approached this for ICT investments is further detailed in our Investment Evaluation procedure.

*Figure 9 - ICT Investment Governance Phases* provides a high-level overview of the key investment governance phases taken to obtain funding approval.

Figure 9 ICT Investment Governance Phases

All supporting ICT Program Briefs for 2024-29 regulatory control period include a Net Present Value (**NPV**) analysis which has been compiled in alignment with our NPV / Investment Evaluation Procedure.

## 5.5    Program planning and delivery approach

During the current regulatory control period we continued our transformation program within our overarching transformation governance and delivery approach[21].

Prior to formal gated reviews, all projects follow a structured ideation, forming and discovery process[22]. The "Setup for Success" forum is a key mechanism for exploring solution options and ensuring that proposals follow Ausgrid's overall architectural principles, maximise reuse of existing ICT resources and minimise implementation risks.
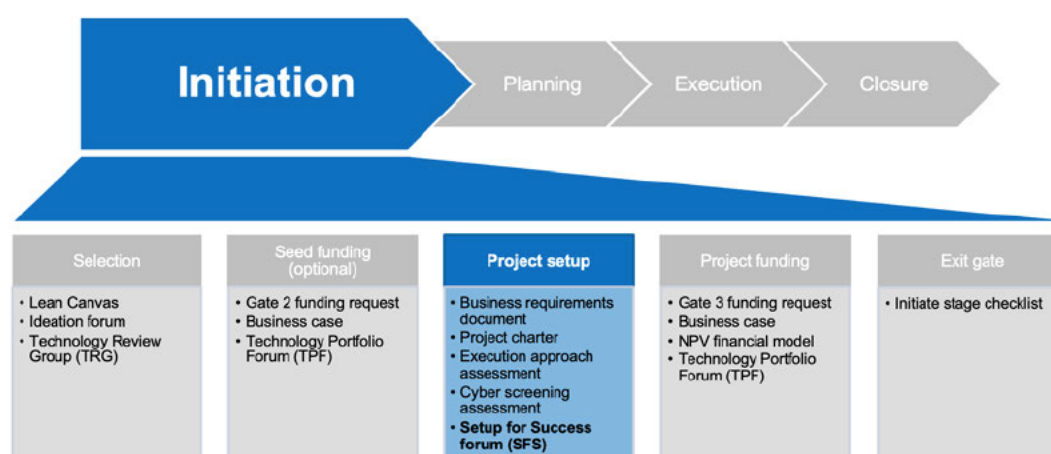


Figure 10 Program Planning approach

The Setup for Success forum ensures:

- That the ICT leadership team are aware of material matters for all projects;

- Broad ICT team actions support and accelerate project delivery;

- Effective and complete path forward for projects;

- That lessons learned from prior experience and projects are applied to future projects; and

- Cross functional assurance prior to submitting a business case.

Once the business need and target benefits have been confirmed and alternative technical and business solutions have been explored and peer-reviewed to discover the most efficient way of achieving the target benefits, projects are assessed for full funding.

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[21] *ICT Project Governance*, Ausgrid ITPS&D, 01 February 2022
[22] *Overview of ICT Setup for Success Forum*, Ausgrid ITPS&D, 2021

*Figure 11 ICT Investment Governance Process*

In addition to core business case development and review, all Ausgrid projects must pass through architectural approval and peer review prior. Funding decisions are made at "Gate 3": recurrent expenditure projects with a budget under $2.5m are reviewed by ICT peers in the Technology Portfolio Forum (**TPF**). Larger and non-recurrent projects must be reviewed by the IGC**.** The IGC is comprised of Ausgrid's executive leadership team.
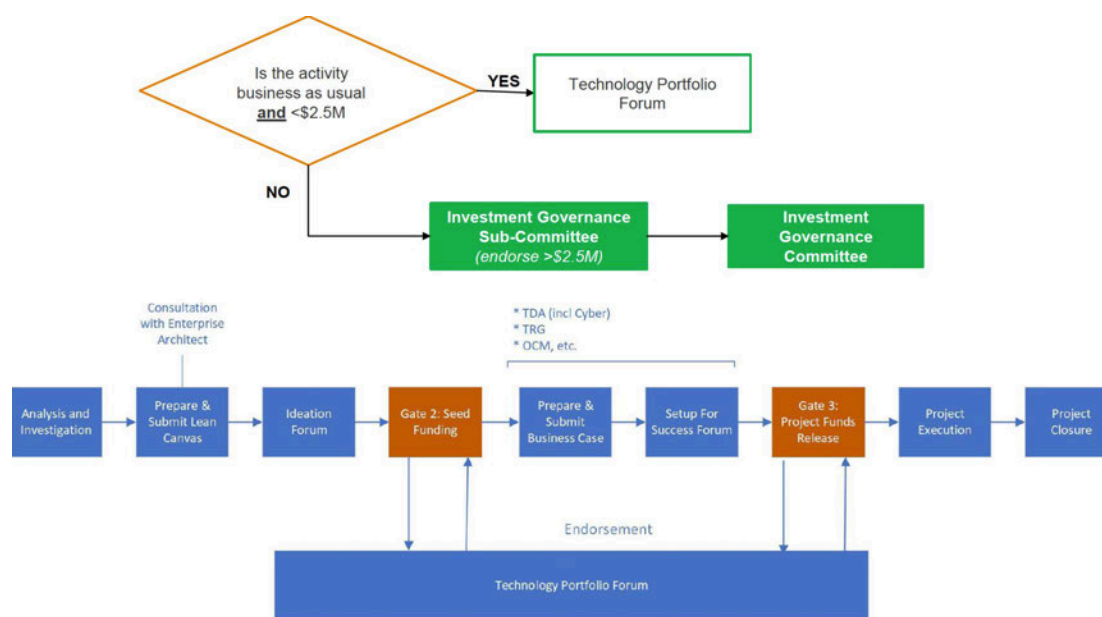
Both the IGC and the TPF provide a rigorous peer-review process from both business and ICT colleagues to ensure solutions are efficient and implementation approaches are prudent, consistent with the AER's ICT Capex Assessment approach.

This has enabled us to mobilise and efficiently scale appropriate resourcing, reduce delivery risk, manage organisational-wide dependencies, and accelerate change in support of the delivery of significant ICT programs such as the Cyber Transformation Program, Data and Analytics program, and commencement of the Cloud Migration program. This approach will continue throughout our transformation planned during the 2024-29 period, leveraging third-party providers and system integrators.

Our ICT function manages both a rolling seven-year view and annual planning and delivery approach for our ICT program of work. This confirms that planned investments are continuously assessed and prioritised against criteria to confirm if they are fit-for-purpose for current and future customer and business needs as the energy and business environment changes.

*Figure 12 - ICT Project Framework Overview* provides a high-level overview of the stages of our ICT Project Framework for ICT projects, noting that the deployment phase may include either agile, waterfall or hybrid delivery methods dependent on the type of ICT project being delivered.
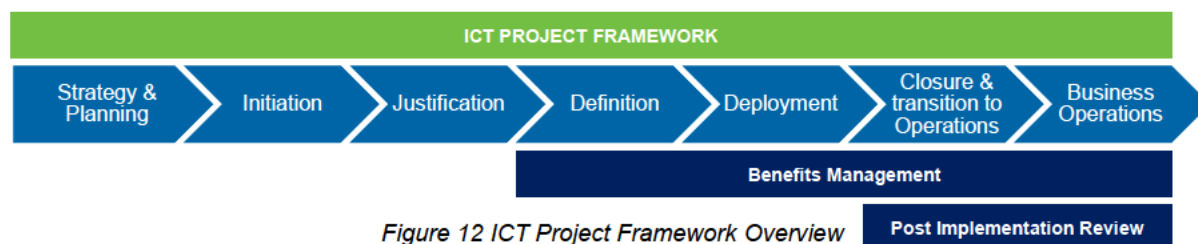
Figure 12 ICT Project Framework Overview

## 6.    Ausgrid's ICT architecture

We have taken steps during the current regulatory control period to start upgrading legacy systems, infrastructure, and integrations across our technology landscape, to help improve agility, efficiency, and security of ICT services. Major investments have included:

- Cloud Application Migration Program;
- Integrated Works Management System;
- Enterprise Data Program;
- Contact Centre Virtualisation; and
- Cyber Security Transformation Program.

### 6.1    Target state architecture

Our target landscape by 2029 will be streamlined extensively. This is in alignment with our approach to ICT Asset Lifecycle Management in delivering reliable, secure, and affordable ICT systems services, and in alignment with the strategic technology objective to consolidate and remove legacy systems.

As detailed in *Figure 13 - Current Application Landscape State for 2021 vs. Target State for 2029,* a total of 90 systems will be retired by 2029. As well as reducing unnecessary support, security and administration of legacy systems, all primary systems supporting core business functions will be sufficiently supported and maintained at a level of criticality that is equivalent to that of the functions and critical infrastructure that they enable.

This will reduce our ICT opex license costs over time and opex savings to date is further detailed in *Section 7.1 - Actual ICT Expenditure Against AER Allowance.*
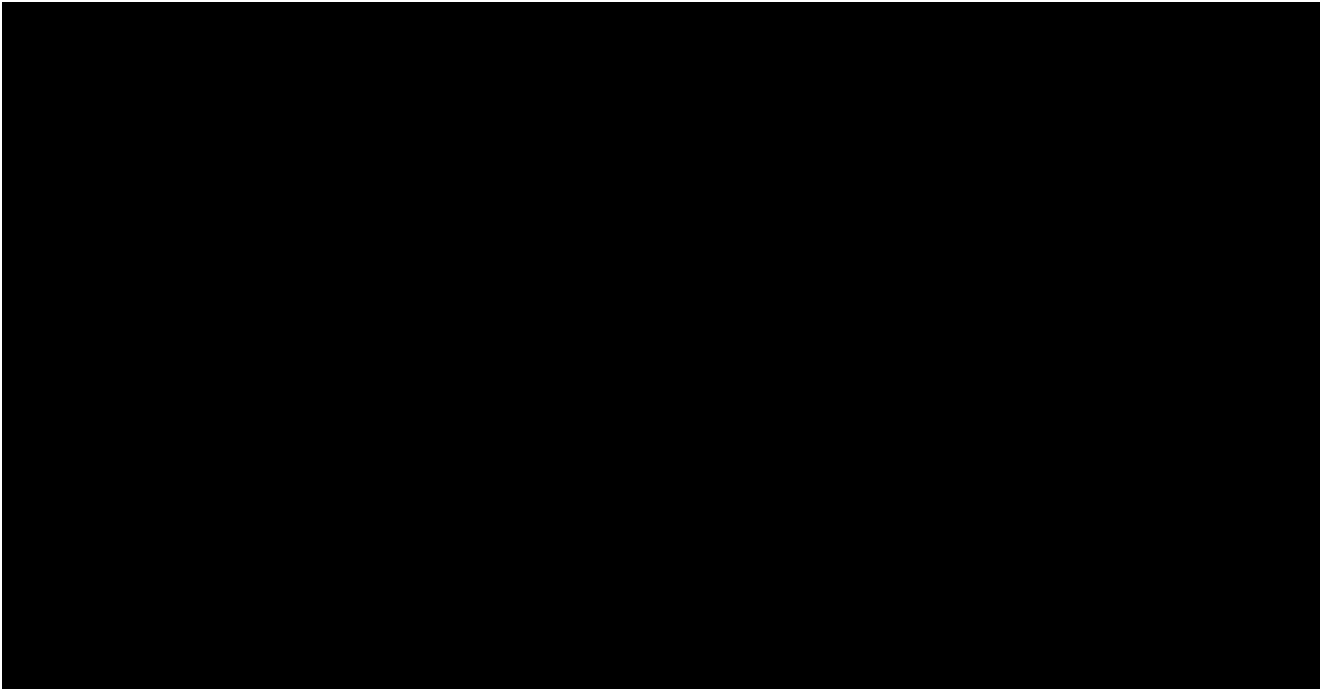
*Figure 13 Current Application Landscape State for 2021 vs. Target State for 2029*

## 6.2 ICT expenditure summary

This section provides a summary of our ICT expenditure for both the current regulatory control period 2020-24 and for the upcoming 2024-29 period. Further details are provided in *Section 8 - Upcoming Period ICT Investment Program* to *Section 10 – ICT Program Overviews.*

## 6.3 Financial summary

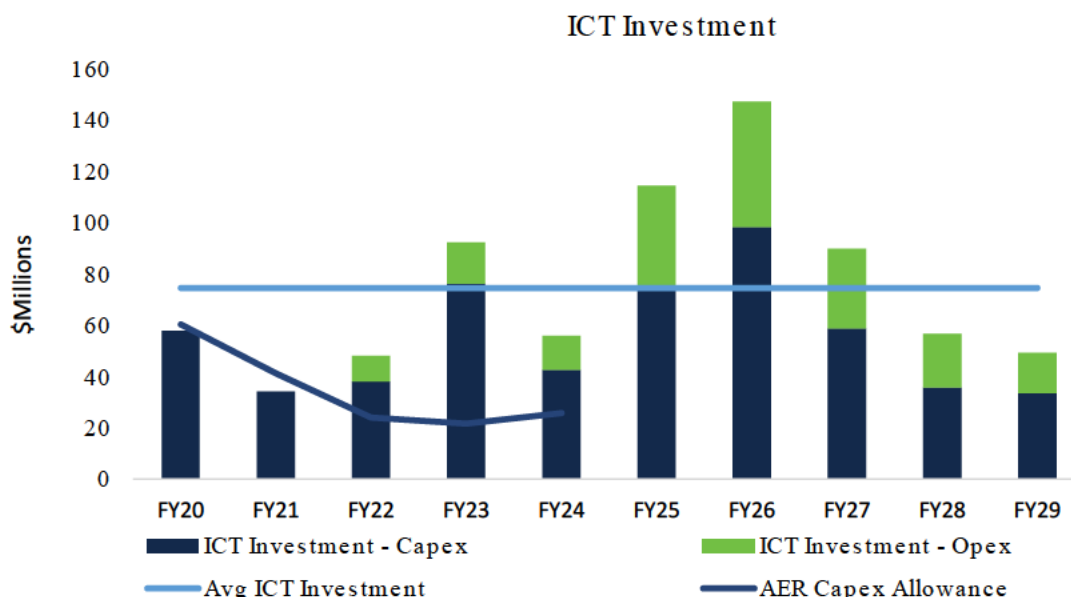*Figure 14 - ICT Investment Summary* provides an overview of ICT expenditure for both the current and upcoming regulatory control periods.



*Figure 14 ICT Investment Summary*

| $M 2024 Real | FY20 | FY21 | FY22 | FY23 | FY24 | FY25 | FY26 | FY27 | FY28 | FY29 | FY25-29 TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ICT Investment - Capex | 58.0 | 34.3 | 38.1 | 76.3 | 42.8 | 74.2 | 98.5 | 58.9 | 35.9 | 33.6 | **301.1** |
| ICT Investment - Opex | - | - | 10.1 | 16.1 | 13.3 | 40.3 | 48.9 | 31.1 | 20.8 | 15.7 | **156.8** |
| **ICT Investment** | **58.0** | **34.3** | **48.2** | **92.4** | **56.0** | **114.5** | **147.4** | **89.9** | **56.7** | **49.3** | **457.9** |

*Table 4 ICT Investment Summary (current and forecast periods)*

We have a large non-recurrent ICT capex planned for FY25-27 which is mostly driven by cyclic renewals of critical systems of record such as ERP, EAM, and MDM/B.

As detailed in *Table 4 - ICT Investment Summary*, this places interim upwards pressure on our overall ICT Investment. However, this investment level is similar to industry peers[23] partaking in large scale system renewals during the current regulatory control period.

Once these renewals are embedded in the business, this will result in a downwards trend in our overall ICT investment from FY28 onwards. This is achieved by regular access to new feature and security releases, and therefore removal of the need for large cyclic ICT capex upgrades and renewal events. This is a key enabler for us to deliver prudent and efficient ICT expenditure on behalf of our customers.

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[23] Ernst & Young ICT Expenditure Benchmarking Report – January 2022

## 7. Current period performance

This section provides an overview of our ICT expenditure performance for the current regulatory control period to-date.

### 7.1 Actual ICT expenditure against AER allowance

ICT capex allowance for the 2019-24 regulatory control period is detailed in *Figure 15 - Overview of FY20-FY21 Actuals and FY22 Investment Performance Against Plan* and *Table 5 - Summary of ICT Investment Capex and Opex Against Plan*.



ICT Investment - Actuals/Forecast vs. AER Capex Allowance
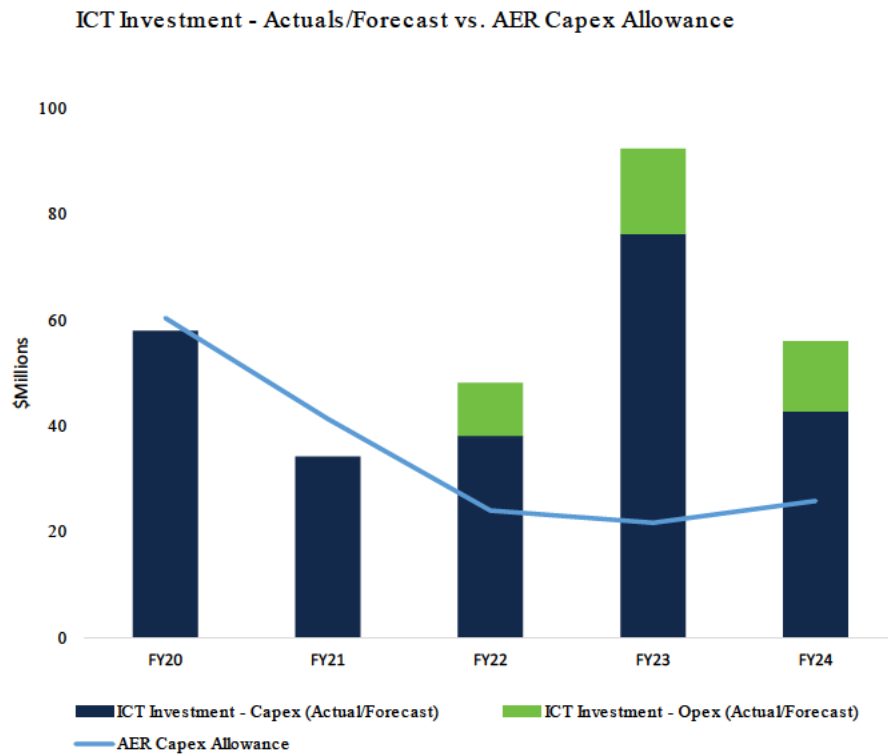
*Figure 15 Overview of FY20-FY21 Actuals and FY22 Investment Performance Against Plan*

| $M 2024 Real | FY20 | FY21 | FY22 | FY23 | FY24 | 5YR TOTAL |
|---|---|---|---|---|---|---|
| **Actual/Forecast ICT Investment** | 58.0 | 34.3 | 48.2 | 92.4 | 56.0 | 288.9 |
| ICT Investment - Capex | 58.0 | 34.3 | 38.1 | 76.3 | 42.8 | 249.5 |
| ICT Investment - Opex | - | - | 10.1 | 16.1 | 13.3 | 39.4 |
| **AER Capex Allowance** | 60.4 | 41.3 | 24.0 | 21.7 | 25.9 | 173.2 |
| **Actuals Vs AER Capex Allowance** | (2.4) | (7.1) | 24.2 | 70.6 | 30.2 | 115.5 |

*Table 1 Summary of ICT Investment Capex and Opex Against Plan*

As detailed in the above table, our actual ICT Investment tracked 10.5% higher than the AER determination allocation for FY20-22 (noting that this includes actual expenditure for the first two years and as forecasted for FY22). However, by the end of this regulatory control period our ICT investment is forecasted to be 66.6% above plan. Investments and expenditures that have / or will contribute to this uplift include:

- ***Significant Regulatory/Legislative-Driven Non-Recurrent ICT Capex:***

  - 5-Minute Settlements program due to the scope not known at the time of the submission – ($7.7 million);

  - AEMO CER Register Implementation – ($2.3 million); and

  - Cyber Security Program increases due to complying with cyber regulations, ransomware, and further cyber capability enhancements – ($17.7 million).

- ***ICT Transformation Non-Recurrent ICT Capex Initiatives:***

  - Increases in information management due to Data to Intelligence and Enterprise data lake expansion – ($12.2 million);

  - Customer transformation initiatives – ($16.7 million); and

  - Integrated Works Management System (**IWMS**), MyWork system upgrades and enhancements and job prioritisation ($37.5 million).

- ***ICT Recurrent/non-recurrent ICT Capex Initiatives:***

  - delaying migration to cloud and exit of data centres, plus on-going cloud related upgrades ($11.4 million);

  - end user computing asset upgrades due changing from leased to purchasing hardware ($7.6 million);

  - Human Resource systems including Success Factors and Hazard Assessment Conversation (**HAC**) – ($8.5 million);

  - Telematics and InTune implementation ($3.4 million);

  - Records management upgrades - ($3.2 million);

  - End-to-end supply Management (SEQOS) replacement ($3.6 million); and

  - Other various minor projects ($0.6 million).

- ***Partially offset by:***

  - delay in the complete S4/HANA implementation, partially offset by maintenance of current ERP, planned migrations to SAP hosted platform; and initiation of ERP program - $11.1 million; and

  - delay of GIS implementation $5.8 million.

Appendix 1 provides further details on the major recurrent and non-recurrent ICT investments made to date during the current regulatory control period.

As per *Figure 16 - Totex Per Customer FY20*, benchmarking against peers indicates that we perform more efficiently than the peer average of $85 (FY20 Real $) for the period of FY20[24]. This indicates that our ICT totex for this period is prudent and outperforms peers.
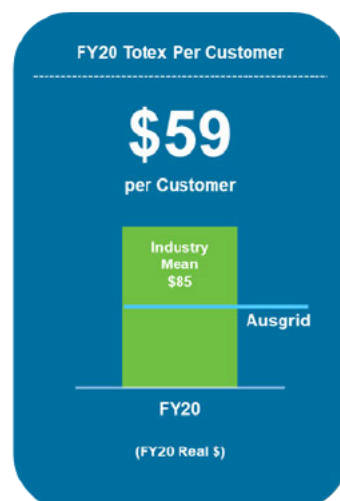


*Figure 16 Totex Per Customer FY20*

## Highlights

- Our actual ICT Investment for FY20-22 is 10.5% higher than planned against the corresponding period of the AER's determination for the 2019-24 regulatory control period.
- Our average Totex Per Customer for FY20 outperformed industry peers.

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[24] Industry benchmarking conducted by Ernst and Young in January 2022. This excludes ADMS expenditure which is included in the operational technology budget.

## 8. Upcoming period ICT investment program

This section provides details of our planned ICT investment program for the upcoming 2024-29 regulatory control period. *Table 6 - Planned FY25-29 Capex Investments* provides an overview of our major ICT capex investments. Further information regarding each of these can be found in *Section 10 – ICT Program Overviews.*

| $M 2024 Real | Investment | FY25 | FY26 | FY27 | FY28 | FY29 | TOTAL |
|---|---|---|---|---|---|---|---|
| **Asset Lifecycle Management** | **Total** | **23.9** | **29.1** | **11.3** | **4.5** | **3.6** | **72.4** |
| | Enterprise Asset Management (EAM) | 14.8 | 18.3 | 8.5 | 1.2 | - | **42.7** |
| | ICT CER | 7.6 | 8.3 | 2.2 | 2.6 | 2.1 | **22.8** |
| | Asset Lifecycle Management minor projects | 1.5 | 2.5 | 0.7 | 0.7 | 1.4 | **6.9** |
| **Enterprise Management** | **Total** | **29.4** | **35.1** | **17.4** | **13.8** | **6.7** | **102.4** |
| | Data & Analytics | 10.4 | 10.9 | 5.9 | 1.5 | 1.5 | **30.2** |
| | ERP | 12.0 | 20.8 | 8.3 | 8.8 | 0.7 | **50.6** |
| | Enterprise Management minor projects | 7.0 | 3.4 | 3.1 | 3.4 | 4.5 | **21.5** |
| **ICT Management** | **Total** | **34.3** | **38.0** | **32.9** | **27.9** | **32.2** | **165.3** |
| | Cybersecurity | 19.5 | 18.5 | 17.9 | 17.6 | 17.5 | **91.1** |
| | ICT/Infrastructure Management | 14.0 | 18.6 | 14.2 | 9.6 | 13.9 | **70.3** |
| | ICT Management minor projects | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | **4.0** |
| **Market & Customer Management** | **Total** | **24.6** | **36.6** | **20.4** | **9.2** | **5.6** | **96.4** |
| | Customer Information Systems | 5.5 | 5.3 | 4.0 | 3.1 | 3.0 | **21.0** |
| | MDM/B | 15.5 | 26.1 | 12.9 | 1.6 | - | **56.2** |
| | Market & Customer Management minor projects | 3.6 | 5.1 | 3.5 | 4.4 | 2.6 | **19.2** |
| | **Total** | **2.3** | **8.7** | **7.9** | **1.4** | **1.2** | **21.4** |

| $M 2024 Real | Investment | FY25 | FY26 | FY27 | FY28 | FY29 | TOTAL |
|---|---|---|---|---|---|---|---|
| **Works Management** | GIS Program | 0.5 | 7.1 | 6.4 | - | - | **14.0** |
| | Works Management Minor Projects | 1.8 | 1.6 | 1.5 | 1.4 | 1.2 | **7.4** |
| | **TOTAL ICT INVESTMENT** | **114.5** | **147.4** | **89.9** | **56.7** | **49.3** | **457.9** |

*Table 2 Planned FY25-29 Investments*

## 8.1 ICT strategic roadmap

*Figure 17 - FY25-29 ICT Strategic Roadmap* provides a roadmap of our major ICT strategic initiatives planned for the 2024-29 regulatory control period with preferred options. These are further detailed in *Section 10 – ICT Program Overviews*.
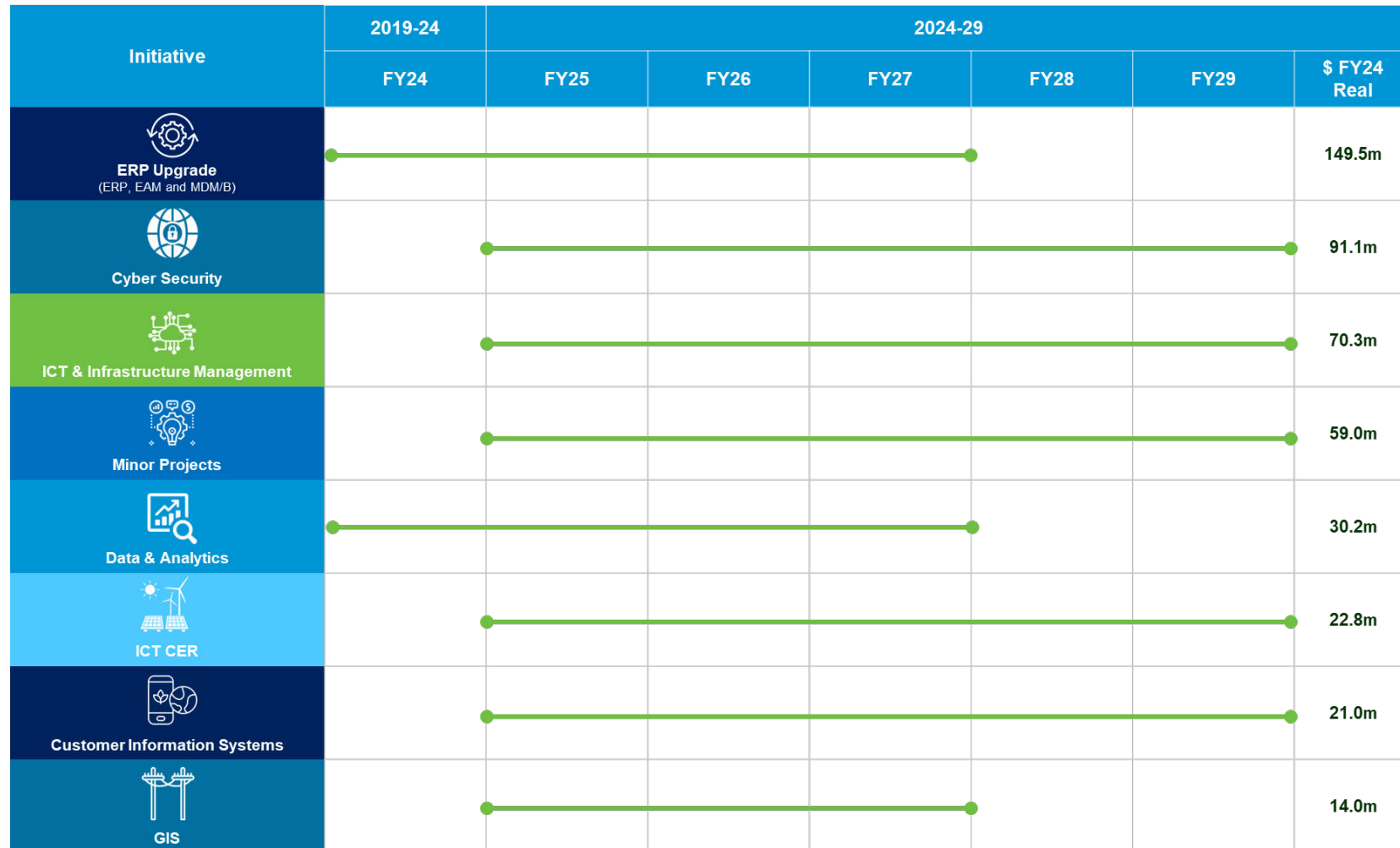
| Initiative | 2019-24 | 2024-29 | | | | | $ FY24 Real |
|---|---|---|---|---|---|---|---|
| | FY24 | FY25 | FY26 | FY27 | FY28 | FY29 | |
| **ERP Upgrade** (ERP, EAM and MDM/B) | | | | | | | 149.5m |
| **Cyber Security** | | | | | | | 91.1m |
| **ICT & Infrastructure Management** | | | | | | | 70.3m |
| **Minor Projects** | | | | | | | 59.0m |
| **Data & Analytics** | | | | | | | 30.2m |
| **ICT CER** | | | | | | | 22.8m |
| **Customer Information Systems** | | | | | | | 21.0m |
| **GIS** | | | | | | | 14.0m |

*Figure 17 FY25-29 ICT Strategic Roadmap*

## 8.2 ICT capital-operating expenditure trade-offs for cloud services

In the current regulatory control period, we have actively continued migrating on-premises infrastructure and applications to cloud offerings and as detailed throughout this plan, this will continue into 2024-29 period as part of the cloud migration strategy. This provides a pay per use approach for ICT services that enables flexibility so we can scale up and down as needed.

In the short term, this transition to cloud services requires non-recurrent ICT capex investments for initial migration and implementation activities. The long-term benefits of this cloud transition will occur from FY30 onwards with the flattening of cyclic non-recurrent ICT capex events. The long-term benefits to customers and Ausgrid in the long-term include:

- mitigating the need for large non-recurrent and recurrent ICT capex investments to implement major upgrades, as regular new features and patches are provided seamlessly as part of the cloud and managed service offerings;

- providing a more consistent year to year ICT capex profile;

- enabling us to negotiate better ongoing contract agreements due to the recurrent spend profile, for example with our Managed Service Providers; and

- providing us with a consumption-based approach to technology services, giving us the agility and elasticity to scale cloud services with the changing business and market needs, meaning that we only pay for what we consume (e.g., optimised utilisation of storage and compute).

## Highlights

- Cloud offerings provide pay per use charging and flexibility enabling us to scale ICT services up and down, enabling prudent ICT expenditure.
- This transition to cloud services requires non-recurrent ICT capex investments for initial migration and implementation activities.
- In the long term, this will reduce our ongoing non-recurrent ICT capex and provide a more consistent year to year ICT capex profile.

## 9. Upcoming period forecast

### 9.1 ICT investment expenditure forecasting

We have applied a systematic approach to planning our ICT investment forecasts, taking into consideration following ICT investment types in accordance with the *AER ICT Capex Assessment Criteria Guidelines* document:

- Recurrent ICT capex (Refer *Section 9.2.1 - Recurrent ICT Capital Expenditure*)

- Non-Recurrent ICT capex (Refer *Section 9.2.2 - Non-Recurrent ICT Capital Expenditure*)

These expenditures are based off several data points such as industry benchmarking, historical expenditure, market rates and bottom-up costing.

The IFRIC Decision regarding the treatment of SaaS costs has caused a shift of expenditure that was traditionally capex to now be treated as one-off opex during its implementation year, the impact of that is detailed below in the ICT Investment – opex charts and tables.

### 9.2 Forecast ICT capital expenditure for the upcoming period

*Figure 18 - ICT Investment Summary* and *Table 7 - ICT Investment Summary (current and forecast periods)* both demonstrate a significant uplift in our forecasted ICT investment in the 2024-29 regulatory control period, driven mostly by large investments in non-recurrent ICT investments to renew existing core ICT systems across our technology footprint including ERP, EAM, MDM/B, GIS, and major ICT infrastructure renewals.

Additionally, investments in new ICT capabilities to address changes to regulatory, market and customer requirements such as the cyber security, customer information systems and ICT CER programs are also required. It is forecasted that by FY29, once most of these investments are embedded, our ICT capex will reduce by 55% down to $34 million against the FY23 base year level of $73 million.
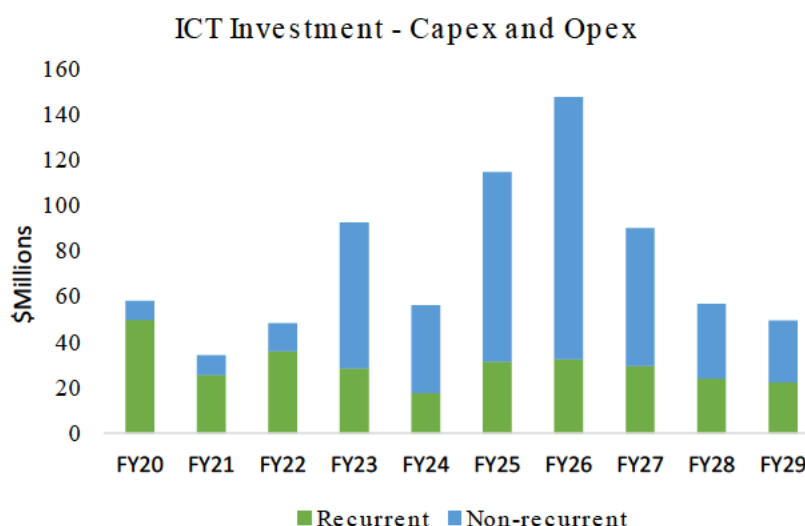


Figure 18 FY20-29 ICT Investment Recurrent and Non-recurrent

| $M 2024 Real | FY20 | FY21 | FY22 | FY23 | FY24 | FY25 | FY26 | FY27 | FY28 | FY29 | 5YR TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **ICT Investment** | **58.0** | **34.3** | **48.2** | **92.4** | **56.0** | **114.5** | **147.4** | **89.9** | **56.7** | **49.3** | **457.9** |
| Recurrent - Total | 49.6 | 25.5 | 35.9 | 28.5 | 17.7 | 31.4 | 32.4 | 29.6 | 23.9 | 22.3 | 139.6 |
| Non-Recurrent - Total | 8.4 | 8.8 | 12.3 | 63.9 | 38.3 | 83.1 | 115.0 | 60.4 | 32.8 | 27.0 | 318.4 |
| **ICT Investment - Capex** | **58.0** | **34.3** | **38.1** | **76.3** | **42.8** | **74.2** | **98.5** | **58.9** | **35.9** | **33.6** | **301.1** |
| Recurrent - Capex | 49.6 | 25.5 | 31.0 | 26.7 | 15.3 | 23.8 | 27.5 | 23.2 | 17.8 | 17.4 | 109.7 |
| Non-Recurrent - Capex | 8.4 | 8.8 | 7.1 | 49.6 | 27.5 | 50.4 | 71.0 | 35.6 | 18.1 | 16.2 | 191.4 |
| **ICT Investment - Opex** | **-** | **-** | **10.1** | **16.1** | **13.3** | **40.3** | **48.9** | **31.1** | **20.8** | **15.7** | **156.8** |
| Recurrent - Opex | - | - | 4.9 | 1.8 | 2.4 | 7.5 | 4.9 | 6.3 | 6.1 | 4.9 | 29.8 |
| Non-Recurrent - Opex | - | - | 5.2 | 14.3 | 10.8 | 32.7 | 44.1 | 24.8 | 14.7 | 10.8 | 127.0 |

*Table 7 ICT Investment Summary (current and forecast periods)*

Our planned transition of services to the cloud will drive a significant reduction in non-recurrent ICT capex contributing to an overall 56% reduction in ICT capex by FY29 against FY23 base year as detailed in *Figure 19 - ICT Investment Step Change FY23 to FY29.*
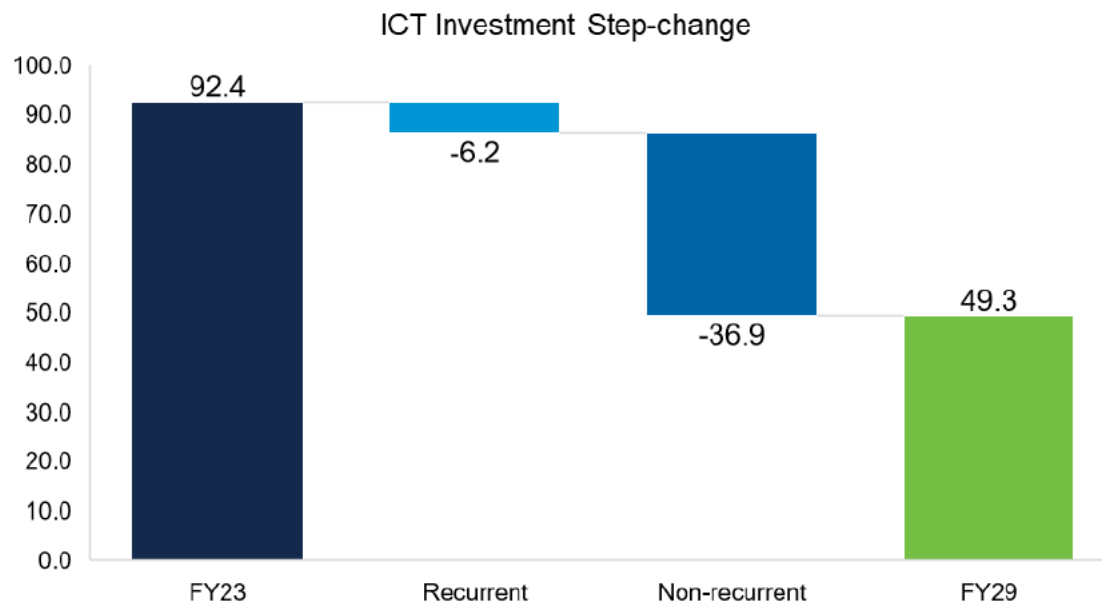


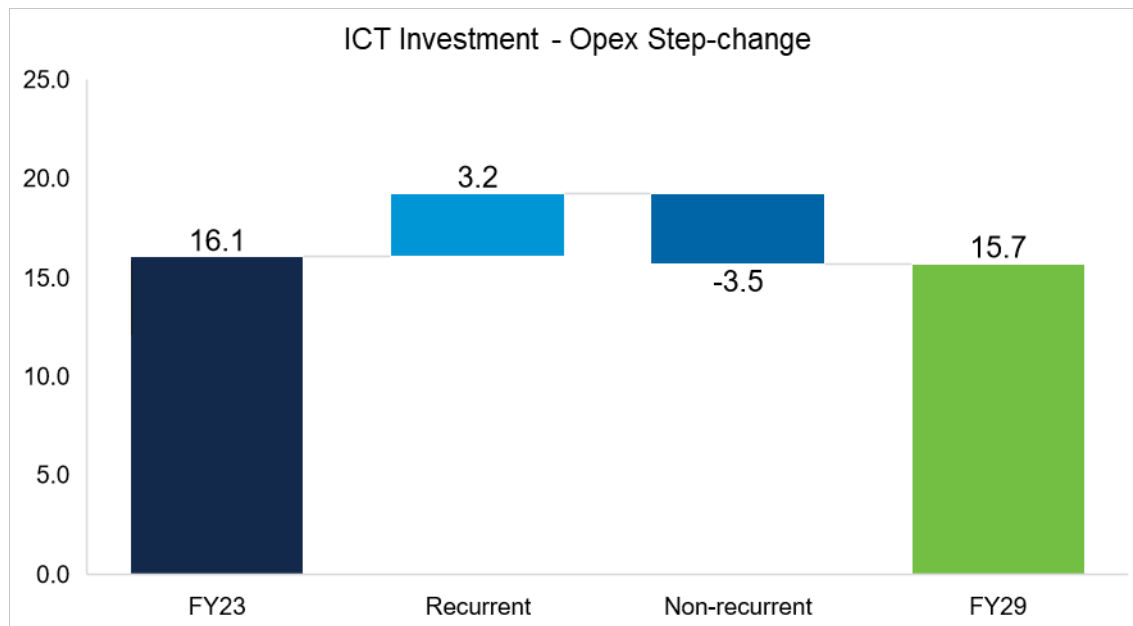*Figure 19 ICT Investment Step Change FY23 to FY29*

Figure 20 ICT Investment Opex Step Change FY23 to FY29

### 9.2.1 Recurrent ICT capital expenditure

Our recurrent ICT investments are related to maintaining existing ICT services, functionalities, and capabilities, with a renewal cycle occurring at least once every 5 years in alignment with the *AER ICT Capex Assessment Guidelines*. This includes:

- Ongoing periodic renewal of existing ICT hardware;

- Ongoing periodic renewal of existing telecommunication network infrastructure; and

- Ongoing periodic software upgrades.

Recurrent ICT capex will remain constant throughout the upcoming regulatory control period, averaging $22 million p.a., compared to $30 million p.a. in 2019-24 period.

### 9.2.2 Non-recurrent ICT capital expenditure

In alignment with the *AER ICT Capex Guidelines*, this is ICT capex that is not 'recurrent' as per the definition detailed in 9.2.1 above. This includes ICT capex:

- that relates to maintaining existing services, functionalities, capability and/or market benefits that do not recur every five years (e.g., every 7 years);

- costs incurred because of a change in regulatory or licence requirements or obligations (e.g., minimum cyber security requirements as part of SOCI); and

- costs related to new or enhanced ICT capabilities and services (e.g., additional software modules and investments in innovative technology capabilities).

Our non-recurrent ICT capex will reduce by 56% to $21 million by FY29 against the FY23 base year.

Table 8 - Planned FY25-29 ICT Non-Recurrent Investment Categories provides an overview of the major non-recurrent ICT investments we have planned for the 2024-29 regulatory control period including the relevant expenditure type.

| Investment | Non-Recurrent Capex Type | | |
| --- | --- | --- | --- |
| | Maintaining existing Services, Functionalities, Capability and/or Market Benefits | Complying with new or changed regulatory and licence requirements | New or enhanced ICT capabilities and services |
| Customer Information Systems Program | | | ● |
| Cyber Security Program | ● | ● | ● |
| Data and Analytics Program | | | ● |
| Enterprise Asset Management Renewal | | | ● |
| Enterprise Resource Planning System Renewal | | | ● |
| ICT CER | | | ● |
| GIS Upgrade | ● | | |
| ICT Infrastructure Management Program | ● | | ● |
| Meter Data Management and Billing | | | ● |

*Table 3 Planned FY25-29 ICT Non-Recurrent Capex Investment Categories*

## 10.   ICT program overviews

This section provides a summary of each of the 2024-29 ICT investment programs aligned to our core business functions.

### 10.1   Asset lifecycle management

Asset management is one of our most critical functions, overseeing the asset management of all physical components of our electrical network across the lifecycle of assets from investment through to retirement/replacement. The objective of this business function is to ensure that assets are safe, well maintained, utilised, and provide optimal performance and reliability.

Asset management is also tightly integrated with field and network operations, and with planning at the network level. Asset management systems are critical in supporting core asset management services, maintaining reliability and quality of supply, and protecting the safety of customers, community, and employees.

### 10.1.1 Planned ICT investments

*Table 10 - Asset Lifecycle Management - Investment Forecast FY25-29* provides a detailed overview of ICT investments planned for the Asset Lifecycle Management function during the 2024-29 regulatory control period.

| Investment | Description | FY25-29 $m |
|---|---|---|
| **Enterprise Asset Management (EAM) Renewal** | Management of critical energy distribution assets is central to everything that we do and therefore maintaining the currency of the core EAM system is essential for maintaining best practice asset management standards and processes. This investment will upgrade our existing SAP ERP Central Component 6 (**SAP ECC6**) EAM to a new platform as prudent ICT Asset Lifecycle Management of core ICT systems. This will include EAM modules for:<br>• Asset Management and Maintenance;<br>• Asset Register; and<br>• Supply Chain Management<br>As well as keeping maintenance and security of this core platform up to date, this upgrade will also enable various process improvements, business, and customer benefits. This upgrade forms part of the overarching ERP Transformation Program and is tightly integrated with the ERP upgrade. | 42.7 |
| **ICT CER** | This program delivers ICT capabilities to improve Ausgrid's systems capability to manage complex two-way power flows and improve customer choice to incentivize and reward changes in behavior to maximise network utilisation. Investments include:<br><br>• **Connections uplift and compliance**<br>  — Connections process improvements for CER<br>  — Connections performance and compliance<br>  — Customer education resources<br>• **Network visibility and modelling uplift**<br>  — Smart meter data acquisition<br>  — Operational network modelling and forecasting uplift<br>• **Dynamic service capabilities**<br>  — Dynamic pricing and DOEs<br>  — Billing engine and basic DNP | 22.8 |

| Investment | Description | FY25-29 $m |
|---|---|---|
| **Minor Projects** | These include (but are not limited to): <br><br> • **Design and Engineering applications enhancements** ($0.8 million): Allowance to manage ad hoc upgrades (and migrations to the Azure environment) across the suite of smaller Design and Engineering applications. <br><br> • **Digitised and Integrated Association Management Systems (AMS)** ($1.0 million): Including for network standards. <br><br> • **Distribution Modelling Enhancements** ($1.1 million): This will enhance the current 11kv and LV modelling environment by enabling the ability to model current and future impacts of CER on the network such as solar PV, electric vehicles, and batteries. This will help support efficient network investment planning and provide additional insights such as forecasts of customer load and exports, and network hosting capacity enabling better decision making and operations. <br><br> • **Load Flow Analysis Replacement** ($1.6 million): This is a recurrent investment to renew the analytics and algorithms that underpin our Load Flow Analysis models to account for various changes to the energy network such as increased CER penetration. <br><br> • **Minor Capital Enhancements - Operations Systems** ($1.5 million): Various continuous enhancement activities to network operations systems | 6.9 |
| | **TOTAL FORECASTED INVESTMENT** | 72.4 |

*Table 10 Asset Lifecycle Management - Investment Forecast FY25-29*

## 10.2   Works management

Works management refers to the efficient management of our field resources in the delivery of energy services within the network. Works management systems are critical for us in delivering planned and unplanned maintenance and inspections of the network, as well as in the delivery and construction of new network capital works programs. Works management processes are also tightly integrated with other processes across our value chain including asset lifecycle management, scheduling and dispatch, warehousing, and mobility services.

### 10.2.1 Planned ICT investments

*Table 11 - Works Management - Investment Forecast FY25-29* provides a detailed overview of ICT investments planned for the Works Management function during the 2024-29 regulatory control period.

| Investment | Description | FY25-29 $m |
|---|---|---|
| **GIS Upgrades** | We use General Electric (**GE**)'s Smallworld as the core GIS for the effective geospatial management of network maintenance, augmentation, and replacement planning. GIS is also the system of record for network connectivity and reflects the connectivity of our network, essential to many core business systems such as EAM, Metering and ADMS. As part of prudent and efficient ICT asset lifecycle management of core systems of record, we periodically renew our GIS systems. This enables our GIS to remain current, system performance and reliability levels are optimised, and critical system support is maintained. This program will modernise our GIS and improve the ease of integrating with new and emerging systems and devices (such as CER and Internet of Things devices) across the technology landscape to help enable a data driven business. | 14.0 |
| **Minor Projects** | These include (but are not limited to):<br><br>• **Field Operations Apps Improvements** ($2.8 million): non-recurrent development of applications to improve productivity and sharing of information in field operations.<br><br>• **Integrated Work Management system (WMS) upgrades** ($3.3 million): non-recurrent upgrade to existing works management system. | 7.4 |
| | **TOTAL FORECASTED INVESTMENT** | 21.4 |

*Table 11 Works Management - Investment Forecast FY25-29*

## 10.3 Market and customer management

Market and Customer Management functions include all processes related to the collection of revenue resulting from the provision of energy distribution services, such as: metering, revenue management, network billing, network pricing, market transactions, meter data management and financial reporting.

Customer management also includes functions and processes related to customer interactions, connections, and disconnections, as well as the provision of a customer contact centre. Systems between market and customer management functions are highly integrated to enable streamlining of processes and currency of data quality and security.

### 10.3.1 Planned ICT investments

*Table 12 - Market and Customer Management - Investment Forecast FY25-29* provides a detailed overview of ICT investments planned for the Market and Customer Management function during 2024-29 regulatory control period.

| Investment | Description | FY25-29 $m |
|---|---|---|
| **Meter Data Management and Billing (MDM/B)** | Meter data management and billing capability is core to maintaining our license to participate in the Australian Energy Market. As part of prudent and efficient ICT asset lifecycle management of core systems of record, we periodically renew these systems. As our current version of SAP reaches the end of life, we plan to upgrade it to the current cloud version, as part of the overarching ERP Transformation Program. Upgrades of these systems will enable us to maintain the reliability of market transactions and billing processes in line with our obligations and to easily adjust to changing market drivers without high overheads. Modules to be implemented in this program include:<br><br>• Meter Data Management; and<br><br>• Customer Billing.<br><br>These upgrades will also help improve the efficiency of these core functions by improving key business processes and providing integration and interoperability across enterprise and field operations applications. It will also improve cyber security for internal and external hosted market and customer data through streamlined cloud cyclic renewals and application updates. This update will also enable us to be more adaptive to future regulatory and market changes. | 56.2 |
| **Customer Information Systems Program** | In response to changing customer expectations this program aims to improve the overall experience for our customers and key stakeholders.<br><br>These include (but are not limited to):<br><br>• **Migration of residual Single View of Customer processes to Customer Relationship Management (CRM)** ($1.9 million): This will improve our customer's overall experience when engaging with us.<br><br>• **Self Service Portal and Service Requests for Councils and Key Customer Groups** ($2.5 million): This provides an integrated customer experience for our council and customer transactions.<br><br>• **Integration and traceability across various communication channels** ($1.3 million): This will provide real time responses to our customer enquiries. | 21.0 |

| Investment | Description | FY25-29 $m |
|---|---|---|
| | • **ASP portal upgrade for transparency of E2E connection** ($3.7 million): This will upgrade our existing portal to provide more insights to ASPs.<br><br>• **API Integration of our Key Customer Database with External Sources** ($2.9 million): Develop integration capability to receive feeds from multiple data sources that require integration with our customer's systems to enable delivery of bespoke services to them.<br><br>• **Evolve SMS Notifications to Omnichannel communications** ($0.4 million): This investment will enhance the current SMS solution beyond a simple notification that power is going 'on and off' to include the storm early warning system, the provision of localised automated messages and notifications to customers on progress/closure of service requests they have raised (e.g., Streetlight repairs).<br><br>• **Complex Connections** ($3.7 million): Recurrent maintenance to upgrade our customer and stakeholder portal for connections and disconnections. | |
| **Minor Projects** | These include (but are not limited to):<br><br>• **Claims & Complaints System Enhancements** ($1.6 million): Address current backlog and improve the case management for customers and removing manual effort.<br><br>• **FCS Application and Handheld End-of-Life (EOL) Upgrade** ($1.4 million): Upgrade of Field Collection System (**FCS**). Enables manual meter reading for older meter types.<br><br>• **Itron Enterprise Edition (IEE) EOL Upgrade** ($2.1 million): Recurrent upgrade expenditure to enable streamlined integration to meters of varying age profiles and performs meter interval management.<br><br>• **Market Systems Compliance with regulated changes (MSATS)** ($3.5 million): Deliver MSATS compliance changes in line with regulators' requirements.<br><br>• **Major Tariff Changes** ($1.2 million): non-recurrent system changes driven by planned tariff changes.<br><br>• **Website Business Improvements** ($1.6 million): Recurrent upkeep and content management of our public website. | 19.2 |
| | **TOTAL FORECASTED INVESTMENT** | 96.4 |

*Table 12 Market and Customer Management - Investment Forecast FY25-29*

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## 10.4 Enterprise management

Enterprise management functions include those of a commercial and corporate nature that support our business-as-usual services such as: finance, reporting, strategy development and implementation, human resource management, non-system asset management and property management. Enterprise management systems support the above critical business processes and are highly integrated with other parts of our enterprise value chain such as Enterprise Asset Lifecycle Management and Works Management.

### 10.4.1 Planned ICT investments

*Table 13 - Enterprise Management - Investment Forecast FY25-29* provides a detailed overview of ICT investments planned for the Enterprise Management function during 2024-29 period.

| Investment | Description | FY25-29 $m |
|---|---|---|
| **Enterprise Resource Planning System Renewal** | Financial Management, procurement, and human resources are all core business functions that are supported by our ERP and are essential to run a prudent and efficient DNSP. Therefore, maintaining the currency of the core ERP system is critical to enabling best practice enterprise business processes. As such this investment will upgrade the current version of SAP to a contemporary cloud platform as prudent ICT Asset Lifecycle Management of core ICT systems. This will include ERP modules for:<br><br>• Core Finance and Accounting;<br><br>• Financial Asset Register;<br><br>• Human resources<br><br>• Procurement; and<br><br>• Enterprise Analytics.<br><br>As well as keeping the maintenance and security of this core platform up to date, this upgrade will also enable the transformation of various process improvements and business benefits. This upgrade forms part of the overarching ERP Transformation Program and is tightly integrated with the EAM upgrade. | 50.6 |
| **Data and Analytics Program** | This program will include the following investments:<br><br>• **Data to Intelligence:** ($18.4 million): Transforming how we use data to create additional value in analytics and automation across the business.<br><br>• **Asset Data Analytics** ($4.0 million): This provides complex analytical capability to solve various problems or opportunities across our assets.<br><br>• **Predicative Maintenance and Asset Simulation** ($2.3 million): This will utilise AI and ML to simulate optimal asset maintenance and planning activities to optimise asset performance and utilisation.<br><br>• **Enterprise Data Lake Expansion** ($5.5 million): Expansion of data sets within our data lake which is our single source of truth for organisational data. | 30.2 |
| **Minor Projects** | These include (but are not limited to):<br><br>• **Review end to end processes, Remediate SAP codes** ($2.8 million); This is a recurrent expenditure related to the | 21.5 |

| Investment | Description | FY25-29 $m |
|---|---|---|
| | ongoing maintenance of business processes within SAP ECC6 in adapting to business and regulatory changes<br><br>• **Power Platform upgrades/enhancements** ($1.2 million): This is a recurrent expenditure for providing ongoing compliance and regulatory enhancements to the Power Platform for the Health and Safety function.<br><br>• **The Wire Intranet upgrade** ($1.3 million): Ongoing changes to our intranet. | |
| | **TOTAL FORECASTED INVESTMENT** | 102.4 |

*Table 13 Enterprise Management - Investment Forecast FY25-29*

## 10.5   ICT management

The effective management of information, telecommunications, and ICT infrastructure is crucial in supporting our digital enterprise. The nature of the business dictates that information needs to be collected, managed, and analysed to provide timely and effective decision support. Information management is also required to satisfy regulatory obligations and core financial and organisational reporting and analysis. ICT infrastructure provides the backbone to our business capabilities and systems enabling them to be highly available, reliable, and secure. It includes all the hardware, communication, operating systems, and devices required to support our operations and services.

### 10.5.1 Planned ICT investments

*Table 14 - ICT Management – 2024-29 Investment Forecast* provides a detailed overview of ICT investments planned for the ICT Management function during 2024-29 period.

| Investment | Description | FY25-29 $m |
|---|---|---|
| IT Infrastructure Management Program | These include (but are not limited to):<br><br>**Networking:**<br><br>• **High Availability within the Cloud Connection Points ($1.6 million):** Install redundant fibre between the cloud providers and data centers. Implement high availability for firewalls, routers, and switches.<br><br>• **Operating System Network landscape upgrades ($2.8 million):** Upgrade operating system network services to enable scaling.<br><br>**Server:**<br><br>• **Microsoft Azure Infrastructure Enhancements ($2.4 million):** Various enhancements to the current Azure footprint.<br><br>• **Virtualisation hardware Upgrade (ESX Host) ($1.6 million):** Recurrent upgrade of our existing virtualization software.<br><br>• **Windows Server Upgrades ($2.0 million):** Replace servers that have reached the end of their useful life.<br><br>• **Linux 7 End of Life Upgrades – (Non-S/4HANA) ($1.6 million):** Replace servers that have reached the end of their useful life.<br><br>• **Unix equipment Upgrade (pSeries) ($2.9 million)** Replace Unix pSeries equipment that has reached the end of its useful life.<br><br>**Storage:**<br><br>• **Storage Capacity Upgrade ($1.7 million):** Upgrade storage capacity to meet forecasts.<br><br>• **V7000 (Storage used for Tivoli Storage Manager) Refresh ($3.5 million):** Replace storage that has reached the end of its useful life.<br><br>**Mobility:**<br><br>• **IT Mobility Solution Refresh- iPads ($1.7 million):** Recurrent replacements of our iPad fleet.<br><br>• **Windows Upgrade (next version) ($1.9 million):** This will be recurrent bi-annual upgrades of our core standard operating environment (**SOE**).<br><br>• **PC Refresh ($11.2 million):** Recurrent replacement of our PC fleet for our employees.<br><br>• **Remediate Windows Applications Next version from Windows 10 ($1.6 million):** Remediation activities for Windows Applications Next.<br><br>• **IT Mobility Solution Refresh – iPhones ($2.3 million):** Recurrent replacement of our mobile (iPhone) fleet | 70.3 |

| Investment | Description | FY25-29 $m |
|---|---|---|
| | • **Future of Fixed Telephony ($1.1 million):** Take the approved strategy thorough tender, proof of concept and delivery of the replacement of the end of life / end of support Alcatel System with new cloud-based technology.<br><br>• **ICT infrastructure minor investments ($30.4 million):** This includes recurrent hardware and software upgrades and replacements that are bespoke components of the ICT infrastructure portfolio. | |
| **Cyber Security Program** | The purpose of the cyber security program for the 2024-29 regulatory control period is to achieve the highest level of cyber security maturity across all cyber control domains within the AESCSF with a strong, defensible library of cyber controls.<br><br>By investing appropriately, we will enhance the effectiveness of our current cyber security to detect, prevent, deter and thwart malicious or unintentional security threats including ransomware, phishing attacks, insider threats and the exfiltration of sensitive data.<br><br>This will be achieved through:<br><br>• Achieving Security Profile 3 maturity by 2027 throughout all 200 AESCSF domain practices;<br><br>• Reducing likelihood and consequences of known, emerging and future cyber risks that are likely to materialise during the next regulatory period so far as is reasonably practicable as a prudent critical asset operator;<br><br>• Countering the increasing cyber threat with robust cyber controls that are independently tested /validated for assurance of design and effectiveness of implemented controls;<br><br>• Maintaining design and operating effectiveness of implemented cyber controls to ensure control maturity keeps pace with internal and external threat environment;<br><br>• Implementing new cyber controls to effectively reduce the likelihood and minimise consequences of known and unknown risks in the corporate and OT environments and keep cyber risk at target risk rating; and<br><br>• Providing our customers with the confidence that we can identify, detect, protect, and respond to increasing cyber threats. | 91.1 |
| **Minor Projects** | • **Cloud Application Migration** ($4.0 million) | 4.0 |
| | **TOTAL FORECASTED INVESTMENT** | 165.3 |

*Table 14 ICT Management – 2024-29 Investment Forecast*

## 11. Glossary

| Shortened Form | Extended Form |
| --- | --- |
| ACSC | Australian Cyber Security Centre |
| AESCSF | Australian Energy Sector Cyber Security Framework |
| ADMS | Advanced Distribution Management System |
| AEMO | Australian Energy Marker Operator |
| AER | Australian Energy Regulator |
| AI | Artificial Intelligence |
| CALD | Culturally and Linguistically Diverse |
| Capex | Capital Expenditure |
| CER | Consumer Energy Resources |
| CIS | Customer Information Systems |
| CRM | Customer Relationship Management |
| DNSP | Distribution Network Service Provider |
| DOE | Dynamic Operating Envelopes |
| DSO | Distribution System Operator |
| EAM | Enterprise Asset Management |
| ERP | Enterprise Resource Planning |
| ESB | Energy Security Board |
| EV | Electric Vehicles |
| FY20-24 | Financial Year 2020 to Financial Year 2024 |
| FY25-29 | Financial Year 2025 to Financial Year 2029 |
| GDP | Gross Domestic Product |
| GIS | Geographic Information System |
| ICT | Information, Communications and Technology |
| IFRIC | International Financial Reporting Standards Interpretation Committee |
| IGC | Investment Governance Committee |

| Shortened Form | Extended Form |
|---|---|
| IWMS | Integrated Works Management System |
| MDM | Meter Data Management |
| MDM/B | Meter Data Management and Billing |
| ML | Machine Learning |
| NEO | National Electricity Objective |
| NER | National Electricity Rules |
| NPV | Net Present Value |
| Opex | Operating Expenditure |
| OT | Operational Technology |
| p.a. | Per annum |
| Prosumer | Someone who both produces and consumes energy |
| PV | Photovoltaic |
| RCP | Reset Customer Panel |
| SaaS | Software-as-a-Service |
| SAP ECC6 | SAP ERP Central Component 6 |
| SCADA | Supervisory Control and Data Acquisition |
| SFAIRP | So Far As Is Reasonably Practicable |
| SOCI | Security of Critical Infrastructure Act 2018 |
| SP1-3 | Security Profile |
| TDA | Technical Design Authority |
| TNSP | Transmission Network Service Provider |
| TPF | Technology Portfolio Forum |
| Totex | Capex plus one-off and ongoing Opex |

## 12. Appendices

### Appendix 1 Major ICT Capex Investments FY20-22

The following table provides an overview of the major ICT investments delivered or in-progress during the FY20-FY22 period:

| Function | Investment | Cost $M | Recurrent | Non-Recurrent |
|---|---|---|---|---|
| **Asset Lifecycle Management** | AEMO CER Register | 2.3 | | ● |
| | Mobile Asset Management (**MAM**) Replacement | 1.6 | ● | |
| **Works Management** | Integrated Works Management System | 4.0 | | ● |
| | MyWork Phase 2 | 3.8 | ● | |
| **Market and Customer Management** | 5 Minute Settlements | 7.7 | | ● |
| | Contact Centre Virtualisation | 0.9 | | ● |
| | Customer Focused Enhancements | 0.6 | ● | |
| | CRM Implementation | 3.0 | ● | |
| **Enterprise Management** | Enterprise Data | 0.2 | ● | |
| | Hazard Assessment Conversation (**HAC**) Replacement | 1.6 | ● | |
| | HR Essentials | 5.0 | ● | |
| | SAP Maintenance On Premise ECC6 | 0.9 | ● | |
| | SAP Rise Migration | 0.0 | | ● |
| | S/4HANA Accelerate | 8.9 | ● | |
| | S/4HANA Stabilisation | 2.4 | ● | |
| **ICT Management** | Cyber Security Transformation Program | 17.3 | ● | ● |
| | Cloud Foundations | 3.1 | ● | |
| | Cloud Managed Services | 2.9 | ● | |
| | Cloud Applications Migration | 5.3 | ● | |
| | Cloud Remote Access Services - Upgrade | 1.3 | ● | |
| | Configuration Management Database (**CMDB**) Upgrade | 1.5 | | ● |
| | Data Centre Storage Refresh | 3.2 | ● | |
| | Data Centre Core Network Refresh | 2.4 | ● | |

**Ausgrid**

## *Appendix 2 - 2022- 29 - Technology Strategy Summary*

| Objectives | Outcomes | Current Status | Success Measure by 2030 | Enabling ICT investments |
|---|---|---|---|---|
| **Simplifying: Simplifying our technology to reduce complexity and remove duplication and legacy.** | • Meet our target state with no regrets<br>• Respond effectively to emerging technology and disruptors<br>• Pave the way for emerging technology and flexibility of solutions for us and our customers | 249 Systems | • Decrease number of duplicate and legacy systems by > 30% | • **ERP Upgrade**<br>• **EAM Upgrade**<br>• **ICT & Infrastructure Program**<br>• **MDM/B Upgrade** |
| **Fit for Purpose: Fit-for-purpose solutions with the appropriate security and commercial model.** | • "As-a-service" delivery model improving commercial effectiveness<br>• Vendor services deliver most of the technology portfolio | Cloud: 41%<br>Vendor: 38% | • Exit the IT data centre<br>• Define optimal vendor and inhouse resource mix<br>• UX questionnaire consistently positive | • **ICT & Infrastructure Program**<br>• **Cyber Security Program**<br>• **ICT CER Program** |
| **Automation: Automation to reduce errors and drive consistency.** | • Consistent, repeatable, and automated processes for employees and customers<br>• Ability to respond to peak events with minimal impact on the work force and customers | complex | • < 0.1% of known exceptions created by automation error<br>• > 70% of back-office processes, by impact, are automated to a viable level or removed | • **Data and Analytics Program**<br>• **Cyber Security Program**<br>• **ERP Upgrade**<br>• **EAM Upgrade**<br>• **MDM/B Upgrade**<br>• **ICT CER Program** |
| **Data Management & Analytics: Improve data quality and access to make better decisions.** | • Manage data to be reliable and trustworthy to productise for customers, e.g., GIS for local councils<br>• Information management capabilities including the use of advanced modelling, e.g., digital twins | complex | • < 1% of exceptions generated by poor data quality<br>• Formalised processes to measure and fix data quality | • **Data and Analytics Program**<br>• **Cyber Security Program**<br>• **ERP Upgrade**<br>• **EAM Upgrade**<br>• **MDM/B Upgrade**<br>• **GIS Program**<br>• **ICT CER Program** |

*Table 17 Technology Strategy Summary*

## Appendix 3 – Group risk alignment for 2024-29 Investments

| Program Briefs | Why this is important for Customers? | |
|---|---|---|
| | Failure of Internal ICT Services | Significant Protective Security Incident |
| Cyber Security | Cyber security incidents lead to outages of critical ICT services that impact customers. | Building and maintaining a modern Cyber security capability reduces the likelihood of incidents occurring and consequential impact to customers is minimised as far as is reasonably practicable. |
| ERP Upgrade | Increased usage of ERP for dynamic billing and business process transformation requires updated software to ensure disruptions to core customer processes such as connection processes and planned maintenance are reduced as far as is reasonably practicable. | Enabling a net zero future requires core systems to be updated. Ongoing patching and feature upgrades of ERP capability allows for customer data to remain secure and protected. |
| Data & Analytics | The energy transition is generating large volumes of data that will underpin core customer processes. Ensuring availability and capacity remains within thresholds is key to enabling an interruption free customer experience. | With large volumes of data, cyber security controls to prevent the misappropriation and misuse of data are essential. |
| ICT CER | Successful integration and ongoing management of new CER assets on the network requires increased technology capability to maintain ongoing reliability of services for customers. | Transitioning to a two-way system where electricity comes from many renewable generators introduces new Cyber risks for Ausgrid to manage. The appropriate cyber investments will mitigate this risk. |
| Customer Information Systems | Ongoing investment for Customer facing ICT services reduces the likelihood of residents' inability to access communication services during prolonged power outages, minimising consequences such as severe distress and delays the power restoration process | Customer services need to be available regardless of the event cause. Appropriate Cyber Security controls should be in place to protect customer data. |
| GIS | ICT assets need to remain current with vendor requirements to ensure ICT can provide a resilient and affordable solution for effective dispatch of field crews to restore services as quickly as possible. | Key to preventing interruption to supply restoration is maintaining software that is up to date and patched regularly to reduce the likelihood of a successful cyber-attack against key ICT assets. |
| ICT & Infrastructure | Underpinning all ICT services is ICT and infrastructure assets. Ongoing updates and maintenance enable high availability of critical assets and reduced likelihood of disruption to supply or customer facing services. | Underpinning all ICT services is infrastructure assets. Ongoing updates and maintenance enable high availability of critical assets and reduced likelihood of disruption to customer facing services or supply. |

Table 18 Group Risk alignment for 2024-29 Investments