AusNet

GAAR 2024-2028

AusNet Digital Strategy

Friday, 1 July 2022

AusNet

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About AusNet

AusNet is a major energy network business that owns and operates key regulated electricity transmission and electricity and gas distribution assets located in Victoria, Australia. These assets include:

A 6,574 kilometres electricity transmission network that services all electricity consumers across Victoria;

An electricity distribution network delivering electricity to approximately 680,000 customer connection points in an area of more than 80,000 square kilometres of eastern Victoria; and

A gas distribution network delivering gas to approximately 572,000 customer supply points in an area of more than 60,000 square kilometres in central and western Victoria.

AusNet's purpose is 'to provide our customers with superior network and energy solutions.'

For more information visit: www.AusNetservices.com.au

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Document References

Document	Version	Author
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2021 Gas Business Plan	V1.0	Joanne Soysa

Approvals

Position
Technology Leadership Team

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1. Executive Summary

This Gas Access Arrangement Review Digital Strategy (GAAR Digital Strategy) outlines the strategic direction and forecast expenditure to deliver AusNet's information, communication, and technology capabilities for the gas distribution network in the FY2024-2028 GAAR period.

The proposed investments will allow AusNet to meet its regulatory obligations and continue to provide gas services to customers safely and reliably. The investments are aligned with the Gas Business Plan and influenced by the following drivers:

- **Customer expectations:** based on recent research our customers expect us to 'deliver on the basics', 'keep me posted', 'make it affordable', 'be ready for the future', and 'always (be) safe'.
- **Digital trends**: we recognise that digital technology plays an increasing role in Gas networks to increase automation, support more evidence-based decisions, and enhance customer outcomes.
- **Cyber security**: the increased dependence on digital requires greater levels of cyber security to mitigate the risk of threats and attacks, and therefore maintain a safe and secure network and working environment, and protect customers' privacy: and
- **Business strategy:** we are focused on our core business of continuing to provide a high level of service to our customers, while ensuring that we invest prudently to respond to future industry change.

Our Digital Strategy is comprised of **three workstreams**. Each workstream contains several programs of work that we will implement in the FY24-28 period. These programs of work are described further in Section 5.4.

- **Gas Network Operations:** this workstream improves our capabilities in data and analytics, automation, visualisation, modelling and risk management so that we can continue to provide gas services safely and effectively. This workstream also includes improvements to core systems including metering, customer management, network operations, and field mobility.
- **Cyber Security:** this workstream focuses on protecting all of our technology systems and data from cyber threats and attacks through the uplift of our cyber security posture and compliance with relevant standards and frameworks such as the AESCSF; and
- **Lifecycle – Business as Usual:** this workstream involves prudent lifecycle refreshes of our applications, storage, enterprise servers, desktop and mobile fleet, and corporate network and communications control technology to maintain currency and ensure the appropriate level of vendor support is obtained to mitigate operational risk.

Our plans for the FY2024-2028 regulatory period build on the strategic direction and momentum from the current regulatory period. In the current period AusNet has focused on cautiously modernising our business capabilities in anticipation of future industry changes and preparing for the increased use of cloud services. As a result of this cautious approach, we will need to address the operational risk created by aging systems in the forthcoming regulatory period.

Our investment priorities focus on further simplifying and modernising our technology landscape, mitigating the operational and cyber risk of aging systems, improving the quality of our asset, network and customer data, and using technology such as automation and digital channels (e.g., mobile, websites) to enhance customer outcomes. The key benefits of this approach to our customers include increased customer satisfaction through proactive and timely communications, and more rapid resolution of issues and requests, improving gas services through greater visibility of network operations, and avoiding growth in costs through better management of labour and improved decision making through data.

Our proposed Digital capex forecast for the FY2024-2028 period **is $73.0M (incl overheads)**. This reflects the need to modernise our technology landscape to mitigate risk and increase our digital capabilities so that we are prepared to respond to future industry change. Details of our capex forecast are provided later in this document. An overview of how capex is spread across our three workstreams is provided in the figure below.

Table 1.1: Proposed Digital capex by Workstream FY2024-2028 ($m, 2023)

Workstream	Total	Program Name	2024	2025	2026	2027	2028	Total
Gas Network Operations	$39.3	Workforce Collaboration	[C-I-C]					$ 3.4
		Information Management						$ 14.4
		Gas DMS						$ 14.7
		Metering Services						$ 6.7
Lifecycle	$25.1	Corporate Enablement						$ 6.3
		TAM - Applications						$ 3.0
		TAM - Infrastructure						$ 7.5
		Corporate Communications						$ 5.1
		Customer Information Services						$ 3.2
Cyber	$8.6	Cyber Security						$ 8.6
		Total	$ 16.3	$ 18.7	$ 20.3	$ 10.2	$ 7.6	$73.0

Our proposed Digital opex forecast consists of "propex" (project related opex associated with activities such as data cleansing, and change management activities), and opex step change. Our proposed opex step change for the next regulatory period is **$11.5M (incl overheads)**. This is reflective of an increased use of cloud services and changes to h classification of project costs driven by updated accounting standards[1]. Further detail about our opex is provided later in this document.

Table 1.2: Proposed opex step change FY2024-2028 ($m, real 2023)

Opex Step change: Post-adjustments	2024	2025	2026	2027	2028	Total
IT cloud implementation cost	$ 0.8	$ 2.1	-$ 2.8	-$ 3.2	-$ 3.6	**-$ 6.6**
SaaS implementation cost	$ 1.5	$ 1.0	$ 2.7	$ 1.6	$ 1.6	**$ 8.5**
IT cloud run cost	$ 2.0	$ 2.0	$ 1.9	$ 1.9	$ 1.9	**$ 9.7**
					Total	**$11.5**

In summary, we believe our proposed investments reflect a prudent and efficient approach to simplifying our technology landscape, mitigating operational and cyber security risks, and helping us prepare for future industry change. This will enable us to maintain, and in some cases enhance, the services and outcomes that we deliver to our customers.

[1] Configuration or customisation costs in a cloud computing arrangement-IAS38 March 2021

2. Purpose of the document

AusNet's gas distribution network technology strategy (GAAR Digital Strategy) sets the direction and defines the Digital program of work for the FY2024-2028 regulatory period.

The strategy has been created to articulate and support the technology program of work required to manage AusNet's gas distribution network for the forthcoming regulatory period and includes a discussion on the proposed capital expenditure (capex) and operating expenditure (opex), as well as key drivers of this expenditure.

2.1. Scope

The scope of this document is limited to:

- Technology solutions required to support AusNet's regulated gas distribution business, include articulating key programs and initiatives, their relevance to key drivers of expenditure, costs and benefits and key risks that will be mitigated as result of these investments; and
- The Gas Access Arrangement Review (GAAR) period FY2024-2028.

This strategy is aligned to a number of other AusNet internal and external documents, including:

- AusNet's Gas Business Plan.
- Forecasting, project delivery, operational services, and cost allocation methodologies.
- Risk Management framework; and
- Regulatory requirements.

The strategy excludes:

- Technology in support of AusNet's electricity transmission and distribution networks, and unregulated business activities.

All cost and benefit estimates provided in this document are, except where otherwise indicated:

- Expressed in real 2023 Australian dollars; and
- All dollar values refer to include overheads.

2.2. Approach to develop FY2024-2028 expenditure forecasts

At an enterprise level AusNet's digital team operates in a dynamic environment as the utilities industry experiences an era of significant disruption. Planning now to develop robust forecasts for our investments over a five-year time horizon is therefore challenging and requires careful analysis.

In April 2019, the Minister for Energy, Environment and Climate Change stated that the National Gas (Victoria) Act 2005 was to be amended to have Gas prices adjusted on a financial year basis, as per her letter to the AER.[2] As a result and as noted by the AER's letter to the Victorian Gas distribution businesses, AusNet is submitting its regulatory proposal for the period between 1 July 2023 and 30 June 2028.

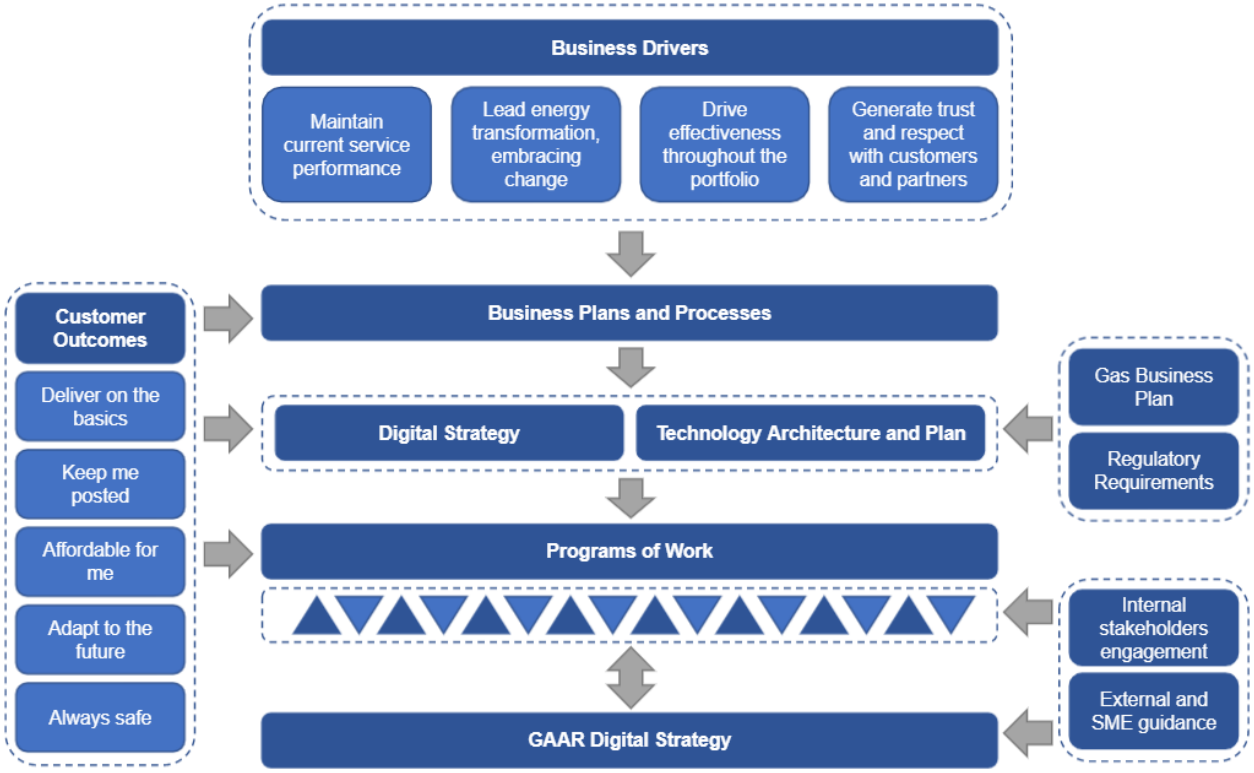
In developing our expenditure forecasts for FY2024-2028, we have considered:

[2] D'Ambrosio, Lily. "Intention to change the timing of Annual Victorian Network Price changes". Received by Conboy, Paula, 12/04/2019. Available at: https://www.aer.gov.au/system/files/VIC%20DELWP%20letter%20to%20AER%20re%20intention%20to%20change%20the%20timing%20of%20annual%20Victorian%20network%20price%20changes%20-%20April%202019_3.pdf.

- Customer outcomes and benefits – 'deliver on the basics', 'keep me posted', 'affordable for me', 'adapt to the future', and 'always safe3.
- Key business and risk drivers.
- Technology trends – including digital, cyber, automation and analytics trends.
- Regulatory trends.
- Expenditure guidelines.
- The Australian Energy Regulator's (AER) assessment criteria.
- Net Present Values (NPV of individual projects, in cases where benefits and costs can be appropriately quantified).
- Capital and operating expenditure requirements including the prudency and efficiency of these investments; and
- The expenditure across the current period.

All relevant areas of the business have been consulted to obtain insight into key needs, trends, and strategic direction. We have also used external consultants and technology experts to help develop our program of work. Our internal and external experts have also directly contributed to the development of the Digital Strategy. The figure below provides an overview of our approach to developing the forecasts.

Figure 2.1: Digital Strategy development methodology



In terms of the approach to developing each program and associated expenditure, the following steps were taken:

- Multiple discussions with business stakeholders, technology architects and delivery leads to develop scope, key objectives, and drivers influencing the requirement for the program.
- Consideration of different options to achieve the objectives of the program and analysis of their relative costs, benefits, and risks; and

[3] Summarised from customer engagement studies conducted by AusNet including the Energy Sentiments Survey (2021) and the AusNet Listening Report "Engaging Victorians on the Future of the Gas Networks" (2021)

- Top-down view to ensure that the Digital Strategy investment portfolio represents prudent expenditure for the upcoming period, relative to AusNet's previous expenditure, and comparison against similar businesses.

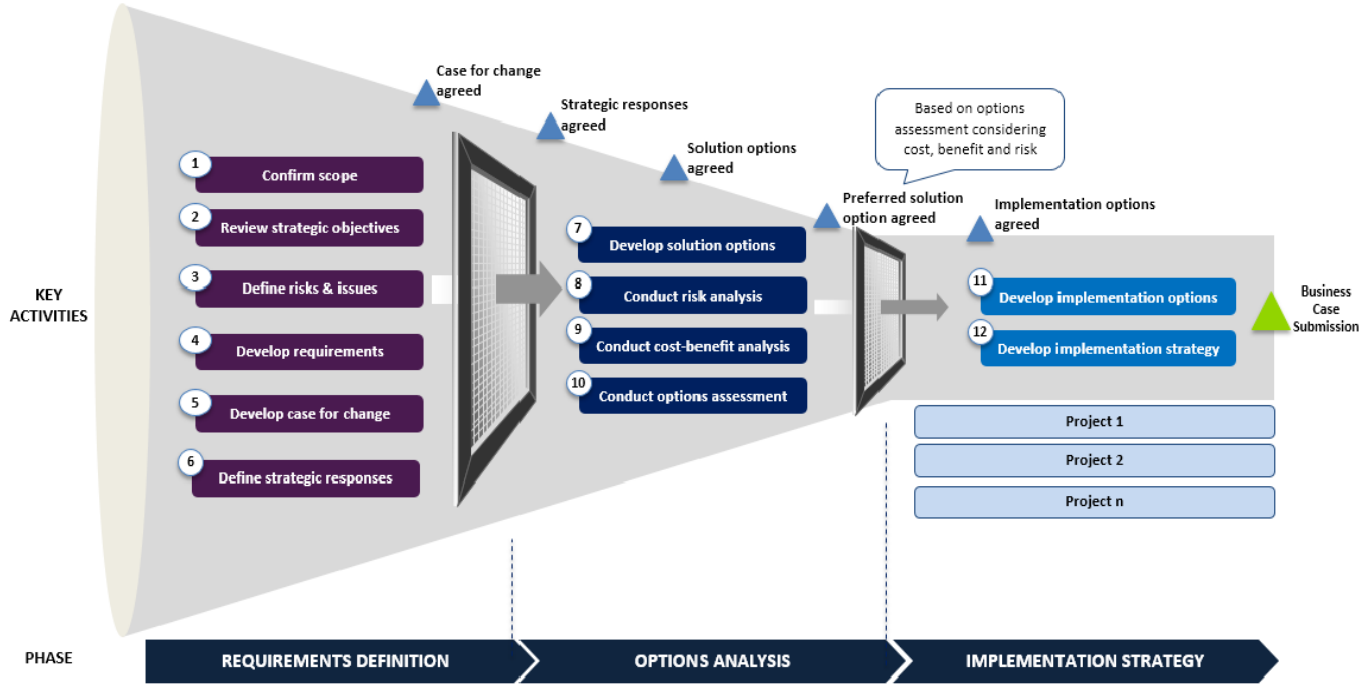
2.2.1. Program Development

The methodology used to develop programs for FY2024-2028 is shown in the diagram below. The approach has involved three phases, each refining assumptions and challenging costs with the objectives of:

Ensuring projects are correctly prioritised to ensure the business's ability to meet changing regulatory, industry, and customer needs in this period, and

Solutions have been described which deliver project outcomes in the most efficient way.

Figure 2.2: Program development process



2.2.2. Deliverability

The overall program of work for the period ensures that the planned amount of project work at any one time is consistent with:

Internal project management, architecture, security, and management capability within AusNet's Digital organisation.

Availability of third-party resources to supplement AusNet's capability.

Capacity of business users of technology services to contribute to requirements definition, and review and implement new tools; and

Capacity within AusNet's digital team to manage service transition (including deployment and testing) of the new tools and technology.

Project management methodologies and processes have been revised during the current period and the successful delivery of programs to time and budget is evidence of our improved capability to deliver our Digital program to plan.

3. Drivers of digital expenditure FY2024-2028

In the development of this strategy AusNet has considered a number of factors including:

- Regulatory environment.
- Customer expectations.
- Industry, technology, and cyber security trends; and
- Business strategy.

Each of these drivers are explained in more detail below.

3.1. Regulatory environment

AusNet's business and investment plans for how the gas distribution network is operated and maintained must reflect its regulatory obligations. This includes prudent, efficient, and sustainable management of the gas distribution network. Achievement of the regulatory objectives ensures the long-term health and sustainability of the network.

This is in line with the capital expenditure objective and criteria under the National Gas Objective (NGO) which is:

> *"to promote efficient investment in, and efficient operation and use of, natural gas services for the long term interests of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas."*

In preparing this submission, we also considered the following changes in the economic regulatory framework for gas distribution businesses in the current period:

- AER ICT expenditure assessment approach which defines the AER's expectations when preparing proposals relating to non-network ICT Capex [4].
- AEMC's final determination in 2019 to implement a range of improvements to the regulation of covered transmission and distribution pipelines. These changes provide for greater stakeholder engagement in the access arrangement assessment process; and
- The change in the regulatory period access arrangement from calendar years to financial years was driven by the Victorian Government's desire to drive retail price decrease in the gas sector.

3.2. Customer expectations

As part of developing our broader proposal, AusNet consulted with customers to ensure that we understand and continue to meet their changing needs and priorities.

Multiple qualitative and exploratory stakeholder interviews were undertaken by a number of third-party research firms on behalf of AusNet. These studies were used to gain an external point of view of what matters most to customers, as well as identifying the nature of the relationship they have and would like to have with AusNet[5]. These studies utilised a statistically significant and diverse cross section of AusNet's footprint, including both residential and commercial customers. The interviewed stakeholders included local councils, large businesses, and small to medium businesses, customer advocates and community energy groups[6].

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[4] Non-Network ICT capex Assessment Approach, November 2019

[5] AusNet 2021-2025 GAAR Customer Research, Qualitative Research Report, Newgate Research, August 2018.

[6] UNDERSTANDING THE GAS RELATED NEEDS AND WANTS OF CUSTOMERS: A STAKEHOLDER PERSPECTIVES (FULL PAPER), Stephanie Judd, Customer Research and Insights Advisor, AusNet, 2018.

Qualitative data extracted from the interview transcripts was used to develop the customer drivers detailed below, which are at the core of any Digital investment proposed in the upcoming regulatory period.

As part of developing the GAAR Digital Strategy, AusNet also conducted a series of consultation forums to better understand the needs and priorities of its customers, including

- The Energy Sentiments Survey - a newly created bi-annual survey undertaken with Gas and Electricity customers, sampling ~1000 (500 Gas, 500 Electricity) customers. Its purpose is to test customer sentiment toward AusNet and industry trends, purchasing and behavioural intentions, and customers' experience with various aspects of their gas (or electricity) supply; and
- The Major Energy User Forums - co-led by AGIG, AGN and AusNet, which continues to iteratively engage with residential, business and CALD customers for open discussion on issues facing major gas users in Victoria, including the future of gas. Approximately 500 customers across 20 locations are planned to be engaged over the course of three phases (June & September 2021, February 2022) to ensure its plans deliver the services that its customers most value. Its goal is to reach agreement on AusNet's plans for the years FY2024-2028 before they are lodged for formal assessment by the Australian Energy Regulator (AER) under the Gas Access Arrangement Review (GAAR) process. The outputs and comments from these forums supplement the ongoing customer consultation work outlined above.

Through its engagement with customers, AusNet has listened to a broad range of views on customer needs and priorities. AusNet has distilled these views into five key priorities:

Table 3.1: Summarised examples of customers' statements

Deliver on the basics	Keep me posted	Affordable for me	Be ready for the future	Always safe
Ensure customers have a consistent and reliable supply of gas	Any changes to supply must be preceded by clear and proactive communication delivered in a timely manner	Make upgrades to the network to meet customer expectations and control expenditure and charges	Contemporary monitoring of gas usage, as well as availability of sustainable, alternative gas sources	Ensure that the network always operates without any undue risk to the safety of the community

The figure above provides some examples of the range of statements that AusNet has heard from customers, and how they align with the five key customer priorities. These customer values and priorities are at the forefront of AusNet's decision making regarding its proposed investments in technology. The Digital investment programs have been developed to target these customer priorities.

3.3. Industry, Technology and Cyber Trends

The utilities sector, is going through a major period of change, driven by Environmental, Social, and Corporate Governance (ESG), decarbonisation and hydrogen/alternative fuels considerations. AusNet must continue to find new ways to deploy technologies to address these challenges whilst harnessing new opportunities to reduce its costs and ensure the reliability and continuity of supply.

Digitisation plays a key role in enabling our ability to maintain core business and ready ourselves for the future. The availability of data, automation of processes, and interfaces with an ecosystem of industry participants to meet evolving customer needs is one important outcome of an increasingly digitised utility.

External changes that will affect the way that AusNet uses its technology to deliver distribution services to customers will increase over the next regulatory period. It is important to understand the trends that underlie these external changes when considering what investments are required to deliver the outcomes our customers, regulators, and other stakeholders are seeking.

3.3.1. Industry Trends

Amidst the ongoing changes in the energy sector, the Gas business is largely stable however changes in consumption are emerging in addition to the exploration of potential alternative fuel sources and the impact this will have on management of gas assets within the network.

As a result, the Gas Business Plan focuses on remaining operationally effective, improving services that customers value, ensuring a continued focus on safety, supporting a decarbonisation roadmap, and our contribution to an evolving industry. Trends such as the ones discussed in the table below, are changing the operational environment and are affecting relationships with stakeholders and regulators, customers' needs, and the ability for AusNet to provide secure and cost-efficient services.

Table 3.2: Trends affecting AusNet's gas operational environment[7,8,9]

Pipeline safety and compliance	• Aging infrastructure and materials • High-profile safety incidents • Increasing regulatory stringency and enforcement • New ways to work with digital technologies (e.g. AI, ML, IoT, field data capture, situational awareness)
Risk based asset management	• Quantitative probabilistic risk models for diverse asset classes including distribution, pressure regulation and underground storage • Desire to get to asset-specific risk profiles to enable granular, data-driven asset decisions • Integrating quantitative asset risk into investment planning and portfolio management
Optimised capital and O&M spend	• Pressure to constrain rate increases to inflation • EPS targets and investor expectations • Leverage analytics, including asset-specific risk profiles, to optimise decisions tied to capital and O&M spend • Changing workforce and work demand (accelerated by COVID-19)
Commercial Operations	• Customer/supplier relationship management and self-service • Digitisation of processes with customers, field operations, and suppliers • Forecasting accuracy and enhanced risk management • Enhanced billing process • Improved accuracy of tariff implementation and adherence to regulatory requirements
Mobile Field Operations	• Moving away from paper records towards digitisation and mobile data capture • Implementing automation into work execution • Desire to optimise scheduling and dispatch • Streamline design and as-build at the point of installation • Geospatial project creation and work order initiation based on asset risk profiles
Decarbonisation	• Federally, Australia has committed to 26-28% reduction by 2030 off 2005 levels; established Climate Solutions Fund to invest $3.5bn emissions reduction projects to deliver Australia's 2030 Paris climate commitments • Increasing global pressure for the federal government to commit to more aggressive net zero targets while every state, individually, has signed up to net zero emissions by 2050 • As the policy is still evolving, AusNet should prepare to pivot strategies and investments as the landscape changes

AusNet not only needs to consider the direct impact of these trends on our business, but also anticipate where these trends are affecting other market participants' behaviours. For example, the quality and cost of field services is highly dependent on digitising mobile field operations with third-party providers.

In developing the proposed investments for the next regulatory period, outlined in this strategy, AusNet has taken a prudent investment approach to manage the impact of these trends by ensuring that the customer outcomes are at the centre of our investment plans – prioritising to deliver first on what our customers are telling us and leveraging digital technology and exploring opportunities to reduce our ongoing costs wherever possible. This balances the needs of customers, allowing AusNet to be 'ready for the future' whilst being affordable for the customer.

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[7] PwC research, 2021

[8] Department of Environment, Australia's 2030 Emissions Reduction Target, 21/09/2021. Available at: https://www.environment.gov.au/system/files/resources/f52d7587-8103-49a3-aeb6-651885fa6095/files/summary-australias-2030-emissions-reduction-target.pdf

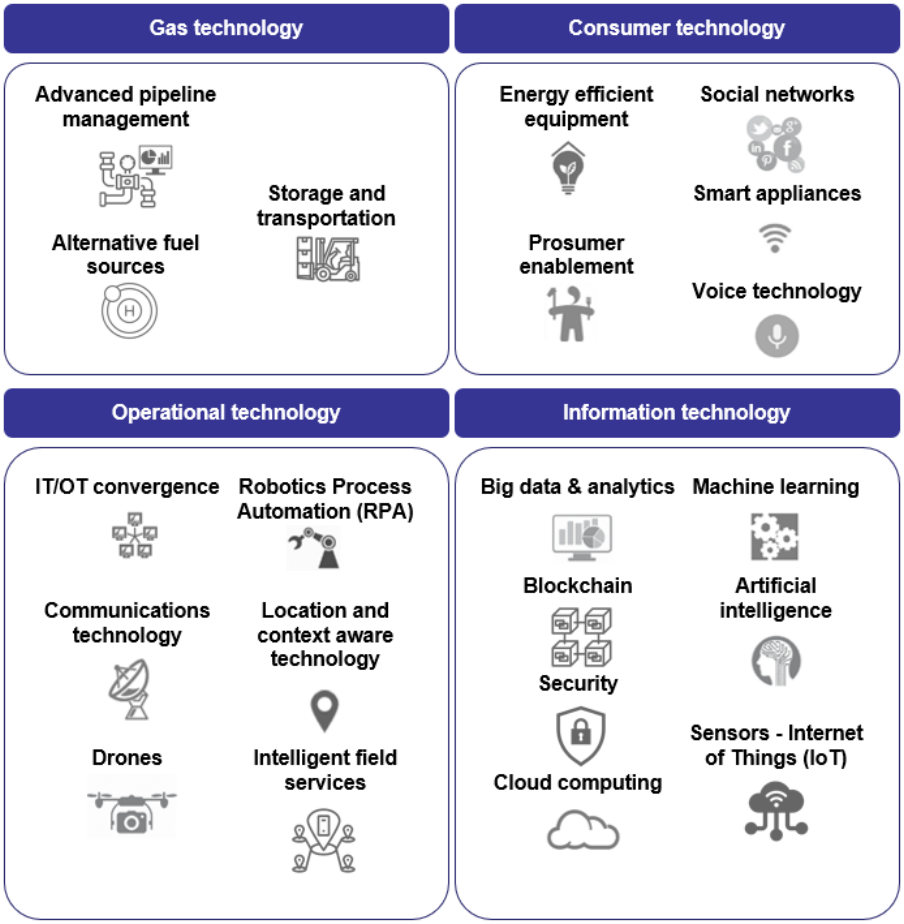
[9] Committee on Climate Change, Net Zero Technical report , 21/09/2021 Available at: https://www.theccc.org.uk/wp-content/uploads/2019/05/Net-Zero-Technical-report-CCC.pdf

3.3.2. Technology and cyber trends

Technology continues to evolve at a rapidly increasing rate and provides both new opportunities to increase customer satisfaction and improve the way we operate, but also introduces heightened cyber security risks that need to be mitigated.

The figure below presents different types of technology trends categorised under the headings of gas technology, consumer technology, operational technology, and information technology. Many of these technologies are not inherently new, but their application and/or widespread adoption has changed the way in which AusNet and others interact with them.

Figure 3.1: Different types of trends in technology



Due to their disproportionate impact on the GAAR Digital Strategy, three technology trends are explained in more detail below.

3.3.3. Cloud

Cloud hosted technologies are becoming more prevalent across all sectors of the economy, including gas. Whereas in the past, IT systems were hosted at company premises on servers and other owned infrastructure, increasingly technology vendors are only making their products available via the cloud, or remote servers. Cloud hosting brings many benefits for IT systems, including greater scalability and flexibility, agility, and lower infrastructure costs. It can also drive greater staff productivity and reduce the risks of owning infrastructure, through outsourcing. This trend is driving the need for AusNet to consider investing in cloud-based systems and services, such as networks, virtualisation, cloud security and new ways of working.

Ensuring AusNet is able to adopt cloud technologies means that it can continue to maintain and refresh IT systems to incorporate new versions, and retain vendor support, critical bugs and patches. This is imperative to maintain smooth operations, with limited disruption supporting the continuity and reliability of supply. However, migrating to the cloud may come with additional costs and risks. For instance, the economics of cloud infrastructure usage must be monitored closely to avoid any unintended bill shock. The time and

sequence of the cloud migration will be managed to balance the risks and costs of doing so against the benefits that it offers.

In the current regulatory period, AusNet embarked upon an Application Hosting Initiative (AHI) to address increasing maintenance costs for end-of-life equipment and increasing risks of equipment failure. Some of AusNet data centre assets are at end of life and are no longer supported and maintained by vendors. These factors are contributing to the increasing cost of owning, operating, and maintaining infrastructure assets at data centres. The end-of-life assets must be refreshed to mitigate the potential business impact, security risks and to leverage more advanced software-as-a-service offerings. The AHI program has established a pathway for AusNet to become cloud ready by refreshing end-of-life data centre assets, whilst also assessing likely candidates for cloud services.

AusNet also embarked on a Cloud Migration Program, which involved "lifting and shifting" several gas applications to cloud hosted infrastructure services (infrastructure-as-a-service (IaaS)). While detailed planning for the next phase of the Cloud Optimisation Program has not yet commenced, we expect that most gas applications will be hosted in the cloud by the end of the regulatory period FY2024-28. In the next regulatory period, AusNet will continue the deployment of the AHI strategy and undertake the detailed work to identify applications and data to migrate to the cloud where it makes sense – for example:

- Where costs are lower.
- Where additional capability is needed (typically as a result of end of life of existing systems, or if there are additional regulatory requirements).
- Where vendors are only providing cloud solutions; and
- Where the cloud solution is a key enabler for other technologies such as analytics or automation (for example, our Information Management solution currently being developed is a cloud-based platform, detailed in this document within the workstreams section under Gas Network Operations).

This means that our IT systems will increasingly shift to cloud-based solutions, eventually reducing our reliance on local data centres. Over the long term, as our data centres can be retired, it will also involve a shift from capital expenditure to more operating based expenditure.

3.3.4. Information Management

AusNet is continuing to work to improve outcomes for customers by using data to enhance decision making. Improving our information management capabilities helps AusNet to continuously improve our services, work practices and assets whilst controlling expenditure and network charges for the customer. Many devices deployed across the network, as well as field and other staff capture diverse data, which can be leveraged by the business to better understand its operations and achieve these goals. Data can be analysed and mined for insights which allow AusNet to better monitor, manage and control the network as well as optimise its operations. The following diagram details many of the key information management advancements the business will leverage in the next regulatory period.

Figure 3.2: The implications of key focus areas for information management within gas distribution businesses

Focus area		Impact	Implications
	Network	Asset protection	Analytics applied to data captured by network devices can improve **situational awareness to inform network management and operations** by detecting and reporting corrosion, pressure, leakages, and more. The business can evaluate asset health and capacity while anticipating maintenance requirements. However in order to take advantage of this information management technology, the business must upgrade distribution pipelines, mains, city gates, and stations to include intelligent devices.
	Assets	Create more value	Analytics can support more **intelligent investments and asset planning**, when new assets are needed. Analytics technologies can help track asset performance and detect operating conditions that could lead to failure. In turn, asset analytics enable the business to make smarter, cost effective decisions on whether to repair or replace before a failure occurs. Minimising network disruptions preventatively, supports a safe and reliable service delivery.
	Customers	Understand and communicate	Analytics can help AusNet Services better understand end user demand, which allows the business to **plan, configure and optimise the network to support better customer outcomes**. With a deeper understanding of consumer needs AusNet can support customers with certainty of supply in line with their demand and prudently optimise expenditure on network upgrades and maintenance based on customer usage and network performance.
	Outage	Restore service and trust	Analytics can improve **works planning and efficient deployment of field crews** on an as-needed basis, improve response to work orders, and identify assets that are down and in need of intervention. AusNet Services' performance during an outage (planned outage is more common in gas) has a major impact on relationships with customers and the regulator.
	Finance	Meet business targets	AusNet Services can leverage analytics on financial information to **anticipate revenue risk and optimise expenditure**, critical to shaping the direction of the business moving forward and ensuring prudent and efficient operations. Financial analytics combine internal financial information and operational data with external information to address critical business questions with ease, speed and accuracy

AusNet is developing an enhanced information management platform, which will enable many of the functions outlined in this table. This program of work is detailed in this document as a part of the Intelligent Operations workstream and further detailed in the Information Management Initiative Brief.

3.3.5. Robotic Process Automation

Appropriate use of **Robotic Process Automation (RPA)** offers AusNet the opportunity to achieve cost savings, operational efficiencies, and process improvements. RPA can be used to enhance existing systems and processes by replacing repetitive and manually-intensive human activities with automated 'bots' which are significantly more productive. Used in the right scenarios, this allows AusNet to reduce cost and mitigate risks of operating legacy systems and improve process performance whilst awaiting larger investments in digitisation. Examples of utilities-specific use cases include:

(1) **High-Speed, High-Accuracy Data Entry:** in utilities, as in many organisations, employees spend a great deal of time transferring granular form-based data to transactional applications. RPA solutions can be configured to automatically analyse form inputs, extract the relevant information, and create new entities in the application. Initiating this process can be as simple as sending an email with attached forms to the process automation system. Once the data is processed, a human supervisor receives an alert and can simply issue an approval to input the information into the system.

(2) **Digitise Field Notes for Better Record-Keeping and Collaboration:** large amounts of detailed operational data are recorded in the notes taken by field technicians (i.e. Downer for AusNet's gas business) and customer service agents (i.e. CEOT staff).
This documentation often takes the form of quick text typed out using a nearby device or simply a hand-written paper note. For many utilities, this data is not systematically captured and stored. Even laborious manual data-entry of notes is prone to errors.
Process automation can dramatically streamline the recording and sharing of such notes.

Techniques like optical character recognition can even be used to automatically scan, label, and input handwritten notes. Meanwhile, natural language processing (NLP) allows for the automated processing of virtually any set of text data. From there, an IPA-system can be employed to classify incoming data and route it to the correct system (for example, a note on a customer-reported equipment outage could be forwarded to the relevant technician team).

(3) **Automated Compliance Assistance:** utility companies face regulations that mandate regular reporting. This requires repeated work to gather the required data and assemble a report for regulators. For many utilities, this process can take up months of valuable time. An automated data integration process can handle large volumes of the data extraction work required for building the necessary reports. From there, relevant metrics can be automatically placed in the proper document.

Compliance automation solutions can even be configured to automatically track relevant databases for updated data that would necessitate a change to reporting documentation. This capability means this automation not only saves huge amounts of time but ensures reporting is accurate and up-to-date.

3.3.6. Cyber Security

AusNet's gas distribution network is a part of Australia's critical infrastructure. The safety and reliability of gas supply is integral to the lives of many Victorians. Citing a global example, a 2021 cyber-attack on the US-based Colonial Pipeline caused the pipeline to shut down operations, causing a multi-day shutdown affecting 50 million consumers, and forcing a payout of $5.6m in ransom[10]. A similar attack targeting customer data may be catastrophic. Therefore, protecting critical infrastructure, as well as privacy and security of customer data is ever more urgent, as the risk of cyber-attacks on the energy industry grows.

To address these challenges and be better prepared for the future, AusNet has benchmarked its cyber security maturity level of capability against the Australian Energy Sector Cyber Security Framework (AESCSF). This energy industry-specific cyber security framework, led by the Australian Energy Market Operator (AEMO), was developed through collaboration with industry and government stakeholders including the Australian Cyber Security Centre (ACSC), Critical Infrastructure Centre (CIC), and the Cyber Security Industry Working Group (CSIWG) which includes representatives from Australian energy organisations. The to-be-revised Security of Critical Infrastructure Act mandates compliance to this framework, urging AusNet to take a risk-based approach to managing cyber security in an increasing threat landscape.

A draft bill proposed by the Department of Home Affairs and Critical Infrastructure Centre, mandates that organisations with critical gas assets must comply with the requirements to meet the AESCSF 'Security Profiles' (SP-2) within a timeframe which is likely to fall in the FY2024-28 regulatory period. As a result, AusNet must ensure sufficient investment to comply with regulatory obligations under AEMO's Australian Energy Sector Cyber Security Framework (AESCSF)[11],[12], better protect critical assets and the ability to supply energy to customers, better protect critical data relating to customers and operations, and support ongoing development and measurement of cybersecurity capabilities within the organisation.

3.4. Business strategy

The development of this GAAR Digital Strategy aligns with AusNet's gas business strategy, which is outlined in the Gas Business Plan. The plan focuses on maintaining our core business in the near to medium term, increasing asset effectiveness, ensuring ongoing safety of operations, and keeping costs lower for customers, while preparing a decarbonisation plan. Due to policy uncertainty, there is a need for AusNet's gas business to continue uplifting its core business activities, while also increasing readiness to respond to change in the future. The focus areas of the Gas Business Plan are highlighted under four key pillars:

- Maintain current service performance (e.g., through improved knowledge of field occurrences to minimise outages).
- Lead energy transformation, embracing change (e.g., through the performance of a gas metering trial in preparation for a mixed energy future with changing regulatory requirements).
- Drive effectiveness throughout the portfolio (e.g., through workflow process automation and mobility enablement); and

[10] ABC Colonial Pipeline says operations back to normal, as US blames Darkside for ransomware attack, 21/09/2021 Available at: https://www.abc.net.au/news/2021-05-16/colonial-pipeline-normal-operations-ransomeware-attack/100142608

[11] AEMO 2018 AESCSF Report.

[12] AEMO and NCSA AESCSF 2019 Close Out Letter – AusNet.

- Generate trust and respect with customers and partners (e.g., through proactive customer communications and digital channels).

From a technology perspective, AusNet aims to transform into a modern, efficient and innovative organisation enabled through digital technology, becoming a utility of the future. This has been outlined in an internal strategy where five key objectives for gas have been prioritised as shown in the figure below:

Figure 3.3: Five key objectives for gas in the digitally enabled utility of the future[13]

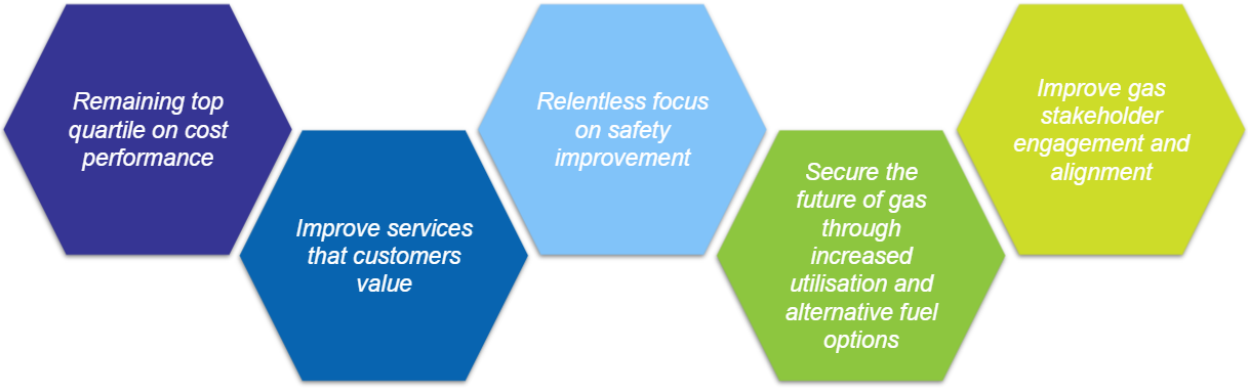


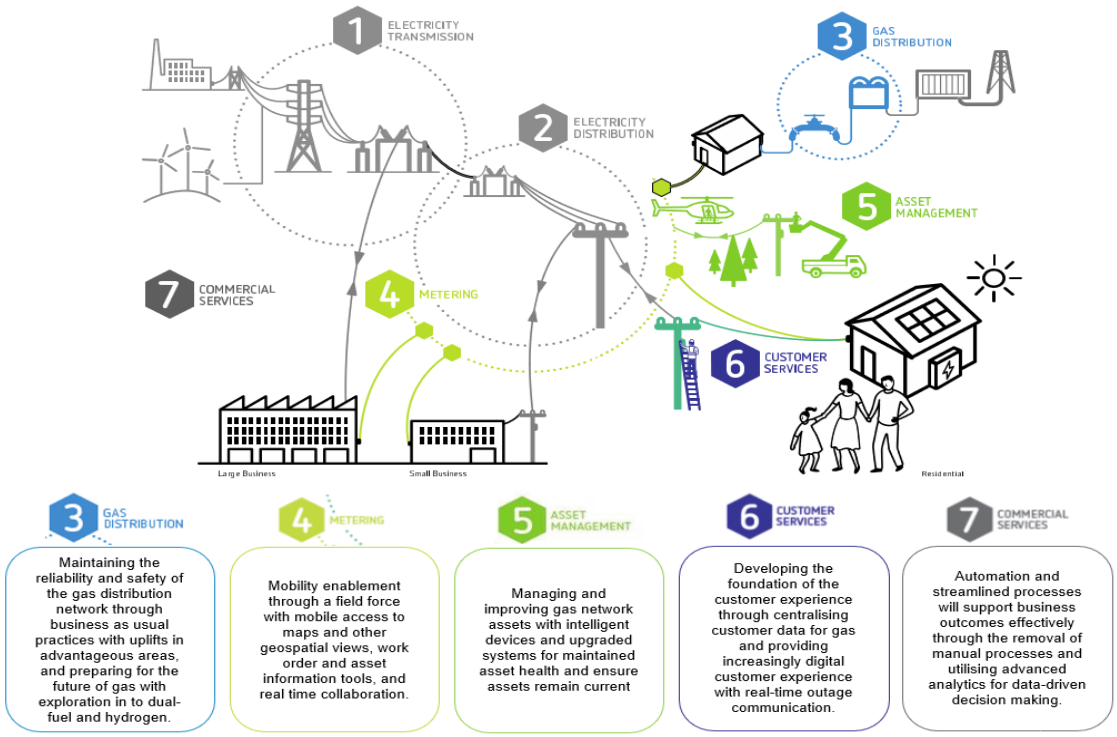
Table 3.4: Key objectives in detail

Key Objectives	Description
Remaining top quartile on cost performance	AusNet aims to improve cost effectiveness across the gas business to maintain their position in the top quartile of cost performance.
Improve services that customers value	AusNet recognises that achieving customers outcomes are the key focus for their gas business. It is essential that AusNet continues to invest in tools to aid understanding of their customers and their needs. Building efficient customer communication channels and further improving services for customers will help AusNet to retain their existing customers and decrease the gas disconnection rate.
Relentless focus on safety improvement	Customers consider safety to be a major consideration area for their gas service and expect high levels of safety. AusNet will make continuous efforts to maintain the high safety standards of their gas network.
Secure the future of gas through increased utilisation and alternative fuel options	Explore decarbonisation options investigating hydrogen and alternative fuel sources that may power the future gas network. This exploration needs to consider the impact of alternative fuels on existing operational processes and new and emerging processes that will be required to support customers in the future.
Improve gas stakeholder engagement and alignment	Influence industry bodies and government for our position. Collaborate to achieve own decarbonisation program to deliver benefits to our customers.

[13] FY20 AusNet Gas Distribution Business Plan V1.0

This transformation is not limited to the Digital environment of AusNet, as these attributes span across AusNet's broader business functions. The following diagram provides an overview of AusNet's broader business functions and highlights the business functions relevant to the gas business in meeting the Business Strategy:

Figure 3.4: Transformation into a digitally enabled utility of the future[14]



[14] FY19-23 AusNet Technology Plan.

4. Current and forecast capex

AusNet's digital environment is evolving in response to the changing needs and requirements of the business as well as changes and trends in the gas and external technology landscape. In the current regulatory period, AusNet has focused on modernising and consolidating its applications and understanding the changing business environment. This involves realigning our digital strategy towards core business goals, and leveraging, extending, and improving our enterprise foundation to realise benefits for our customers.

The trends and drivers described in Section 3 are contributing to an uncertain industry landscape, which requires gas distribution businesses to reduce business, technology and regulatory risk by digitising core operations and services, while maintaining a priority focus on delivering positive customer outcomes.

AusNet has taken a conservative and cautious approach to its digital expenditure, increasing capex (as compared to the CY2018-22 regulatory period) and controlling opex. For the upcoming regulatory period, our proposed digital programs have been designed to maintain our existing core services in an increasingly uncertain environment, respond to evolving customer preferences, and increase our readiness for future changes that will help ensure our network remains resilient. Further, opportunistic investments are proposed in several program briefs to bring further benefits to customers.

The figures below summarise the changing environment in which AusNet has operated in over the last decade, as well as the upcoming regulatory period, and provides an overview of how the relevant theme of expenditure has also evolved.

Figure 4.1: Transformation of AusNet's operating environment and Digital Strategy

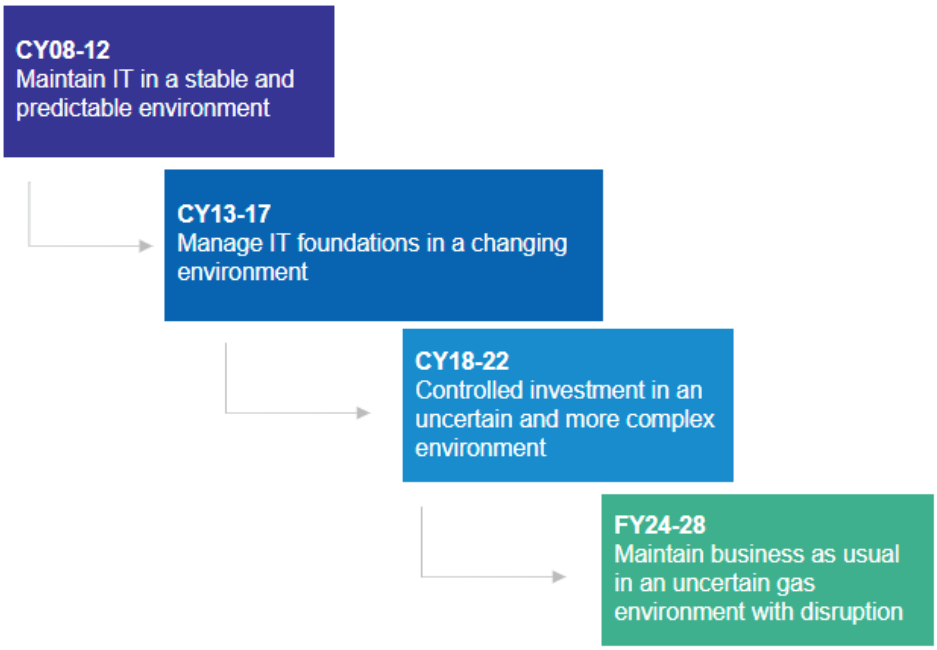


Table 4.1: Qualitative explanation of the outcomes Digital delivered in each of the most recent and planned GAAR regulatory periods

Year	CY2008-2012	CY2013-2017	CY2018-2022	FY2024-2028
Business environment	Stable and Predictable	Changing	Changing and more complex	Uncertain with disruption
AusNet Services IT themes	Maintain IT	Manage IT	Modernise Business Tools	Business as Usual with uplifts in advantageous areas
Key Initiatives	• Support inherited (fragmented) IT environment • Limited IT infrastructure consolidation and modernisation	• Formal service management • IT infrastructure modernisation • Initial IT application modernisation	• Further IT application modernisation • Business deployment of new capabilities • Retire legacy IT environment • Customer enablement	• Further IT application modernisation through replacement of legacy systems • Begin business transformation from capex to opex • Building on customer enablement through digitised customer experiences • Responding to future anticipated regulatory requirements, specifically hydrogen
Benefits	• Continuity of IT services	• Risk managed IT • Secure IT • Reliable IT	• Flexible IT • Controlled IT cost	• Controlled IT costs • Controlled business costs • Dynamic business environment managed

4.1. Expenditure in the current regulatory period

During the current regulatory period, AusNet has been cautious and prudent with its Digital spending, focusing on cost reduction, efficiency improvements, and re-prioritisation of expenditure towards our business drivers. Our investments for this period have also been aimed at readying AusNet in response to future industry changes; that is, a more uncertain Gas environment with growing external forces such as ESG, decarbonisation and alternative fuel sources potentially impacting the business during the next regulatory period. Sound information technology is critical to supporting AusNet's role in providing its customers with a safe and reliable supply of gas. The modernised technology environment being established in FY2018-2022 intends to provide the foundations upon which the business may deal with future industry change.

More specifically, in the current regulatory period we have:

- **Been cautious and prudent** – AusNet has focused on reducing costs and improving efficiency, whilst establishing some foundations of a modern technology landscape, planning and preparing for further investments that are required to maintain high quality services and prepare to respond to future industry changes.
- **Underspent on technology capital forecasts** – AusNet has taken opportunities to leverage existing systems, reduce costs and prudently invest to meet customer and regulator expectations on network services. This is currently forecast to result in a $26.7M underspend compared to the CY2018-22 regulatory forecast.
- **Reduced technology opex** – We have implemented a new operating model which includes the outsourcing of major IT infrastructure and programs. The associated opex savings will be shared with customers through our prices from 2028.
- **Commenced modernisation of some technology** – major initiatives that have been delivered during this period include:
    - Refreshed SCADA system.
    - Modernisation of network devices to improve customer services and reduce cost, including the modernisation of management of meters and meter data.
    - Refreshed storage, server and data centre, which has included:
        - Delivery of a number of end-of-life technology and capacity uplift/refresh initiatives in the storage, server and data centre domains.

        - Maintenance of the currency of database platforms supporting several critical business systems.

- **Reduced the risk of business disruption** and outages due to obsolete (end of life / out of support) infrastructure and/or constrained capacity thereby enabling AusNet to continue to meet its service and regulatory obligations.
    - Migrated a number of business applications to a **cloud-based infrastructure**-as-a-service (IaaS) platform.

The table below outlines AusNet's key outcomes and programs implemented to date during the current period.

Table 4.2: Key outcomes implemented

Key outcomes	Example of current period programs implemented to date
Supporting the achievement of corporate, business, technology, network and asset strategies	Improving corporate collaboration and tooling required for the transition to a 'Digital Workplace', by establishing a SOE platform enabling remote working throughout lockdown mandates imposed during the COVID-19 pandemic.
Improved workforce / public safety through more mature field operations and improved safety management	Enhancing communications capabilities and field mobility to leverage network and asset management investments, improve service performance and reliability, and improve safety by supporting field operations.
Improved compliance through enhanced reporting capabilities	Simplifying our information sources and establishing a single information management platform, supporting data analysis and reporting capabilities.
Prudent lifecycle management of core business and technology systems	Lifecycle management of systems and platforms including rationalisation and consolidation to maintain the overall integrity and stability of the network, optimise investment, manage risk and efficiently maintain services to our customers.
Improved field mobility services to support the effectiveness of field operations and support network management	Expanding mobility tools to our field force to support a broader range of field tasks and activities, upgrading mobile devices and providing access to a broader range of applications and information to improve situational awareness and improve operational effectiveness.
Cloud migration and on-premise infrastructure modernisation	Preparation and consolidation of infrastructure underpinning applications used across the gas business, to lay the necessary foundations for a move to the cloud.
Improved security through automated security monitoring and proactive security incident management	Continued investment to evolve and mature information security capabilities, ensuring the safety of customer information and protecting the Gas networks and business systems from potential cyber-attacks.
Uplifted customer experience with investments into customer solutions	Enhanced employee capabilities making it easier to respond to customer queries through work collaboration and communication tools.

These technology investments enable AusNet's business strategy and have built on the foundational enterprise capabilities delivered during the CY2013-2017 regulatory period, focusing on replacement, consolidation and integration of some core systems, remote and secure access to centralised documents, and replacement, rationalisation and extension of IT infrastructure assets.

4.2. Comparison of the current period allowance to actual expenditure

The AER approved a total capex forecast for Digital of $66.4 million ($2023) over the CY2018-22 regulatory period, as set out in the following table.

Table 4.3: Digital capex allowance for 2018-22 ($m, real 2023)

Calender Year, $ M	2018	2019	2020	2021	2022	Total
Corporate	$1.2	$1.0	$0.3	$0.2	$0.1	$2.9
Information Management	$1.5	$3.2	$2.0	$2.1	$2.2	$11.0
Information Security	$1.0	$0.9	$1.7	$1.6	$0.4	$5.5
Network Management	$2.1	$0.7	$0.0	$0.0	$0.0	$2.8
Works & Asset Management	$0.2	$0.9	$3.3	$0.9	$1.3	$6.6
Metering & Customer Services	$1.4	$3.4	$2.2	$0.2	$0.0	$7.1
Information Technology	$8.2	$7.1	$4.8	$6.4	$3.9	$30.4
TOTAL	**$15.8**	**$17.1**	**$14.2**	**$11.3**	**$8.0**	**$66.4**

As of June 2022, AusNet is forecast to spend $39.7 million ($2023) over the CY2018-22 regulatory period, with spend mainly attributed to Information Technology ($19.5 million), followed by Works & Asset Management ($5.3 million), and Information Security ($4.3 million). This means an overall underspend of $26.7 million is expected by the end of 2022.

Table 4.4: Digital capex actuals + budget for 2018-22 ($m, real 2023)

Calender Year, $ M	2018	2019	2020	2021	2022	Total
Corporate	$0.7	$0.4	$0.3	$0.6	$1.0	$2.9
Information Management	$1.2	$0.7	$0.7	$0.8	$0.5	$3.9
Information Security	$0.4	$0.5	$0.9	$1.1	$1.4	$4.3
Network Management	$0.0	$0.0	$0.0	$0.1	$0.0	$0.1
Works & Asset Management	$1.4	$1.2	$0.1	$0.9	$1.8	$5.3
Metering & Customer Services	$0.5	$0.9	$0.5	$1.7	$0.0	$3.6
Information Technology	$5.9	$4.5	$4.0	$2.4	$2.6	$19.5
TOTAL	**$10.0**	**$8.3**	**$6.5**	**$7.7**	**$7.3**	**$39.7**

Table 4.5: Digital capex forecast variance for 2018-22 ($m, real 2023)

Calender Year, $ M	2018	2019	2020	2021	2022	Total
Corporate	$0.6	$0.7	-$0.0	-$0.5	-$0.8	-$0.1
Information Management	$0.4	$2.5	$1.2	$1.3	$1.7	$7.1
Information Security	$0.6	$0.3	$0.8	$0.5	-$1.0	$1.2
Network Management	$2.1	$0.7	$0.0	-$0.1	$0.0	$2.7
Works & Asset Management	-$1.1	-$0.3	$3.2	-$0.0	-$0.5	$1.3
Metering & Customer Services	$0.9	$2.4	$1.7	-$1.6	$0.0	$3.5
Information Technology	$2.3	$2.6	$0.8	$4.0	$1.3	$11.0
TOTAL	**$5.8**	**$8.8**	**$7.7**	**$3.7**	**$0.7**	**$26.7**

The $26.7 million underspend across the GAAR Digital portfolio for the CY2018-22 regulatory period, or 40% compared to the AER forecast, was driven by a number of factors. The underspend was mainly experienced in the first three years of the period, as AusNet was undergoing an extensive organisational transformation, covid related project inefficiencies and increased gas customer connections capex re-

prioritisations. During this period, it was prudent to defer or de-scope some projects to ensure that the Digital capex was consistent with the new structure and achieved desired project outcomes. These deprioritised projects resulted in a significant underspend, as illustrated in the breakdown of the three programs mentioned below.

Additionally, the 5MS project became a focus for the entire business and resulted in the reallocation of resources and de-prioritisation of some programs of work. Necessary COVID-19 related expenditure was also a priority for the business, to ensure that employees received the infrastructure and support to enable work from home arrangements and adapt to the changing work environment.

Dissected by program, current period underspend is primarily driven by the capex forecast variance across the following three programs:

- **Information Technology ($11M) -** Commenced the Application Hosting Initiative (AHI) to address increasing maintenance costs for end-of-life equipment and increasing risks of equipment failure. Executed lifecycle refresh and upgrades of SCADA systems to maintain system reliability, decrease security risk and reduce the increased costs associated with supporting end-of-life systems. However, some TAM Application and Infrastructure initiatives were deprioritised, in lieu of other project and COVID-19 related priorities noted above; and
- **Information Management ($7.1M) -** Commenced establishment of an Information Management Platform, based on a business-use case approach but did deprioritised initiatives such as Enhanced Decision Making and Information Management Augmentation for the Gas business.

The detailed reasons for program underspend are elaborated below.

4.2.1. Changes within Metering and Customer Services

During the period, we planned to implement an enterprise-wide customer relationship management (CRM) system, in order to provide a more robust environment to manage customer data, customer interactions and customer traceability. Our approach to the management of our customer information during this regulatory period shifted to applying tactical solutions to address particular pain points, including a number of customer delivery and experience projects and pre-work for regulatory requirements regarding Life Support customers.

We invested in a number of Customer Experience (CX) initiatives, service management experience, and IVR/CRM integration. Notable CX initiatives that received investment include Gas new connections, CRM and self-service strategy, customer-initiated connections, as well as large connections. Each of these are expected to continue into the forecast regulatory period. Due to the different systems responsible for customer data, AusNet will change focus for the next regulatory period to centralise the customer data specific for gas and enable a more effective customer data management resulting in improved customer experience.

AusNet also planned to perform work related to gas digital metering however due to the immaturity of gas digital meter products in the market, this was deprioritised. However, the modernisation of the gas meter data management system continues to be completed and into the next period. Overall, this domain recorded an underspend due to the reprioritisation of other higher risk mitigation spend.

4.2.2. Changes to Information Management

During the period, the Information Management (IM) program of work was de-scoped to the establishment of a single, strategic IM platform and piloting of use case capabilities, to determine whether the anticipated benefits of scaled investment would indeed be realised. This involved the integration of gas data sources such as S.Net. Investment was also allocated to building key data capabilities such as automation, reporting, analytics, and enhancements. Overall, this domain was an underspend due to the reprioritisation of funds to higher priority commitments.

4.2.3. Changes within Information Technology

Our forecast expenditure for Information Technology included the lifecycle upgrades of many enterprise-wide systems to ensure operations to continue meeting technical and business requirements, as well as the exploration into data storage including big data and cloud. Key investments were allocated to environment rationalisation and preparation for the move towards cloud via the Application Hosting Initiative (AHI), application migration to the cloud and necessary modules (Nebula, Enterprise Cloud Gateway). Investments into service management capabilities and the Digital Workplace program established collaboration and communication infrastructure to support successful remote work operations

during the COVID-19 pandemic. We also performed many lifecycle refreshes of storage, server and data centres supporting critical business systems, however, there remains underspend due to the reprioritisation of assets and programs, as well as uplift in project delivery for more effective projects.

4.2.4. Changes within Network Management

This domain was prioritised due to a couple of network management activities, resulting in a slight overspend compared with the forecasted current period. Investment was made in the upgrades of major spatial management systems (SDMe - Electricity and SDMg - Gas). The SCADA systems were also refreshed along with enterprise-wide technology that affects network management capabilities. This has enabled the gas network to operate with the latest required updates to the technology, minimising risks for system failures and security threats. Overall, we recorded a slight overspend due to budget being reprioritised to this domain.

4.2.5. Changes within Work and Asset Management

The focus of this current period in the works and asset management areas has been to deliver key prioritised capabilities to enable the safe and efficient operations of our business. Key outcomes have included the Hansen investment for tranche 1 (MDM upgrade and Life Support capability), drawing management system refresh, SAP/GIS integration and mobility, site hazard management and in building the Hansen tranche 2 roadmap for the business. These initiatives have improved the safety of the network, especially in relation to Dial Before You Dig, and realised a clearer gas roadmap for the future of gas services at AusNet. Overall, we recorded an underspend in this domain, due to funds being reprioritised to other domains, such as Network Management.

5. Digital expenditure forecast for FY2024-2028

As AusNet prepares its plans for the next regulatory period, several factors are being considered, ranging from the need to address the risk of operating ageing technology, the increasing challenges posed in Cyber Security, and the need to manage the ongoing change in the gas industry broadly. AusNet's future gas distribution network needs to be more intelligent and adaptable to meet these needs and as such, require prioritised investment in the following areas.

- Improve relationships with and outcomes for customers.
- Leverage and extending existing investments of core technology assets.
- Build rigorous cyber security capabilities to protect our critical infrastructure.
- Increase digitisation and automation across core operations; and
- Extract value from our information by enhancing data capture, quality, and analytics capabilities.

Over the forthcoming regulatory period, AusNet will support the business by cautiously addressing legacy technologies using risk management frameworks and leveraging new and existing technologies to achieve customer outcomes. Investments are focused on ensuring the reliability and safety of the gas network in an increasingly dynamic environment whilst also prudently controlling costs. Section 5.4 Digital workstreams provides more detailed information on the purpose and description of each program brief and the outcomes that they are proposed to achieve.

5.1. Capex breakdown

Capital expenditure, or capex, is expenditure used to acquire, refresh and maintain physical assets as well as procuring new equipment, capabilities, and software. Digital capex investments are made to ensure that the technology underpinning of AusNet's gas network operations enables a safe and reliable supply of gas to its customers.

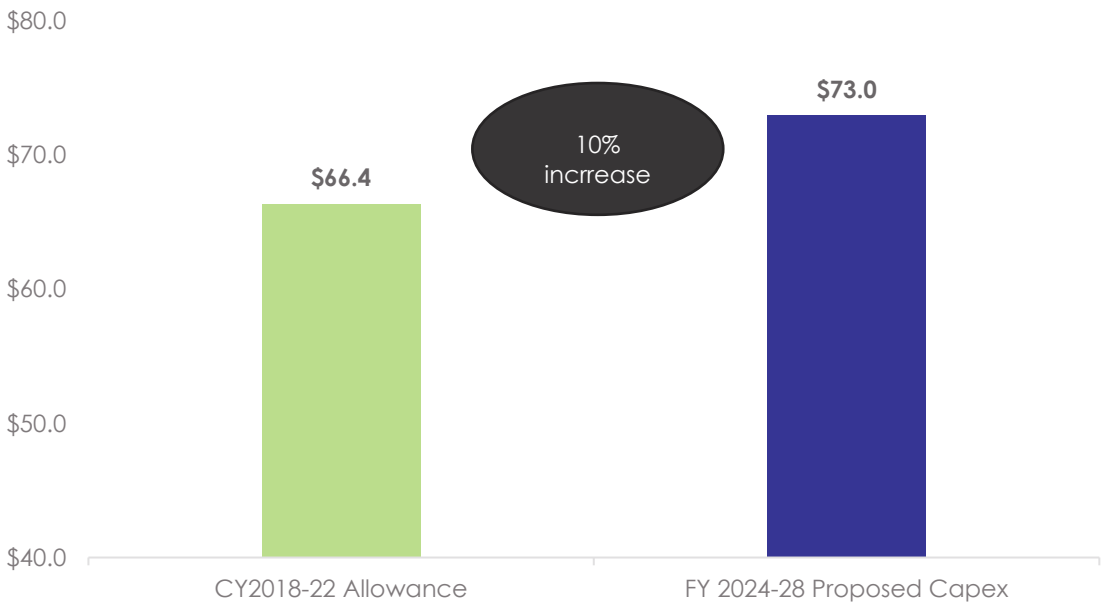
In forecasting Digital capex for the forthcoming regulatory period, AusNet has:

- Gathered and considered customers' changing expectations for Gas network services.
- Assessed the current performance of technology systems and infrastructure to inform the extent to which existing technology systems and infrastructure can be utilised to support the business strategy and required customer outcomes.
- Engaged business units to assess key requirements of technology to support their business objectives.
- Considered a range of alternate options where they are clearly identifiable.
- Considered emerging technologies and trends that can be applied, where it is effective and efficient to do so.
- Engaged experienced independent sources to support the development of some Initiative (Program) Briefs.
- Assessed the risk of preferred options, identifying appropriate mitigation strategies and the resulting residual risk; and
- Completed a cost and benefit assessment, incorporating all obtained inputs and key assumptions. This includes the application of AusNet's technology cost allocation methodology, in recognition that AusNet is a multi-utility regulated business.

As part of effective capital optimisation across the business, AusNet conducts a capital allocation and prioritisation process that aims to prioritise the following year's capital expenditure to projects estimated to deliver the best value, aligned to the corporate and asset strategies. After projects are prioritised, full business cases are completed that assess in greater detail areas such as scope, methodology, costs, benefits, risk and timeline. The business owner of the project seeks required approval before project delivery is initiated. As a result, while we develop detailed capex forecasts for each regulatory period, there are inevitably changes to our program of work as priorities evolve throughout the period.

Overall capital expenditure in the current period is expected to be greater than was allocated in the prior period. Figure 5-1 details the forecast capex for the regulatory period FY2024-2028 against the regulatory allowance for the current period CY2018-2022.

Figure 5.1: Comparison of GAAR allowance CY2018-2022 vs. Proposed GAAR FY2024-2028 ($m, real 2023)



This overall increase in proposed expenditure represents a prudent investment case required to sustain the core business, mitigate technology and system risks, continue to meet customer expectations, while ensuring AusNet prepares for the future direction of the gas industry. This investment supports AusNet's ability to provide safe and reliable distribution services, as well as support better outcomes for existing and new gas customers. It reflects the continuation of some current period projected spend, and still ensures there is sufficient investment to be ready for the future, as outlined in Section 5.4, detailing the three Digital workstreams.

Digital capex at AusNet is split across ten programs of work. As shown in the table below, the capital cost of delivering each program is grouped into five categories of spend. Each category is described below.

Table 5.1: Categories of Capex

Category	Description
Labour	The cost of labour is the sum of all wages paid to employees as total wages. This cost is applied to each program of work, based on the role of employees, the associated wage and estimated time commitment required for the program of work and relates to internal AusNet teams. Estimates were based on the total time for each role and not a specific person. Wages were derived based on industry benchmarks from Hudson and Gartner 2018[15] and covered the following critical delivery roles, which is a sufficient cross section of the delivery team for a Digital project: • Business Analyst (Functional/Technical). • Architect (Solutions/Enterprise). • Programmer/Developer.

[15] Hudson Project Services Salary Guide; Gartner Toolkit – 'Negotiate More Effectively Using Key Labor Rates for IT Application Outsourcing Deals' 2018.

	• Development Team Leader. • Project Manager. • Head of PMO; and • Testing Lead.
Contracts	Due to the variable volume of work and the requirement to continue to operate the Digital team efficiently, there is a requirement for third party contractors to augment the internal workforce. When costing each program of work, the entire forecast spend, level of effort and time commitment from the business was compiled and where appropriate and efficient, the business matched the internal labour force to relevant projects and made an estimate of the volume and nature of contractors required to augment the internal team to deliver the program of work. This estimate is captured under contractors.
Materials (software)	The expenditure associated with specific systems, applications, programs and other operating information used by a computer, is captured under this category.
Materials (hardware)	Hardware estimates are based on the costs associated with the physical aspect of computers, telecommunications, and other technology devices, this includes storage and memory, circuits, switches and other technology apparatus.
Other	Any other costs not captured within the other primarily groupings are detailed in the other section.

Throughout the forecasting process, key project dependencies were considered to ensure the programs of work were costed prudently and efficiently. As part of the Digital GAAR submission process, individual projects were analysed to identify project interdependencies and to ensure alignment across the program and avoid double counting of spend. Areas of dependency include process, timeline, data, infrastructure resource, and various internal and external drivers. Resource and infrastructure availability will be sourced and managed through a mix of internal and external providers to ensure flexibility, scalability, and prudency in our proposed programs.

The diagram below demonstrates the proposed breakdown of costs between internal labour, materials and contracts on an annual basis across the capex forecast.

Figure 5.2: Proposed Annual Capex by Cost Type ($m, real 2023)

[C- I -C]

Based on previous experience of the Digital project delivery teams , the average planned annual spend of $14.6M or a total of $73.0M is a portfolio that AusNet is confident in successfully delivering business outcomes. All of our initiatives are expected to commence in the first year of the regulatory period before peaking in the third year. This will ensure we can avoid the profile of underspend in the current period and deliver on the outcomes these investments will drive.

Table 5.2: Proposed Annual Capex by Workstream ($m, real 2023)

Workstream	Total	Program Name	2024	2025	2026	2027	2028	Total
Gas Network Operations	$39.3	Workforce Collaboration	[C-I-C]					$ 3.4
		Information Management						$ 14.4
		Gas DMS						$ 14.7
		Metering Services						$ 6.7
Lifecycle	$25.1	Corporate Enablement						$ 6.3
		TAM - Applications						$ 3.0
		TAM - Infrastructure						$ 7.5
		Corporate Communications						$ 5.1
		Customer Information Services						$ 3.2
Cyber	$8.6	Cyber Security						$ 8.6
Total			$ 16.3	$ 18.7	$ 20.3	$ 10.2	$ 7.6	$73.0

All of the programs share capex across our Electricity Distribution and Transmission businesses (which is documented in the corresponding EDPR and TRR Digital Strategies), with the exception of the following:

- Gas Distribution Management; and
- Metering Services

5.2. Opex breakdown

AusNet's operational expenditure (opex) forecast for the 2024-28 period supports the delivery of our proposed investment program and is made up of two categories:

- **Propex** – Project expenditure that forms part of our base year opex running costs for Digital delivery and is allocated directly to a specific program of works; and
- **IT Step Change opex –** This additional operational expenditure that is not currently incurred as part of our base year costs and have been specifically identified in relation to either the delivery of program of investment or costs relating to our cloud-based applications and environment.

5.2.1. Propex

Project opex (propex) primarily includes the non-recurrent opex associated with the delivery of capital programs. It is largely made up of activities such as data cleansing and migration, as well as change management and training costs.

For the upcoming GAAR period FY2024-2028, forecast Digital propex varies from year to year, in line with the capex forecast and the kind of project being undertaken. Digital propex forecast is $10.5M over GAAR FY2024-2028 or an average of $2.1M per annum. The figure below illustrates the yearly propex across all AusNet's proposed technology investment workstreams. It reflects the increased capital investment expected in the 2nd and 3rd year of the forecast regulatory period, with several work streams commencing in FY2025.

Figure 5.3: Annual propex for FY2024-2028 ($m, real 2023)

[C- I -C]

5.2.2. Opex Step Change

AusNet's opex step changes in IT total $11.5m and are made up of three interrelated components.

- **IT cloud implementation cost** that enables AusNet to move from the current on-premise solution to the cloud.
- **Software as a service (SaaS) implementation cost** that is a transfer from capex to opex, due to an accounting rule change that provided specific guidance on the treatment of implementation and customisation costs for cloud solutions; and
- **IT cloud run cost** that is the day to day running cost to support our IT cloud environment.

The table below provides a summary of our step change proposal prior to any adjustments against the base year opex.

Table 5.3: Proposed total opex step change prior to base year adjustment ($m, real 2023)

GAAR Opex Stepchange - Pre-Base Year adjustments	2024	2025	2026	2027	2028	TOTAL
IT cloud implementation cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
SaaS implementation cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
IT cloud run cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Total	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]

Source: AusNet

The table below provides a summary of our step change costs after adjustments made against the base opex. The following sections provide further detail into these step changes, including a brief discussion and explanation of the step changes that we have agreed to absorb via the base opex.

Table 5.4: Proposed total opex step change post base year adjustment ($m, real 2023)

GAAR Opex Stepchange - Post-Base Year adjustments ($2023, million)	2024	2025	2026	2027	2028	TOTAL
IT cloud implementation cost	$ 0.8	$ 2.1	-$ 2.8	-$ 3.2	-$ 3.6	**-$ 6.6**
SaaS implementation cost	$ 1.5	$ 1.0	$ 2.7	$ 1.6	$ 1.6	**$ 8.5**
IT cloud run cost	$ 2.0	$ 2.0	$ 1.9	$ 1.9	$ 1.9	**$ 9.7**
Total	**$ 4.3**	**$ 5.1**	**$ 1.8**	**$ 0.4**	**-$ 0.1**	**$ 11.5**

Source: AusNet

5.2.2.1. IT cloud implementation

Software is increasingly moving to the cloud instead of the traditional capex approach where we purchase and maintain our own IT equipment and services (on-premise solutions). This trend is gaining momentum both within AusNet and internationally. Consequently, we require a step change to reflect this, noting that that this will place downward pressure on our capex requirements in the medium to long term.

Being the owner and operator of three different networks (electricity distribution, electricity transmission and gas distribution) we have shared services across functions, such as HR and IT, whereby the corporate level expenditures are allocated to the individual networks based on our Cost Allocation Method (CAM).

There are five programs of IT investment (listed below) focussing on functions that are set to be migrated from an on-premise environment to the cloud environment, where the cost of the migration is not fully captured in the base or trend parameters. These functionalities are shared across all three network businesses where each network is allocated a percentage amount:

- Workforce collaboration.
- Corporate enablement.
- Information management.
- Corporate communications; and
- Customer information systems.

Table 5.5: Proposed opex step change for shared services initiatives ($m, real 2023)

Shared Opex Step Change	2024	2025	2026	2027	2028	Total
Corporate Enablement	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Workforce Collaboration	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Information Management	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Customer Information Systems	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Corporate Comms	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Total	**$0.5**	**$0.5**	**$0.5**	**$0.5**	**$0.5**	**$2.6**

Source: AusNet

In calculating the **shared services component**, we have adopted the same forecasting approach and assumptions as that for EDPR and TRR, including the assumption that the gas network will be allocated 21% of the shared IT costs. This approach was accepted by the AER.[16] Then there are **gas specific** costs that are fully allocated to the gas network because it is the only user of the software.

Table 5.6: Proposed opex step change Gas network specific initiatives ($m, real 2023)

[16] AER 2021, AusNet Services Transmission Determination 2022 to 2027, Attachment 6 operating expenditure, Draft Decision, June, p. 27.
AER 2021, AusNet Services Distribution Determination 2021 to 2026, Attachment 6 operating expenditure, Final Decision, April, p. 49.

Gas Specific Opex Step Change	2024	2025	2026	2027	2028	Total
Information Management	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Customer Information Systems	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Gas Dist Mgmnt. Sys	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
TAM Infra	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Total	**$1.2**	**$0.7**	**$2.4**	**$1.3**	**$1.3**	**$6.9**

Source: AusNet

The table below summarises our IT cloud implementation cost.

Table 5.7: Proposed total cloud implementation opex step change ($m, real 2023)

Total IT Cloud implementation ($2023, million)	2024	2025	2026	2027	2028	Total
Gas component of shared services	$0.5	$0.5	$0.5	$0.5	$0.5	**$2.6**
Gas specific	$1.2	$0.7	$2.4	$1.3	$1.3	**$6.9**
Sub-total	**$1.7**	**$1.2**	**$2.9**	**$1.8**	**$1.8**	**$9.4**
Subtract actual + trend	$0.2	$0.2	$0.2	$0.2	$0.2	**$0.9**
Step change	**$1.5**	**$1.0**	**$2.7**	**$1.6**	**$1.6**	**$8.5**

Source: AusNet

5.2.2.2. Software as a service implementation

Previously, the Australian Accounting Standards Board (AASB) 138 document on Intangible Assets did not provide guidance on the treatment of implementation and customisation costs for cloud arrangements. Historically, we treated our SaaS subscription costs as opex, but capitalised the implementation and customisation costs.

A recent Agenda Decision (April 2021) by the International Accounting Standards Board (IASB) has provided explicit guidance (that was previously absent) that all implementation, customisation and subscription costs must be treated as opex.

As a result of the IASB decision, we have reviewed our SaaS projects and have subsequently reclassified an amount from capex to opex over the 2024-28 access arrangement period (see table below). As explained earlier, the net impact on our total expenditure is zero.

The programs that have been impacted by this re-classification are presented in the table below:

Table 5.8: Proposed SaaS opex step change prior to base year adjustment ($m, real 2023)

SaaS implementation Step Change	2024	2025	2026	2027	2028	Total
Metering Services	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Customer Information Systems	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
TAM- Applications	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]
Total	**$4.3**	**$5.7**	**$0.9**	**$0.5**	**$0.2**	**$11.6**

Source: AusNet

The table below summarises our SaaS implementation cost, where we have netted off our CY2021 actual spend (including trend) to develop the negative step change.

Table 5.9: Proposed SaaS opex step change post base year adjustment ($m, real 2023)

SaaS implementation	2024	2025	2026	2027	2028	Total
Software as a service	$4.3	$5.7	$0.9	$0.5	$0.2	**$11.6**
Subtract actual + trend	$3.5	$3.6	$3.6	$3.7	$3.8	**$18.2**
Step change	**$0.8**	**$2.1**	**-$2.8**	**-$3.2**	**-$3.6**	**-$6.6**

Source: AusNet

5.2.2.3. IT cloud run cost

IT cloud run cost are the daily cost to operate our IT cloud solutions once they have been implemented. These include the costs to host and maintain the cloud environment. The table below summarises our IT cloud run cost.

Table 5.10: Proposed IT cloud run opex step change ($m, real 2023)

IT Cloud run costs	2024	2025	2026	2027	2028	TOTAL
IT cloud run cost	$ 5.8	$ 6.1	$ 6.3	$ 6.6	$ 6.8	**$ 31.6**
Subtract actual + trend	$ 3.9	$ 4.1	$ 4.4	$ 4.6	$ 4.9	**$ 21.9**
Step change	**$ 2.0**	**$ 2.0**	**$ 1.9**	**$ 1.9**	**$ 1.9**	**$ 9.7**

Source: AusNet

AusNet's digital team will continue its ongoing focus to reduce the total cost of ownership across its asset base. Where we have identified SaaS solutions are the most efficient delivery mechanism for technology services in the forecast period, the resultant cloud-based costs will continue to inform our step change requirements in the future. As a result of the Cloud Migration program, a number of Gas applications will continue to and may in the future be hosted on the IaaS or cloud platform.

AusNet has undertaken a high-level analysis of transitioning additional systems to the cloud, beyond what has been achieved in the current period. As part of this, we have considered the relative costs of maintaining our current on-premises technology assets, compared to a fully cloud hosted environment. Beyond the initial phase of the Cloud Migration Program, we will continue to assess and identify suitable applications and services to migrate to the cloud in the next regulatory period. This will be a balanced approach that considers risk, cost, benefits, architecture strategy, and vendors' product roadmaps.

In some cases, our vendors for certain applications are indicating that they will no longer support or enable legacy solutions, and all future versions of applications will be cloud-based. In these cases, to maintain currency and vendor support for certain applications, AusNet has and will continue to gain greater clarity on the need to transition to cloud for these applications.

5.3. NPV analysis

As defined in the AER's Non-network ICT capex assessment approach, ICT expenditure assessment requires non-network ICT Capex to be classified into recurrent and non-recurrent expenditure.

Recurrent ICT expenditure is expenditure associated with maintaining existing ICT functions and capacity, including those that are made on a periodic basis. Recurrent expenditure includes lifecycle replacement and investment functions, and all business-as-usual expenditure. It also includes expenditure for any investment related to meeting regulatory compliance requirements, for example the AEMO's cyber security requirements.

Non-recurrent ICT expenditure refers to major, infrequent, or non-period investments to replace existing ICT assets or the acquisition of new ICT assets, functions and capability. Non-recurrent expenditure includes direct investments in AusNet's network infrastructure for defined purposes. The Consultation Paper states that the AER will undertake a review of business cases that support each individual non-recurrent ICT investment, including the NPV analysis. AusNet has undertaken NPV analysis for each program option to examine the cost effectiveness and value of each option for its non-recurrent programs of work.

NPV analysis is undertaken for non-recurrent expenditure in addition to the overall assessment of each program option. The overall assessment considers each option against the following criteria:

- Alignment to objectives.
- Costs.
- Benefits.
- Overall risk rating.
- Alignment to customer related drivers of expenditure; and
- Alignment to business related drivers of expenditure.

5.3.1. NPV Methodology

5.3.1.1. Costs

Program costs per option are defined relative to their percentage of:

- GAAR allocation; and
- Non-recurrent expenditure.

Costs included in the NPV analysis are proportional to the percentage of program allocated to GAAR (full program costs may be allocated to GAAR, Gas in some cases) and only non-recurrent expenditure is included in the NPV analysis. If an initiative's spend is deemed to be a BAU expense it is categorised as recurrent expenditure. In the instance an option includes BAU upgrades as well as non-recurrent expenditure, the BAU allocation is removed from the NPV analysis. Opex step changes are included in the NPV analysis (in addition to opex costs).

5.3.1.2. Benefits

Where possible, benefits have been identified and quantified where data is available. Benefits have been quantified specific to each option and outlined in detail in the program briefs. The benefits are those that

are associated with improvements, or cost savings, due to the implementation of each option in each program. That is, the benefits capture only what is additional to what would have occurred under BAU. As with costs, benefits have been allocated and included relative to their percentage of GAAR allocation and non-recurrent expenditure.

Where no quantification is available, benefits have been described qualitatively. Qualitative benefits are aligned to program objectives and customer and business-related impacts. For instance, numerous benefits were attributed to minimising the occurrence of safety and operational risks. In other cases, we have identified benefits that directly and indirectly impact customers, such as benefits that reduce cost to serve customers, and interaction time.

5.4. Digital workstreams

The 2024-2028 regulatory period will seek to deliver on key strategic enablers with evolving customer expectations, lifecycling of end-of-life assets, mitigating risk of failure and cyber security at the centre of these developments. As a result, we will take a prudent an efficient approach to delivering metering customer services and effectively managing risk.

Each program of work has an associated Initiative (Program) Brief which outlines the drivers for investment, investment options, benefits, risks and a recommended option which forms the basis for the proposed capex and opex.

For the upcoming regulatory period our proposed investment will be divided into ten programs of work, with each program grouped into one of the following workstreams, which have been created to support the Digital Strategy.

Figure 5.4: Digital workstream categories

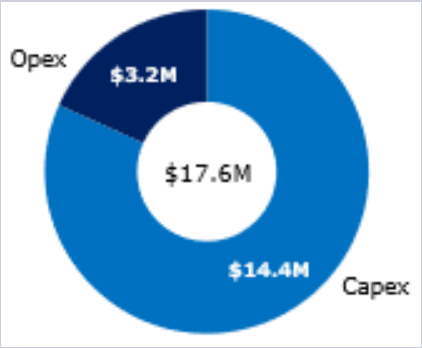
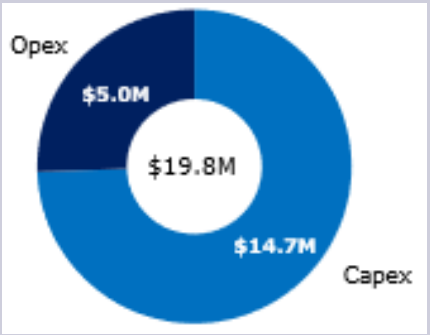
Gas Network Operations	Aims to balance risks to asset and network reliability with the cost of managing those risks through improved data and analytics, automation, visualisation, modelling and risk management, to ensure we continue to efficiently provide reliable gas services, despite the disrupted and increasingly complex environment. Also includes investments in our enterprise-wide systems - extending solutions to the field, greater integration and collaboration - to meet customer demand for greater information and communication on our network operations (particularly new connections) through enhanced digital capabilities.
Cyber Security	Aims to protect the gas distribution network, and customer and business information and assets through uplift of our cyber security posture, in line with the Australian Energy Sector Cyber Security 'Security Profiles'.
Business As Usual (BAU)	Aims to efficiently manage the risks and costs of maintaining our core systems by undertaking prudent lifecycle refreshes of our storage, enterprise servers, desktop and mobile fleet devices, and corporate network and communications control technology, to create opportunities for efficient investment in future periods.

5.4.1. Gas Network Operations

The multitude of data sources present in AusNet's gas network creates an opportunity to leverage this data to manage network operations more efficiently and safely and reduce customer charges. This includes gas meter data, flow, leakage, pressure and field work data as well as customer data. To maximise the usage of the information collected, the focus will be on to improve the current IT architecture and integrate systems to deliver better outcomes. Most of the proposed programs of work are categorised within this workstream, highlighting the increased importance of data and analytics to provide the best customer

experience and remain in the top quartile of operating efficiency. This workstream and its associated Initiative (Program) Briefs are described in more detail below.

Figure 5.5: Gas Network Operations workstream in detail ($m, real 2023)

Objective	Customer outcome	Investment
Information Management Digital will continue to extend the IM platform, with the capability to analyse network performance, govern how data is accessed and reported on, supported by advanced automation on integrated data, underpinning better decision making, more efficient operations and increasingly informed network operations. **Gas Distribution Management Systems** AusNet has an opportunity to mitigate the operational and safety risks associated with aging systems and manual processes, continuously inform network operations through new data from operation and usage of the network, make better decisions regarding asset planning based on more timely and accurate data, and better support customer outcomes. This program will modernise core network operations capability such as OMS, DMS, and GIS. Rich and integrated operational data will inform asset management and planning, support contextual decision making related to network operations, and support proactive provision of services to customers. **Workforce Collaboration** As employees progress within organisations, they acquire knowledge which is specialised to the company's operations, structure and culture. Furthermore, field crew effectiveness through integrated communication methods will help to extend the collaborative working culture to partners. This program will make these unique knowledge insights more readily accessible regardless of workforce location or business area, creating productivity gains. It will also establish	**Keep customers informed** Analytics capabilities underpinned by the information management platform and associated tools, systems and data sets will enable the business to readily understand which customers are impacted by outages. Supporting this, the centralised customer data provided by the customer information system will enable efficient access to customer data. This in turn will allow the business to improve its ability to notify customers affected by outages, keeping customers informed of the impact of changes to gas supply. **Provide affordable services** By understanding and analysing network operations and asset performance, the information management platform will generate insights and analytics to operate and configure the network more effectively, as well as optimise maintenance and asset replacement. This will ultimately drive efficiencies, reducing network charges for customers. **Operate safely** As more robust and comprehensive data sets on network assets are stored and accessed in a standardised way, both in the back office and on the field, this information will be more freely available to network controllers, allowing them to rapidly respond to disruptions in the network, improving the overall safety and reliability of the network for customers. **Deliver on the basics**	 

real-time communication between the field force and back office through varied multimedia types, and enhance the meter data collection solution, ensuring continued regulatory compliance.

Metering Services

This program includes investments related to the technology capabilities required to lifecycle and maintain the existing customer and metering services in line with our regulatory obligations, in addition to supporting our field mobility for meter data collection. This program of investment will also support our Priority Services Program initiatives that aim to improve vulnerable customers' service and engagement. Additionally, this will also extend to the benefits that may be identified if a Digital Metering trial is undertaken.

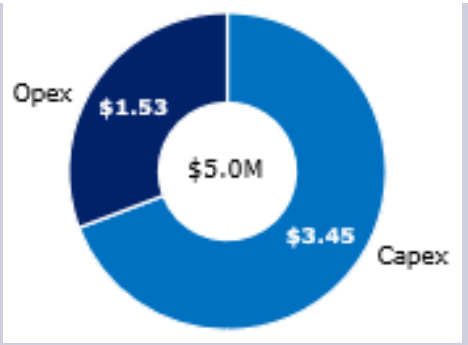
Corporate Enablement

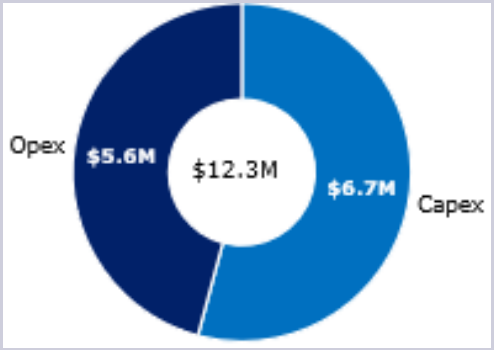
AusNet runs a number of enterprise applications to support day-to-day operations. The enterprise application landscape and related integrations underpin the continuity of all operational processes. As such, AusNet must ensure these core functionalities are adaptable in an increasingly changeable environment while also being robust, and reliable solutions, for all employees. In alignment with the business shift to cloud (where prudent), core business functions such as HR and Payroll systems will move to the cloud, while the ERP solution will commence the pre-work required to prepare for migrating to the desired future state platform, post 2028. As another core component to the gas business, improvements to inventory management are a focus in this program, ensuring AusNet will successfully manage growing numbers in new connections.

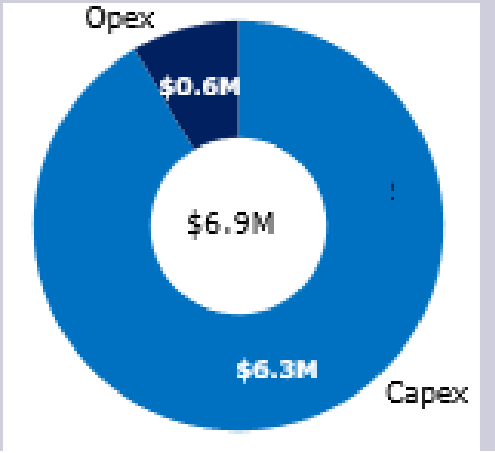
By ensuring all core enterprise systems and functions are supported and where prudent are moved to newer versions with improved functionality and features, AusNet can minimise the risk of system failure and ensure the business is able to reliably distribute Gas to customers.

Adapt to the future

By improving the inventory management system, AusNet will be better prepared to manage growing new connections moving forward and ensure continued reliable gas supply for customers.



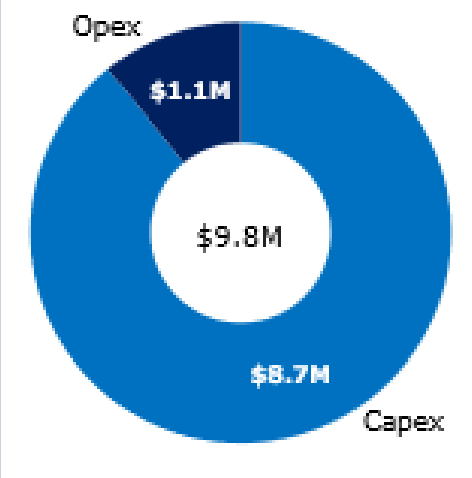




5.4.2. Cyber Security

AusNet's gas network is a part of Australia's critical infrastructure. The safety and reliability of Gas supply is integral to the lives of all Victorians. As a Gas DNSP, AusNet is required to ensure the safe and reliable delivery of Gas. Legacy systems continue to age, and while technological advancements deliver improved IT solutions, this also provides opportunities for malicious actors to take advantage of highly functional tools. There is therefore an increased threat of cybersecurity attacks and their impacts. With increasing volumes of customer information, there is a growing need to maintain the privacy and security of customer data as well as network assets and on-premise infrastructure from these attacks. It is critical that end of life and out of support legacy systems are upgraded to minimise cyber risks, and that proactive action is taken to improve the security posture of AusNet.

Figure 5.6: Cyber Security workstream in detail ($m, real 2023)

Objective	Customer outcome	Investment
Cyber Security Investment in cyber security in the forecast period will ensure compliance to current and emerging regulations including sufficient investment to comply with regulatory obligations under AEMO's Australian Energy Sector Cyber Security Framework (AES-CSF); better protect critical assets and the ability to supply gas to customers, better protect critical data relating to customers and operations; and support ongoing development and measurement of cybersecurity capabilities within the organisation across People, Process and Technology.	**Adapt to the future** As more advanced systems actively monitor and remotely control the network, the threat of malicious intrusion has broader implications and will have further reaching impact on the continuity of supply. Investment in information security in the current period will also focus on more advanced tools, systems and techniques which provide increased situational awareness to prepare the business for more advanced and modern cyber-attacks. **Provided affordable services** Cyber intrusions are extremely costly, not only to identify the magnitude of the breach, but remedy it and prevent reoccurrence. Investing in cyber security will ensure AusNet has suitable, proactive cyber threat protection, which will inhibit attacks and in turn limit the costs associated with remediation. **Operate safely** AusNet will continue to focus resources and intensify efforts to prevent cyber-attacks on the network, this includes a number of critical programs of work to proactively detect and deter threats, as well as uplift overall governance and access controls, whilst maintaining the security and privacy of customer data.	

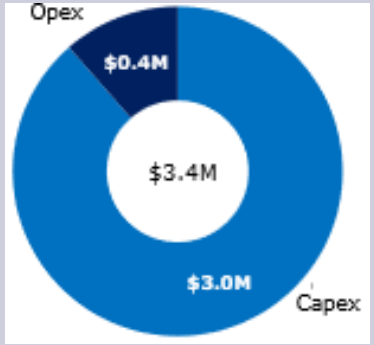
5.4.3. Business As Usual (BAU) - Lifecycle

A number of systems, technology infrastructure and corporate communications widely used across AusNet are nearing end of life and require updates and refreshes in order to ensure they continue to run as expected and required by the business. The programmes in this workstream involve a refresh of these systems, where it is prudent and efficient to do so.

IT Asset lifecycle refreshes are important for a number of reasons including:

- **Protecting critical assets from cyber security threats.** Prudent lifecycle refreshes and ensuring the latest patches are applied are key components of recommendations provided by the Australian Signals Directive (which define and provide standards to all organisations for cyber security) on how to protect against cyber security threats.[17]
- **Maintaining efficient operations.** Keeping systems up-to-date provides additional functionality for customers and employees, reduces the risks of IT failure e.g. laptop starting to degrade, increasing amounts of data require larger computing power, and improves integration between applications (internal and external) to help improve the customer experience.
- **Maintaining support costs.** Many suppliers require updates to comply with licence and software maintenance requirements, with support costs increasing significantly for legacy systems that are no longer fully supported. Further, where significant upgrades in capability are required, the costs of doing so are lower where the organisation is up to date with the latest releases; and
- **The ability to integrate and adopt newer technologies** e.g. cloud solutions, IoT, and predictive analytics require a certain level of technology maturity from existing systems to work. Without these, solutions to modernise the gas business and improve customer services cannot be achieved without significant additional costs or risks.

Figure 5.6: Lifecycle (Business as Usual) workstream in detail ($m, real 2023)

Objective	Customer outcome	Investment
Technology Asset Management (TAM) - Applications AusNet has ~200 systems, which require periodic patching and enhancements as aligned to the standard technology lifecycle. This ensures ongoing vendor support, patches and bug fixes, limits downtime, and ultimately underpins reliability of critical operations across the business. As outlined above these refreshes only occur where it is prudent to do so, prolonging the useful life of systems where the impact on the business and risk is limited.	**Deliver on the basics** By maintaining critical systems, infrastructure and corporate communications in line with their supplier lifecycle maintenance requirements, as is prudent, AusNet can manage the risks to the continuity of technology services, with limited disruption supporting the continuity and reliability of supply. When lifecycle updates are applied, the systems receive new patches and critical bug fixes. Older versions of software often have gaps which expose the business to new threats and cyber intrusions. By	

[17] https://www.cyber.gov.au/publications/strategies-to-mitigate-cyber-security-incidents.

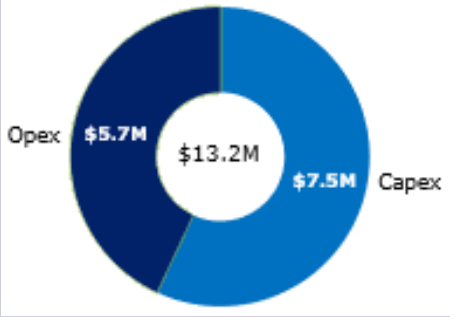
Technology Asset Management (TAM) - Infrastructure
Technology infrastructure comprises the hardware, software, network resources and services required to deliver IT and technology to the business. This program of work ensures the business has sufficient capacity, performance and service levels to maintain Technology systems operations whilst optimising data centre infrastructure to operate more efficiently.

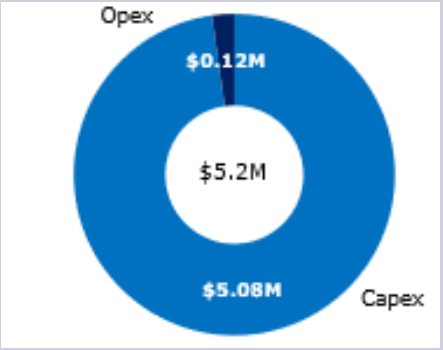
Corporate Communications
Corporate communications at AusNet, comprises technology networking devices (i.e. Wi-Fi, routers), internet services provision and gateways, as well as data centre interconnectivity, covering both systems and assets. As is conducted for critical systems above, this programme expenditure on capacity management and like-for-like lifecycle refreshes ensures the network performance requirements are met for both existing and future business growth.

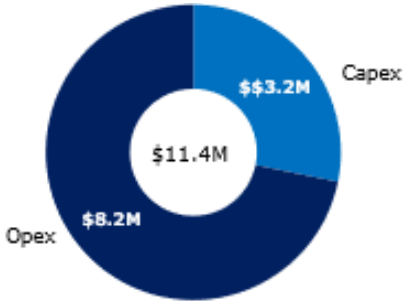
Customer Information Systems
Continued digital advancements have changed the sentiments of our customers, creating increasing demand for digital experiences and proactive communication. This program of work focuses on building the foundation of the customer information system – enabling the storage of customer data in a centralised system for gas. This will be used to provide an improved customer experience through timely outage notifications for customers, timely resolution of customer queries and an increased ability to accommodate life support and vulnerable customers.

performing critical lifecycle updates, new patches will be applied which will remedy these vulnerabilities and ensure the security and reliability of the network, ultimately underpinning fewer undue disruptions to supply.

Provide affordable services
Maintaining systems and infrastructure in line with its lifecycle allows the business to continue to operate efficiently, manage risk and limit system outages. System outages cause delays and increase the cost of operating the business. Appropriate and efficient maintenance allows the business to control expenditure.



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6. Glossary

Term	Definition
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulatory
AHI	Application Hosting Initiative
AMI	Advanced Metering Infrastructure
AMP	Asset Management Plan
AMS	Asset Management Strategy
BAU	Business as usual
CAPEX	Capital Expenditure
CIM	Customer Information Management
CY	Calendar Year
DOMS	Distribution and Outage Management System
DR	Demand Response
EA	Enterprise Architecture
EAI	Enterprise Application Integration
EAM	Enterprise Asset Management
GAAR	Gas Access Arrangement Review
EPMO	Enterprise Project Management Office
ERP	Enterprise Resource Planning
FY	Financial Year
HR	Human Resources
HRS	Haulage Reference Services
ICT	Information Communications Digital
IM	Information Management
IT	Information Technology
IT/OT	Information Technology / Operational Technology In the context of the gas energy industry: • Information Technology (IT): traditionally associated with back-office information systems used for conducting business-type transactions, such as cost and tax accounting, billing and revenue collection, asset tracking and depreciation, human resource records and time-keeping, and customer records. • Operational Technology (OT): typically associated with field-based devices connected to the distribution system, and the infrastructure for monitoring and controlling those devices. This includes control centre-based systems such as SCADA and DMS. • Information Technology / Operational Technology (IT/OT) convergence: refers to the increasing integration of IT and OT. The application of smart grid technologies in the electrical distribution industry becomes more wide-spread and sophisticated, and IT is able to work together with OT applications to increase distribution system performance. For instance, IT/OT convergence is present when combining real-time and near-real-time data, system modelling, visualisation, simulation and integration to all major systems to provide a new platform for managing and operating gas distribution systems.

NEO	National Gas Objectives
NER	National Gas Rules
NIST	National Institute of Standards and Technology
OPEX	Operational Expenditure
OT	Operational Technology
PMO	Project Management Office
SCADA	Supervisory Control and Data Acquisition
TAM	Technology Asset Management

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