



GAAR 2024-2028 Technology Brief

Gas Metering Services

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1 Document Background

1.1 Purpose of this document

The purpose of this document is to outline a proposed program of investment for the lifecycling of metering asset management, field delivery and data collection systems.

1.2 References

Document	Version	Author
AusNet Services FY19-FY23 Technology Plan	V1.0	AusNet Digital
2021 Gas Business Plan	V1.0	Joanne Soysa
GAAR Technology Strategy 2024-2028	V1.0	Ausnet Digital

1.3 Document History

Date	Version	Comment	Person
7/09/2021	V0.1	Initial document	Mathew Abraham
03/02/2022	V0.2	Amendments from review	Mathew Abraham
10/06/2022	V0.3	Post amendment draft	Mathew Abraham

1.4 Approvals

Position
Technology Leadership Team

2 Executive summary

2.1 Program summary

The table below provides a summary of the program discussed in this brief. Additional information is provided throughout the brief.

Table 2-1 Summary table

<p>Key objective(s) of the program</p>	<p>To continue to meet regulatory obligations and rules as defined by the AEMC in the National Gas Rules in an increasingly complex environment driven by digital advancement and decarbonisation agenda, AusNet needs to make prudent and efficient investment in technology solutions to ensure that we continue to meet customer services and deliver safe and effective network operations.</p> <p>This program will address the lifecycle management and required capabilities to support regulatory compliant and effective gas customer and market services. It will also ensure that the required security uplift will be in-line with the new Cyber Security requirements and policies as related to the Security of Critical Infrastructure Act 2018.</p>
<p>Key benefits</p>	<p>This program seeks to ensure the delivery of compliant customer and market services. It will also ensure that metering systems are up to date to support additional vendor refreshes across broader digital landscape in Gas and support integration with the customer information system platform. The key benefits include:</p> <ul style="list-style-type: none"> • Enables continued delivery of safe & reliable gas services to customers with the least possible disruption whilst meeting regulatory compliance and strategic business objectives • Prudent mitigation of key operational risks by ensuring systems are up to date and supported by vendors. • Removes potential security vulnerabilities through ensuring security patching is up to date, thereby reducing the risk of unauthorised access leading to data loss or loss of service to customers • Supporting the network operations to outage management • Capturing customer data accurately to ensure better communications with customers • Supporting the evolving market B2B regulatory framework. • Enable the provision of adequate support for Life Support and Vulnerable customers along with the Priority Services Program. • Improved customer communication for field work status and completion. • Maintained ability to provide timely meter reading to retailers & customers to meet compliance obligations. • Mitigate field safety risks through an ability to receive and capture key safety information about assets, sites, and customers, on the field. • Maintain efficient field workforce to meet the increased demand in new connections. • This investment supports the initiatives undertaken in the modernisation of our outage comms and customer information systems through the improvement of our meter data collection requirements.

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Cost allocation	Electricity Distribution	0%		Electricity Transmission	0%		
	Gas Distribution	100%					
Program type	Recurrent			<input checked="" type="checkbox"/>			
	Non-Recurrent			<input checked="" type="checkbox"/>			
	Client Devices			<input type="checkbox"/>			
Program timings	Program Duration			5 years			
Expenditure forecast	(\$m)	FY24	FY25	FY26	FY27	FY28	Total
	CAPEX	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	\$ 6.14
	OPEX	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	\$ 5.10
	Gas Distribution cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	\$ 11.24
	Total program cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	\$ 11.24
Estimated life of system	The estimated life of the solutions is 5 years with a refresh. Those solutions that are deployed as subscription services would be contracted for the term of the regulatory period.						
Customer Engagement	<p>Building on the extensive customer engagement undertaken as part of the New Reg process undertaken as part of our 2022-2027 Electricity Distribution Price Review (EDPR), we held additional deep dive workshops with gas stakeholders, including the Major User’s Forum and the VGNSR on ICT.</p> <p>In that engagement we described the importance and need for ICT expenditure to meet our customers’ evolving needs and to support compliance with regulatory and legal obligations.</p> <p>The development of this brief has also taken into consideration recent customer engagement studies conducted by AusNet including the Energy Sentiments Survey (2021) and the AusNet’s Listening Report “Engaging Victorians on the Future of the Gas Networks” (2021).</p>						

Within the gas distribution industry in Australia, there are several trends that are forcing businesses to adapt and digitise their operations to improve customer outcomes and meet the changing regulatory environment in which they sit. Coupling this with the impact the COVID-19 pandemic has had on organisations, both within and outside of the industry, many businesses have been forced to adopt remote workforces and establish new operations protocols.

Amidst the ongoing changes in the energy sector, the Gas business will remain largely stable in the short to medium term with changes in consumption and view on the future of the gas distribution. The strong push on decarbonisation globally and across Australian businesses, is influencing local policy and the regulatory environment regarding the fuel mix for the gas sector. As a result, AusNet’s Gas Business Plan focuses on ensuring we remain operationally effective, improving services that customers value, and continuing to maintain our network in order to safely deliver gas to our customers.

Industry wide change, rapid technology advancements, customer expectations and ongoing safety obligations are transforming the way utilities engage with their workforces. Technology plays a key role in enabling AusNet’s ability to maintain the core business and preparing for the uncertain future.

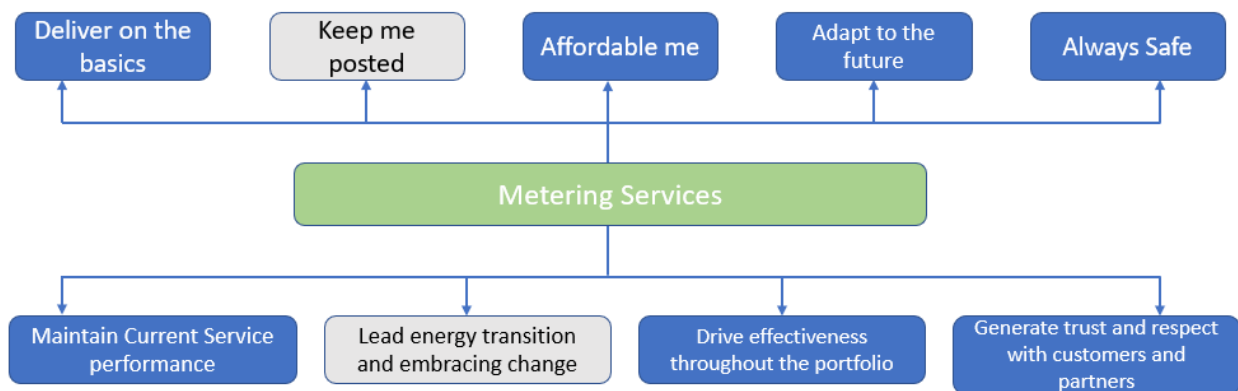
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As advanced technologies become commonplace, there is increasing demand from employees for devices and applications that enable flexible working arrangements, making tasks both safer, easier, and more efficient for teams. A connected workforce able to communicate with remote teams via mobile devices has many benefits, including improved safety and efficiency of operations and overarching management, regardless of the physical location of employees. Embedding collaboration tools into the way work is performed facilitates the sharing of ideas and knowledge, creating a seamless delivery of services to our customers.

In the upcoming regulatory period (FY2024-2028), Ausnet is focused on ensuring that our Gas metering systems are updated, regulatory market obligations (B2B) are compliant, and the collection of our customer usage data meets the regulatory customer obligations through:

1. Consolidation of our Meter Standing Data
2. B2B Service Order Management
3. Effective asset meter data management
4. Lifecycling of Meter Data collection, Management and Billing systems
5. Lifecycle management of metering related field mobility

Figure 2-1 Summary of customer and business drivers of this program



Alignment with AER ICT expenditure assessment framework

In accordance with the framework outlined in the AER’s Consultation paper – Non-network ICT Capex Assessment Approach for Electricity Distributors of November 2019, we have categorised this program as 62% recurrent expenditure, on the basis that all expenditure is existing opex for labour costs.

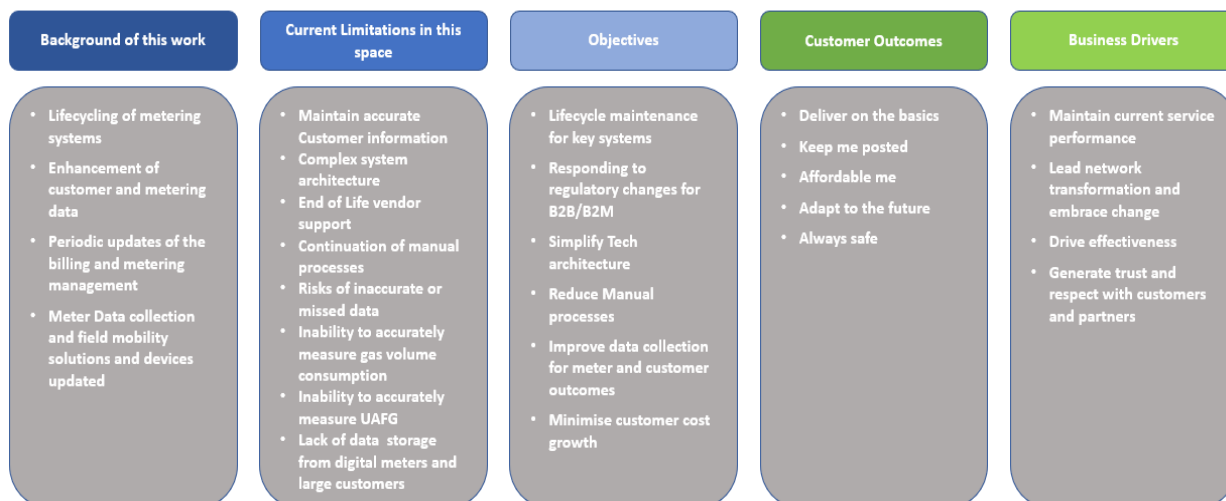
We have also undertaken NPV analysis in support of the project, as well as developed a detailed business case in support of the chosen option.

3 Context

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 digital metering trial is undertaken.

This chapter will continue to provide context for the program and the figure below lists the key areas to be discussed.

Figure 3-1 Key Areas of the context to be discussed



3.1 Background

AusNet's gas distribution arrangement requires gas meter reads to be captured and provided to retail participants. AusNet currently has ~660,000 customers in its Victorian network. Across this geographically disparate network, customers are visited every two months by a meter reader to obtain a meter read to ascertain their usage. This process involves physically visiting sites to access meters, recording consumption usage in a handheld data collection device, then travelling back to the site to download information from the handheld device to the desktop data collection system in order to measure gas volume consumption. Once the data is uploaded, this information is then used for billing, internal and regulatory reporting, network configuration and network planning purposes.

Metering asset management and meter data collection systems lifecycle management and refreshes in this program, will enable Ausnet to ensure that metering systems are up to date to support additional vendor refreshes across broader digital landscape in Gas and support integration with the customer information system platform. This will also remove potential security vulnerabilities through ensuring security patching is up to date, thereby reducing the risk of unauthorised access leading to data loss or loss of service to customers.

The integration of the field mobility solution with the asset management and customer information systems will enable better work allocation and to avoid increased costs of new connections in the upcoming regulatory period. The focus areas for the proposed program of work for FY2024-2028 include:

- **Enhancement of Standing data management and B2B/B2M service order obligations –** Through Standing Data Management consolidation onto a single platform will provide accurate and timely data to the customer and market to meet regulatory obligations. This will enhance the B2B gateway in response to regulatory changes for the provision of timely and efficient interactions.
- **Enhancement of Customer and Meter Asset data –** Simplifying the management of the metering asset and customer information data to enable the improved outage and customer communications through the chosen Customer Information System.

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- **Lifecycle billing and meter data management systems** – to apply the periodic updates and patching of existing system in line with vendor support schedules and up to date security patching.
- **Meter data collection** – Maintaining ability to provide timely meter reading to customers to continue meeting compliance obligations. The current meter data collection system and handheld devices will be at the end-of-life at the upcoming regulatory period (FY2024-2028) and can no longer be refreshed. They need to be upgraded and replaced to avoid security risks and risks of not meeting customer compliance obligations.
- **Field mobility** – Maintaining ability to manage and report works on the field to continue performing critical field operations. Improvements in field force capability to receive timely and capture key information about assets, sites, and customers, on the field. These are critical to enhance the ability to protect our field force from site aggression and reduce incidents, as well as creating efficiency on the field in anticipation of increased demand in new connections.

For **Option 3**, in addition to the points outlined above, we have proposed a gas digital metering trial that will target approximately 1,000 customers, focusing on difficult to access residential sites. To determine benefits provided by digital meters for the current metering process described above, two installation options are being considered for the trial: attaching a data logger to the current diaphragm meter or complementing the diaphragm meter with the new digital meter. The current process used for meter reading and billing will not be changed in performing this trial.

AusNet has performed an initial market research into current gas digital meters and their capabilities. It has been determined that there are currently no vendors able to provide Australian-compliant gas digital meters and that current gas metering solutions are still immature, though some improvements are expected within the FY24-28 period. As a result, data from the digital meters will not be used for billing during this trial as it is not market compliant. It will only be used for analyses purposes.

Aligned with AusNet's operating strategy for a lean internal workforce and leveraging of partners to optimise costs, it is assumed that a technology solution available for the digital metering vendor will be used for communication and data collection. Hence the key focus of this program is to provide a fit-for-purpose technology solution to perform analysis of new data from digital meters to test the potential benefits.

3.2 Current limitations

The current limitation from existing metering system and associated meter data collection systems are:

- **Maintain accurate customer information** - Customer information is currently managed across multiple system data sets that results in poor data quality management and consequently impacts the quality of the customer services we deliver.
- **Complex System Architecture** - Overall system architecture is too expensive to overhaul. Hence any regulatory changes require significant change and investment as the system currently is not dynamic enough to respond.
- **End of life Vendor support** - System as it nears end of life requires a solution that will have future vendor support. This would impact the ability to collect and provide system data to market and customers. This will also affect the ability to apply adequate level of security control and patching along with integration of newer systems. Additionally, this also includes system and devices that capture the data and delivering metering services in the field.
- **Lack of data storage from digital meters and large customers** – Data storage for large customers using C&I meters sits with a third party VIPAC and is not stored within AusNet's

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systems. Further, as gas digital meters have not been previously implemented, there is no module developed within AusNet to store data collected from digital meters.

Limitations addressed by Option.3 ONLY.

- **Continuation of a manual and labour-intensive process** – The meter reading process will continue to be costly and laborious, requiring our partner’s meter reading field force staff to undertake manual visits of AusNet entire ~660,000 customer base’s gas meters every two months.
- **Risks of inaccurate or missed meter readings** – Whilst AusNet continues to meet its obligation to attend and read basic metered sites across the network, in many instances, meter readers are unable to obtain an actual meter read due to reasons including:
 - Inaccessibility of the meter at the site
 - Compromised safety of meter reader at the site due to hazards
- **Inability to accurately measure gas volume consumption** – On an annual basis, gas volume consumption is measured manually via a field visit. Similar to the limitations described previously, this activity is labour intensive and presents risks to field force staff. It also presents inaccuracies in the allocation of larger customers to appropriate Tariff levels.
- **Inability to accurately measure Unaccounted for Gas (UAFG)** – The current infrastructure is unable to accurately measure the difference between the volume of gas entering the transmission system and exiting at various points around the network. Amongst gas retailers and distributors, there is minimal visibility of UAFG across the network, resulting in calculations and assumptions being made for payments to be made and when they are to be made. The primary reasons for UAFG across the network include:
 - Meter inaccuracy
 - Gas leakages due to third party damage or pipeline corrosion
 - Meter theft issues and meter tampering.
 - Variations in surrounding temperature and measurement inaccuracies

3.3 Objective(s)

The Metering Services program focuses on technology lifecycling management and enhancement required to ensure that Ausnet’s meter management, data collection systems and field delivery services will remain compliant with market obligations to provide metering data to customers, market participants and the regulator. Based on the focus areas described in section 3.1, the key objectives of this initiative brief are to:

- **Ensure lifecycle maintenance for key systems** to reduce the risk - in particular cyber security risk - associated with end-of-life systems and ensuring adequate vendor support to help maintain current services. This will also include the refresh and replacement of field mobility systems and devices.
- Response to **B2B/B2M regulatory changes** in data requirements are managed and for Ausnet to remain compliant with its market obligations
- **Simplify the technology architecture** to enable a solution that rationalises the standing data and market transaction information management, thereby allowing Ausnet to lifecycle the core metering data and asset management systems providing accurate and timely service to the customer.
- **Reduce manual processes** (e.g., B2B service order management) to increase the auditability and data quality.
- **Enhance the use of available data to support contextual decision making** related to the provision of accurate and reliable data for field delivery services.

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- **Improve data collection to enable improved metering asset planning and maintenance.**
- **Minimise growth in cost for customers** through consolidation and rationalisation of the system architecture hence reducing the cost to change and responding to regulatory market changes.
- Continue to **deliver valued services to our customers.**

These objectives are in line with the National Gas Rules (NGR) which is to: "promote efficient investment in, and efficient operation and use of natural gas services for the long-term interest of consumers of natural gas with respect to price, quality, safety, reliability and security of supply of natural gas".

3.4 Customer outcomes

Through customer research carried out by AusNet, a list of key customer values and priorities were identified. These customer outcomes are:

- Deliver on the basics – Ensure reliability of services
- Keep me posted – Keep customers informed and improve customer service
- Affordable for me – Lower costs for customers
- Adapt to the future – Sustainability and the future supply of gas
- Always safe – Make networks safer, regarding health, safety and positive environmental impacts

All expenditure programs identified and proposed by AusNet will have regard to the customer outcomes and can be directly linked to at least one of these five outcomes.

For this program we the most relevant of our customer outcomes will be **Deliver on the Basics** by implementing the minimum changes required to lifecycle management of systems and assets in line with vendor support to continue to provide accurate and timely data. Enhancement in the consolidation of standing data will improve the availability of reliable customer and market data thereby satisfying the **'Keep me posted'** customer outcome.

For Option 3 specifically, we consider that the trial will be most relevant to **'affordable for me'** as future cost savings in the event of a successful trial will make for a more efficient process that can be passed on to customers over the long-term as well as more accurate billing that is reflective of actual consumption. In this initiative, improvements in metering technology seek to continue **'delivering the basics'**, specifically around providing accurate meter reads and reducing the number of estimated reads. Equally as important is **'always safe,'** as digitised metering technology will improve monitoring of gas pressure and leakage, creating a safer gas distribution network with more prompt action for identified leakage sites.

3.5 Business drivers

In the face of significant industry disruption resulting in a period of substantial uncertainty and increasing complexity across the industry, AusNet has selected four key business drivers which set the direction for the business.

These business drivers are:

- Maintain current service performance
- Drive effectiveness throughout the portfolio
- Generate trust and respect with customers and partners

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To drive effectiveness throughout the portfolio, remaining top quartile in cost performance in the industry and ensuring that prudent and sustainable network investment is always undertaken will be key considerations. AusNet’s commitment to delivering valued services to customers will also contribute to generating trust with customers, as well as the maintenance of network safety in accordance with the Gas Safety Case. This will also help drive the performance of current service.

All expenditure programs identified and proposed by AusNet’s will have regard to the business drivers and can be directly linked to at least one of these initiatives.

We consider that this program will be most relevant to **‘Maintain current service performance’** and **‘Drive effectiveness throughout the portfolio’**, as it focuses on the prudent and efficient investment in the lifecycle management and consolidation of data systems that will better support metering services to the customer.

4 Options

4.1 Overview

This section provides an overview of the options, which may feasibly alleviate the current limitations.

Brief overview of each of the options	
Option 1 – Applications lifecycling and patching	<ul style="list-style-type: none"> • Lifecycling and periodic security patching of Metering asset and Meter Data collection systems
Option 2 – Applications lifecycling and Meter Asset Management(recommended)	<ul style="list-style-type: none"> • Rationalising and consolidation of the refreshed and updated metering systems and meter data collection capabilities which allows Ausnet to maintain more accurate customer information and support network services with increased responses to market changes. • Mitigation of field safety risks through ability to receive and capture key information about assets, sites, and customers, on the field
Option 3 – Digital Metering trial with Application lifecycling and management	<ul style="list-style-type: none"> • In addition to the initiatives in Option 2, the Gas metering trial will include an end-to-end trial of metering solutions across physical meters, communications, metering technology solutions, integration, and metering data analytics.

4.2 Option #1 – Lifecycling and Periodic security patching

Option 1 will include the lifecycling and periodic patching of the existing systems. This option focuses on bare minimum requirements to keep the existing solution architecture functional. However, this option does not mitigate the operational risks and limitation outlined in the sections above. In particular this will continue the current issues arising from the disparate data systems and lack of ability to integrate between them. This will ultimately impact the delivery quality of delivery of services to the customer and meet any changes in regulatory obligations.

The initiatives included in this option are:

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- **Lifecycleing** of the current Meter Data Collection system including the periodical updates and patching
- **Lifecycle and refresh** of Meter Data Management solution and network billing system along with periodic patching and upgrades to accommodate ongoing meter growth volumes and integration with customer information system capabilities.
- **Lifecycleing and upgrade** of metering field services systems and equipment to collect metering data. This also includes the migration of data from legacy systems to current solution.

Alignment to objectives

We consider that this option only partially achieve certain intended objectives of this program, as shown in Table 4-1 below.

Table 4-1 Objective analysis of option 1

Objective		Comments
Ensure lifecycle maintenance for key systems	✘	In this option, the lifecycle of systems is minimal and will only extend to basic security patching and vendor support updates. It does not address the limitations identified as part of this investment program.

Costs

Table 4-2 Costs of option 1

(\$m)	FY24	FY25	FY26	FY27	FY28	Total
Capex	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	\$ 2.45
Opex	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	\$ 0.20
Gas distribution cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	\$ 2.65
Total program cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	\$ 2.65

This option will incur no additional costs are all costs are estimated to be existing opex and no additional capex.

Benefits

This option will allow functionality of metering systems and meter data collection in its current system architecture. This level of investment will enable to meet the current regulatory and market obligations. There are no additional benefits beyond the stated level of regulatory compliance and customer service.

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Risks

There are a number of risks associated with this program, as highlighted in the table below. Based on how well this Option is addressing the risk, we have rated the consequence and likelihood of each residual risk as blue, green, yellow, orange and red (order of severity). See Attachment 1 – Risk level matrix for additional information on this rating system.

Table 4-3 Risks of option 1

#	Risk Driver		Mitigation	Consequence	Likelihood	Risk Rating
D1	Regulatory Compliance	✓	This option will maintain the current compliance in the existing manual and inefficient manner.	Major	Unlikely	C
D2	Maintain Current Performance	✓	As currently operated.	Moderate	Possible	C
D3	Maintain Safety	✓	No change to safety	Moderate	Almost Certain	B
D4	Knowledge Loss	✗	Limited resource understanding of systems.	Moderate	Possible	C
D5	Aging Platforms	✗	This option minimally reduces this risk driver as it only proposes product lifecycle upgrades. It also does not address the consolidation of data platforms.	Moderate	Likely	B
D6	Cyber Security	✗	This scope of work only includes minimal security patching.	Major	Likely	A
D7	Legacy Processes	✗	Continues existing system architecture.	Major	Likely	A

We consider that overall, this option is rated medium risk.

Customer related drivers of expenditure

As discussed in Section **Error! Reference source not found.**, five key customer outcomes have been identified through discussions with customers. The table below highlights how this option will achieve these outcomes. Where we consider that a customer outcome is not directly achievable by the option or irrelevant, 'N/A' is applied.

Table 4-4 Customer related drivers of option 1

Customer outcome	How this program achieves this
Deliver on the basics	By implementing the minimum changes required to lifecycle management of systems and assets in line with vendor support to continue to provide accurate and timely data to our customers.

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Keep me posted	n/a
Affordable for me	n/a
Adapt to the future	n/a
Always safe	n/a

Business related drivers of expenditure

As discussed in Section 3.5, there are four business drivers that AusNet's has identified and is focusing on over the next regulatory period. The table below highlights how this option will input into the initiatives where relevant. Where we consider that a business driver is not directly relevant to the option, 'N/A' is applied.

Table 4-5 Business related drivers of option 1

Business drivers	How this option achieves this
Maintain current service performance	This option focuses on minimal investment in the lifecycle management. However, it does not address the consolidation of data systems that will better support metering services to the customer.
Drive effectiveness throughout the portfolio	N/A
Generate trust and respect with customers and partners	N/A

4.3 Option #2 – Lifecycle of Metering systems and Data platform consolidation (Recommended)

This option elevates the initiatives outlined in Option1 and addresses the limitations in the current system architecture. In addition to the lifecycling of metering systems it will also ensure the consolidation of system data platforms to leverage customer and metering information to enable accurate and timely communication and delivery of services to Ausnet's customers. It will ensure that metering field services assets and systems are updated for meter data collection and integration into the system.

The initiatives undertaken in Option 2 include:

- **Consolidation** of meter standing data across over data systems into a single customer information system platform.
- **Upgrading** B2B Service Order Management to enable the integration with the enterprise applications. This will also cover the automation of the B2B process along with data exception management.
- **Functional enablement** of the Meter Asset Management system through our customer information system. Also includes the data migration of decommissioned systems where the data has been previously held.
- **Decommission** of systems that hold various types of metering data.
- **Lifecycling** of the current Meter Data Collection system (MVRS – Multi-Vendor Reading Solution)

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- **Lifecycle and refresh** of Meter Data Management solution and network billing system along with periodic patching and upgrades to accommodate ongoing meter growth volumes and integration with customer information system capabilities.
- **Lifecycling and upgrade** of metering field services systems and equipment to collect metering data. This also includes the migration of data from legacy systems to current solution.

Alignment to objectives

We consider that this option achieves all of the intended objectives of this program, as shown in Table 4-1 below

Table 4-6 Objective analysis of option 2

Objectives		Comment
Lifecycle maintenance for key systems	✓	End-of-life systems updated and ensuring adequate vendor support to help maintain current services. This will also include the refresh and replacement of field mobility systems and devices.
B2B/B2M regulatory changes	✓	Data requirements are managed and for Ausnet to remain compliant with its market obligations
Simplify the technology architecture	✓	Solution rationalises the standing data and market transaction information management, thereby allowing Ausnet to lifecycle the core metering data and asset management systems providing accurate and timely service to the customer.
Reduce manual processes	✓	Data integrity (e.g., B2B service order management) improved through the auditability and better data quality
Enhance the use of available data to support contextual decision making	✓	Decision making accuracy through provision of accurate and reliable data for field delivery services.
Improve data collection	✓	Enables improved metering asset planning and maintenance.
Deliver valued services to our customers	✓	Improved customer meter data to enable leveraging of the customer information system solution.

Costs

Table 4-7 Costs of option 2

(\$m)	FY24	FY25	FY26	FY27	FY28	Total
Capex	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	\$ 6.14
Opex	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	\$ 5.10
Gas distribution cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	\$ 11.24

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Total program cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	\$ 11.24
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The program opex represents a step change driven by the accounting standards reclassification of SaaS based expenditure that was previously capex, is now opex.

Benefits

This option will allow for increased functionality of metering systems and meter data collection in its current system architecture. The integration of disparate metering systems and the refresh of field delivery data collection systems enable leveraging our customer information system for improved customer service and customer communications. Additionally, the meter data quality derived from the option will enhance our understanding of our customer base and improve our meter asset management.

This level of investment will enable Ausnet to meet its current regulatory and market obligations along with addressing future regulatory changes. This a major advantage over the Option 1 where such incremental changes are expensive.

Risks

There are a number of risks associated with this program, as highlighted in the table below. Based on how well this Option is addressing the risk, we have rated the consequence and likelihood of each residual risk as blue, green, yellow, orange and red (order of severity). See Attachment 1 – Risk level matrix for additional information on this rating system.

Table 4-8 Risks of option 2

#	Risk Driver		Mitigation	Consequence	Likelihood	Risk Rating
D1	Regulatory Compliance	✓	This option will maintain the current compliance in the existing manual and inefficient manner.	Major	Rare	C
D2	Maintain Current Performance	✓	As currently operated.	Moderate	Unlikely	D
D3	Maintain Safety	✓	No change to safety	Moderate	Unlikely	D
D4	Knowledge Loss	✓	Limited resource understanding of systems.	Moderate	Unlikely	D
D5	Aging Platforms	✓	This option addresses all of the lifecycle upgrades required along with leveraging the customer information system. The consolidation of data platforms will result in better data quality.	Moderate	Rare	D

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D6	Cyber Security	✓	This scope of work includes recommended security patching.	Major	Unlikely	C
D7	Legacy Processes	✓	Enhanced system process and integration.	Moderate	Unlikely	D

We consider that overall, this option is rated Low.

Customer related drivers of expenditure

As discussed in Section **Error! Reference source not found.**, five key customer outcomes have been identified through discussions with customers. The table below highlights how this option will achieve these outcomes. Where we consider that a customer outcome is not directly achievable by the option or irrelevant, 'N/A' is applied.

Table 4-9 Customer related drivers of option 2

Customer outcome	How this option achieves this
Deliver on the basics	Customer outcomes will be addressed by implementing the minimum changes required to lifecycle management of systems and assets in line with vendor support to continue to provide accurate and timely data.
Keep me posted	Enhancement in the consolidation of standing data will improve the availability of reliable customer and market data.
Affordable for me	While this option is costlier than Option.1, it will enable Ausnet services to provide improved customer and regulatory outcomes through the consolidation of data systems and leveraging our existing investment in Customer Information Systems for improved customer services.
Adapt to the future	This option improves the quality and the costs associated in responding to future regulatory and market obligations.
Always safe	This option allows for improved meter asset management and improved care to vulnerable customers through improved customer metering data.

Business related drivers of expenditure

As discussed in Section 3.5, there are four business drivers that AusNet has identified and is focusing on over the next regulatory period. The table below highlights how this option will input into the initiatives where relevant. Where we consider that a business driver is not directly relevant to the option, 'N/A' is applied.

Table 4-10 Business related drivers of option 2

Business drivers	How this option achieves this
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Maintain current service performance	This option focuses on required lifecycle management to ensure the compliance with regulatory and market obligations whilst maintaining existing metering services to the customer.
Drive effectiveness throughout the portfolio	Leveraging the existing investment in our customer information management system to consolidate and rationalises meter data systems and customer communication services.
Generate trust and respect with customers and partners	Providing timely and accurate information to our customers, field services partners and external market stakeholders.
Lead Energy Transition	N/A

4.4 Option #3 – Extended scope, end-to-end metering solution trial

In addition to Option 2, Option 3 involves extending the scope of this program to include a digital meter trial will enable a suite of metering solutions across meter data collection, meter data management, meter asset management and billing. AusNet is proposing the trial of gas digital meters to better understand the benefits that the digital meters can provide over the traditional diaphragm meters as well as the capabilities of digital meters to handle dual-fuel and hydrogen in anticipation of future regulatory requirements.

As part of this option, the proposed gas digital metering trial will target approximately 1000 customers, focusing on difficult to access residential sites. The key focus of this program will be the analysis of the new data captured from the digital meters, which defines the three proposed options. AusNet plans to take a prudent investment approach and analyse the digital meter data using the technology solution provided by metering vendor and avoid premature and costly integration of the metering solution with AusNet’s technology landscape, specifically the Information Management platform, as current digital metering products in the market are still immature.

This investment will allow AusNet to have confidence in the potential benefits in the event of a successful trial, through more efficient metering processes and accurate billing. This will also meet our business outcomes of ‘affordable for me’ and ‘deliver on the basics’ through improved billing accuracy. It will also improve gas pressure and leakage monitoring, delivering on the ‘always safe’ customer outcome.

The Trial will also ‘lead energy transformation, embracing change’ by being at the forefront in trialling gas digital meters to prepare for a future of greater energy mix.

The initiatives to be Included in Option 3 are:

- Initiatives in Option 2
- **Defining business requirements** and technical architecture for the end-to-end metering solution
- **Feasibility study** of technology options
- **Proof-of-concept** to test the selected technology option
- **Proof-of-concept** on a suite of technology solutions across meter data collection, meter data management, meter asset management, and billing
- **Integration to the IM platform** and meter data analytics in the platform

The key metering capabilities to be tested in this option include:

- Digitising and enabling remote access to 1,000 gas meters in scope for the trial

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- Developing and trialling remote meter reading capability using a vendor solution
- Developing and trialling gas leak detection capability using a vendor solution
- Developing gas consumption modelling capability to improve network planning
- Trialling and testing integration across the suite of solutions in scope
- Adapting existing meter data management, meter asset management and billing systems to be able to process new data from digital meters
- Meter data analytics in the IM platform to prove potential benefits

These capabilities will require changes to the processes and systems within AusNet translating into capex investments and opex step changes.

Alignment to objectives

We consider that this option achieves all of the intended objectives of this program, as shown in Table 4-1 below.

Table 4-11 Objective analysis of option 3

Objective		Comments
Lifecycle maintenance for key systems	✓	Undertaking this program will include the initiatives outlined in Option 2.
Providing the required technology capabilities to enable the trial of digital metering	✓	In this option, the Technology organisation will play a key role during the procurement and deployment of the new metering technology. Security assessments and testing of the digital meters and vendor solutions will be a part of the process to ensure that there are no security risks on the end-to-end solution. This option will adapt existing meter data management, meter asset management and billing systems to be able to process new data from digital meters, build integration between the vendor solution and a suite of metering solutions to develop and trial new capabilities.
Enabling analysis of new data from digital metering trial to test potential benefits	✓	This option allows AusNet to perform more complex meter data analysis using IM platform complemented by richer data from meter data management, meter asset management, and billing systems.

Costs

Table 4-12 Costs of option 3

(\$m)	FY24	FY25	FY26	FY27	FY28	Total
Capex	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	\$ 14.70
Opex	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	\$ 0.89

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Gas distribution cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	\$ 15.59
Total program cost	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	[C-I-C]	\$ 15.59

This option would require opex step change of \$70,000 to manage the adapted metering solutions including licensing and maintenance support.

Benefits

This option will allow extensive analysis to enable prework with digital meters to understand and test the new functionalities and potential benefits of gas digital meters.

Benefits of this option include:

- **Improved ability** to do complex metering analytics by leveraging the IM platform
- **Increased confidence** in estimating benefits and risks of scaled digital meter rollout
- **Increased learnings** on impacts of digital metering to AusNet’s processes, data, technology and customers
- **Enable analysis** of new data to test potential benefits on:
 - Improving efficiency of meter reading process, by eliminating the need for manual, in the field visits of meter reading by field force staff.
 - Increased number of actual meter reads per year, and by association, reducing the number of estimated and special meter reads to better meet regulatory obligations.
 - Improved accuracy of consumption data and billing for customers to reduce billing errors, high-bill complaints, and rework involved with processing billing adjustments.
 - Reduced safety risks associated with manual meter reads including slips, trips and falls, and other environmental risks by eliminating the need to physically enter properties to obtain meter reads.
 - Addressing the anomalies that exist from Unaccounted for Gas (UAFG) across the network.
 - Improved consumption modelling, network planning and forecasting to reduce the number of unplanned outages.
 - Improved ability to detect gas leakage.

Risks

There are a number of risks associated with this program, as highlighted in the table below. Based on how well this Option is addressing those risks, we have rated the consequence and likelihood of each residual risk as blue, green, yellow, orange and red (order of severity). Please see the table below.

Table 4-13 Risks of option 3

#	Risk Driver		Mitigation	Consequence	Likelihood	Risk Rating
D1	Regulatory Compliance	✓	This option will maintain the current compliance in the existing manual and inefficient manner.	Major	Rare	C

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D2	Maintain Current Performance	✓	As currently operated.	Moderate	Unlikely	D
D3	Maintain Safety	✓	No change to safety	Moderate	Unlikely	D
D4	Knowledge Loss	✓	Limited resource understanding of systems.	Moderate	Unlikely	D
D5	Aging Platforms	✓	This option addresses all of the lifecycle upgrades required along with leveraging the customer information system. The consolidation of data platforms will result in better data quality.	Moderate	Rare	D
D6	Cyber Security	✓	This scope of work includes recommended security patching.	Major	Unlikely	C
D7	Legacy Processes	✓	Enhanced system process and integration.	Moderate	Unlikely	D

We consider that overall, this option is rated Low risk.

Customer related drivers of expenditure

As discussed in Section **Error! Reference source not found.**, five key customer outcomes have been identified through discussions with customers. The table below highlights how this option will achieve these outcomes. Where we consider that a customer outcome is not directly achievable by the option or irrelevant, 'N/A' is applied.

Table 4-14 Customer related drivers of option 3

Customer outcome	How this option achieves this
Deliver on the basics	In the event of a successful trial, this option will contribute to reducing estimated reads and improving the accuracy of customer bills in a future full-scale rollout.
Keep me posted	Enhancement in improved data sets will make available reliable customer and market data for customer communications and customer metering management works.
Affordable for me	This option will increase the confidence on potential customer benefits associated with digital metering. However given the large investment required to deliver this option and the opex step change, with no immediate quantifiable benefits in the upcoming regulatory period, the customers will be negatively impacted.

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Customer outcome	How this option achieves this
Adapt to the future	This option places AusNet at the forefront in anticipation of hydrogen related changes, ensuring prework is completed to successfully adapt to future regulatory requirements.
Always safe	This option allows for improved monitoring of gas pressure and leakage, creating a safer gas distribution network with more prompt action for identified leakage sites.

Business related drivers of expenditure

As discussed in Section 3.5, there are four business drivers that AusNet has identified and is focusing on over the next regulatory period. The table below highlights how this option will input into the initiatives where relevant. Where we consider that a business driver is not directly relevant to the option, 'N/A' is applied.

Table 4-15 Business related drivers of option 3

Business drivers	How this option achieves this
Maintain current service performance	Aside from the focus on required lifecycle management, the enhanced data capture will ensure the compliance with regulatory and market obligations whilst maintaining existing metering services to the customer. Additionally, it may also inform better ways of providing these services to customers and the market.
Drive effectiveness throughout the portfolio	In addition, to leveraging the existing investment in our customer information management system to consolidate and rationalises meter data systems and customer communication services – this trial will also enhance the overall metering services with advanced integrated systems enhancing a single platform of customer and operational meter data storage.
Generate trust and respect with customers and partners	Providing timely and accurate information to our customers, field services partners and external market stakeholders.
Lead Energy Transition	This option places AusNet at the forefront in anticipation of hydrogen related changes, ensuring prework is completed to successfully adapt to future regulatory requirements.

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5 Assessment and recommended option

5.1 Assessment of the options

To identify a recommended option for this program, we have selected a number of criteria to assess each of the options. We consider that these criteria represent a comprehensive view of each option, in achieving AusNet's' business and customer objectives as well as requirements of the AER in ensuring that any expenditure is both prudent and efficient.

The table below summarises our assessment of each of the options against the criteria.

Table 5-1 Summary table of the assessment of the options

	Option 1	Option 2	Option 3
Alignment to objectives	Aligned with program objectives	Aligned with program objectives	Aligned with program objectives
Costs	\$ 2.65M	\$ 11.24M	\$ 15.59M
Overall risk rating	High	Medium - Low	Low
Alignment to customer related drivers of expenditure	Low Alignment	Medium alignment	High alignment
Alignment to business related drivers of expenditure	Low alignment	Medium alignment	High alignment

Option 2 provides an adequate solution to achieve the objectives of this program which is to ensure that our metering and data collection systems and processes continue to maintain (in some cases enhance) our metering, customer and regulatory services, and obligations. This investment is deemed prudent and efficient as it focuses on the lifecycling of core systems, retiring of ageing and systems and leveraging our customer information and information management platform, to enable better metering services. It is also considered a medium-low risk solution as there is no significant implementation with AusNet existing systems or over investment to elicit benefits that may not eventuate.

Options 1 focuses the lifecycling of AusNet's existing metering systems applications. However, this solution does not enable any major benefits to be realised by utilising our information management or customer information systems in the provision of metering services. This is a potential drawback for an expenditure program in technology systems given that the update or refreshes of application technology inherently come with capabilities that are meant to provide operational or customer benefits - if these capabilities can be utilised.

Option 3 will allow a deeper understanding of the capabilities of the digital meters and provide further insight into potential changes that digital meters may drive for existing systems. It provides an adequate solution to achieve the objectives of a trial, which is to understand the capabilities of the digital meters and the potential benefits they can provide, particularly regarding the capacity for dual-fuel or hydrogen to be introduced into the distribution network. However, this trial still requires the selection of a metering solution and for which an Australian-compliant digital meter does not currently exist, coupled with low product maturity in the current market. Additionally, there is a significant amount of capex and opex required in an essentially uncertain time in gas. As a result, there is no certainty in any ongoing quantifiable benefits for the required investment being realised to suggest that this option is viable.

5.2 NPV analysis and recommended option

Based on assessment above and the NPV analysis below, **Option 2 is recommended**. This program includes 63% recurrent expenditure with **Table 5-2** below showing the NPV analysis for the options discussed in this brief. The analysis further demonstrates the cost effectiveness of Option 2 being chosen as the recommended option.

Table 5-2 NPV analysis (\$FY23m)

	Costs (NPV)	Benefit (NPV)	Net benefit (NPV)
Option 1	\$ 2.27	\$ 0.00	-\$ 2.27
Option 2	\$ 2.85	\$ 4.56	\$ 1.72
Option 3	\$ 5.16	\$ 4.56	-\$ 0.59

6 Attachment 1 – Risk level matrix

The figure below shows the risk level matrix to which we have assessed each of risks within the options. Risks of highest concern are rated red, whereas those of lowest concern are rated blue.

Figure 6-1

		Consequence				
		1	2	3	4	5
L i k e l i h o o d	Almost Certain	C	C	B	A	A
	Likely	D	C	B	B	A
	Possible	E	D	C	B	A
	Unlikely	E	D	D	C	B
	Rare	E	E	D	C	C

Consequence Rating

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5	Catastrophic
4	Major
3	Moderate
2	Minor
1	Insignificant

Overall Risk Rating	
A	Extreme
B	High
C	Medium
D	Low
E	Very Low