Capital Expenditure Overview - ICT

December 2016

Information and Communications Technology

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Table of Contents

1. Purpose of this document

This document explains and justifies our Information and Communication Technology (ICT) capital expenditure (capex) for our Pipeline Services for our next access arrangement period (1 January 2018 to 31 December 2022). This document references other supporting document for further detail. Unless otherwise stated, capex is presented in real 2017 dollars and is expressed in total costs for our Pipeline Services, which includes both our Reference Services and our Non-Reference Services. Total values shown in tables and referred to in the text of this document may not reconcile due to rounding.

We note that our forecast annual revenue requirements for our Haulage Reference Services do not include returns on and of capex attributable to Non-Reference Services (including from major asset relocations) because they are based on our net capex only. This is because our capital contributions (and therefore the revenue that we receive from our major relocations) are netted off from our gross (pipeline services) capex forecast in developing our regulatory asset base for our Haulage Reference Services.

Our ICT assets are integral to our business operations. ICT systems support almost all of our core business functions (as shown in Table 1). Without on-going investment to maintain and refresh our ICT assets, we will not be able to continue to meet the information needs of our customers, achieve the integrity of services and levels of demand required by customers or meet future industry and regulatory challenges.

Table 1: Functions supported by our ICT systems

Function	Explanation
Customer and Stakeholder Management	Provision of services and/or information to internal and external stakeholders (including customers, retailers, government agencies, regulator, partners and employees).
Network Management	Management, monitoring and control of the gas distribution network including responding to faults/emergencies, and analysis and optimisation of the network.
Asset Management	Strategic planning and management of assets, work programs and resources, including network extensions, inspections, maintenance and construction.
IT Management	IT capabilities enabling operations and supporting planning and management of the business, including managing applications, IT portfolio, infrastructure, architecture, security and IT services.
Works Management	Management of work programs and resources for network extensions, inspections, maintenance and construction.
Meter Data and Revenue Management	Management of meter data, connection points and meter services, including the provision of data to market and management of service orders and metering faults.
Information Management	Capabilities required to effectively manage large amounts of structured and unstructured information across the business.
Business Support Management	Corporate capabilities required to support the business including finance, HR, risk and audit, legal, supply chain and logistics and occupational health and safety.

The costs of each of the individual ICT projects and the way in which we have built up our cost forecasts for the forthcoming period are presented in the supporting 'IT Capital Program' document.

2.   Structure of this document

This document is structured as follows:

- Section 3 details our ICT capex profile for the previous, current and forthcoming Access Arrangement periods;

- Section 4 explains the conceptual nature of our ICT capex and why it is necessary;

- Section 5 explains and justifies our actual/forecast ICT capex against the AER's allowance in the current Access Arrangement period as well as the outcomes that it has delivered;

- Section 6 presents our expenditure forecasting method for forthcoming period;

- Section 7 details the ICT specific capex forecasts and timings for each of our programs for the next Access Arrangement period;

- Section 8 explains how our ICT capex forecast meets the capex objectives and criteria in the rules;

- Section 9 details the supporting documentation relevant to our capex forecast; and

- Appendix A presents our approach to management and governance of the program.

3. Expenditure profile 2008 to 2022

This section examines our ICT capex profile for the previous, current and forthcoming Access Arrangement periods. It details the background behind our forecast ICT capex which is explained and justified in the remainder of this overview document.

This capex category includes all areas of IT and communications including corporate applications, asset management, network management and geospatial applications as well as IT infrastructure. This category includes capex on central elements of SCADA and network control systems but <u>excludes</u> field and network-based elements of SCADA and network control systems.

Our forecast expenditure for the 2018 to 2022 Access Arrangement period is presented below in Table 2.

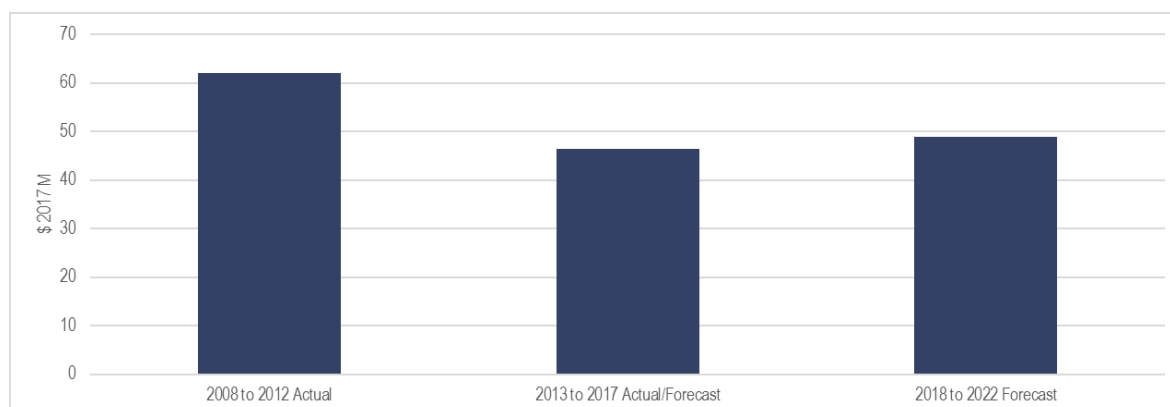**Table 2 Forecast expenditure for 2018 to 2022 ($M, Real 2017)**

	2018	2019	2020	2021	2022	TOTAL
Total	11.1	6.0	10.1	11.3	10.4	48.8

Figure 1 compares our forecast for the forthcoming Access Arrangement period with our actual and estimated ICT capex in the previous and current Access Arrangement periods. It should be noted that:

- In the previous (2008 to 2012) Access Arrangement period we invested heavily in a major ICT program, based around large SAP systems, to bring our systems up to the required standard and to meet the requirements of our business transformation. The capex in that period followed a number of years of under investment in ICT;

- In the current (2013 to 2017) Access Arrangement period, we successfully completed our upgrade program and have continued to invest so that our systems are maintained at industry standard. Our spending in this current period will be below the AER's capex allowance; and

- Our forecast capex for the next (2018 to 2022) Access Arrangement period will be slightly higher (an increase of $2.4 million or 5 per cent) than in the current period. The majority of the capex will be recurrent in nature to ensure that we meet the information needs of our customers, maintain the integrity of our services and achieve the levels of demand required by customers. The slight increase in expenditure in the forthcoming period compared with the current period is largely due to the timing of the required maintenance of systems. For example, towards the end of the forthcoming period we will need to commence a further upgrade of our SAP systems. The vendor (SAP) has stated that it will withdraw support for the current version of the current system in 2025. Commencing the project in 2022 is prudent given the complexity of the upgrade. By that time, the system will have been in operation for almost ten years.

Figure 1: Comparison of ICT capex across the previous, current and future Access Arrangement periods ($M, Real 2017)

Major IT upgrade program – following a period of under investment	Completion of upgrade program in 2013 – then focus on on-going maintenance	Focus on maintenance – then commencement of SAP upgrade in 2022

Our ICT capex in the current Access Arrangement period (2013 to 2017) will be less than the AER's allowance (see Table 3). In this period, we have successfully completed the remainder of a challenging ICT capital program which was largely carried out in the previous period. That program included several large ICT projects that were critical to the completion of our business transformation.

In this current period for example, we have successfully completed the implementation of a major SAP ERP replacement system, a major refresh of ICT infrastructure, updates of our SCADA system and an upgrade of our market system interface.

Table 3: Actual and forecast ICT expenditure for 2013 to 2017 ($M, Real 2017)

	2013	2014	2015	2016	2017	Total
AER Allowance **(includes $0.67m reallocated from 'SCADA' to 'IT')**	31.5	7.0	4.7	5.8	1.8	50.8
Multinet Expenditure **Excluding Internal Overheads**	25.4	3.5	6.3	6.9	2.2	44.3
Allocation of Internal Overheads	1.1	0.4	0.6			2.1
Multinet Expenditure **Including Internal Overheads**	26.5	3.9	6.9	6.9	2.2	46.4

The scope of the ICT program and the projects completed were aligned to the ICT Capital Program presented to the AER five years ago. Where changes and reprioritisations to the program were necessary, these have been managed through a robust ICT governance structure (see further detail in Appendix A).

4. Nature of expenditure

4.1. Overview

This section provides a brief overview of our forecast ICT capex for the forthcoming Access Arrangement period. This forecast is driven by a number of internal and external factors including:

- Ongoing replacement cycles in ICT products determined by external vendors;

- The National Gas Rules (NGR)[1] which require service providers to deliver a capex program that ensures the quality, reliability and security of supply is managed in a cost-effective way;

- The changing nature of information content (for example the increase in digital imagery of assets); and

- Changing consumer needs and expectations.

We have developed an ICT Capital Program[2] for 2018 to 2022. The strategy presented in our IT Capital Program addresses the factors listed above and also takes into account the opportunities presented by new ICT technologies and services such as cloud services, digital communications, network control technologies, data analytics and mobility.

Our forecast ICT program for 2018 to 2022, based on the strategy presented in our IT Capital Program, will:

1. **Maintain systems to industry standard to avoid increased risk of disruption to customers and to retain levels of efficiency.** Having completed a major overhaul of our ICT systems in recent years, we will continue to invest to ensure that these systems are refreshed and maintained at the industry standard required to meet the needs of our customers;

2. **Improve asset planning and management through improved data quality and reporting**. We will enhance our systems to increase data synchronisation and quality. Improved data quality will lead to better planning and management of assets;

3. **Ensure the ongoing integrity and safety of our distribution network.** We will implement ICT solutions and security programs to maintain the integrity of our services provided by our gas distribution network and meet the levels of demand required by customers;

4. **Deliver new capability to meet changing customer needs and growing expectations**. We will implement ICT solutions including a web based customer portal that address the needs and expectations of customers. Customers have expressed strong support for increased use of digital communications (e.g. SMS) for urgent matters relating to their supply (e.g. outages and disconnections);

5. **Ensure readiness to achieve regulatory requirements.** Our investment in ICT systems will enable us to comply with our regulatory obligations and meet regulatory changes as they arise; and

6. **Utilise field mobility to automate field work processes with service providers** – Technology advances are increasing the level interaction and the amount of data both available from and required by field services (e.g. GPS co-ordinates, asset and location photographs etc.). We will combine increasingly mature and low-cost mobility technologies with our enterprise resource planning (ERP) and works scheduling systems to reduce manual intervention in processes for managing the work carried out by field work forces.

The forecast capex outlined in this document focuses on achieving the above outcomes.

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[1] Australian Energy Market Commission, *National Gas Rules*, Version 30

[2] IT Capital Program 2018 to 2022. Multinet Gas

The document will show that most of the ICT capex is required to maintain the integrity and safety of our services, maintain our ability to comply with regulatory obligations and meet and levels of demand required by customers. Recurring capex to maintain our IT systems at industry standard makes up 75% of the planned ICT capex for the forthcoming Access Arrangement period.

We carefully consider IT system lifecycle refresh requirements, risks and options as part of our Project Delivery Methodology.

In other cases, our ICT capex will always have a positive economic value and/or will ensure that we will maintain levels of service without increasing costs commensurate with growth in customer transactions.

Where we identify opportunities to invest in ICT to produce immediate financial benefits such as operational cost savings, this investment would be self-funded and not included in our capex forecast.

The remainder of this section outlines in further detail the nature of the capex that is required to deliver the six outcomes above.

4.2. Maintain systems at industry standard

We made significant investments to replace several of our core business systems in the current and previous Access Arrangement periods. We must now continue to maintain these systems to reduce the risk of business disruption and to retain levels of efficiency.

This capex covers:

- Licence fees and implementation costs to maintain application software at a version which is in line with our IT asset management policy; and

- Purchase and implementation costs to refresh hardware, firmware and systems software (such as operating systems, communications and database software).

Towards the end of the 2018 to 2022 Access Arrangement period, we will commence a major upgrade to a new version of our SAP Enterprise Resource Planning, Customer Management and Billing systems. This major upgrade will require a significant investment which will commence in the forthcoming Access Arrangement period and then continue in the following period. The vendor has stated that it will withdraw support for our current version of SAP in 2025. Commencing the project in 2022 is prudent given the complexity of the upgrade. By that time, the system will have been in operation for almost ten years.

Other key projects for 2018 to 2022 include lifecycle refreshes of:

- Geographical Information Systems;

- SAP HANA information management systems;

- SCADA; and

- Shared Storage, Intel Servers, Data Network and Pinewood data centre hardware and operating level software.

In addition, we will operate an ongoing program of minor application refreshes to maintain systems at industry standard. This program is carried out under a single capital project entitled 'Small Applications Lifecycle refresh'.

The capex required to maintain our systems at industry standard is forecast to be $32.4 million over the 2018 to 2022 Access Arrangement period.

4.3. Improve asset planning and management through improved data quality and reporting

In the first year of the current Access Arrangement period, we completed the replacement of our core SAP ERP asset management system. In the current period we have also upgraded our Geographical Information System and implemented an 'Information Hub' to provide a foundation analytics capability. While these systems provide a sound IT foundation, some key weaknesses have been identified in information management and data quality.

In the 2018 to 2022 Access Arrangement period, we will establish an ongoing program of IT enhancements to address outstanding and unresolved data asset issues in our IT systems. The program will:

- Improve the capability of our systems to link and categorise data so that our staff can more easily find and update records – which will then decrease the creation of duplicate and inconsistent data elements in our systems;

- Enhance and maintain our core asset management systems so that they can capture additional data about equipment and devices in our gas distribution network that are currently not adequately recorded and tracked;

- Improve the data validation capabilities of our systems to maintain the accuracy of our data; and

- Improve synchronisation of data held in different systems.

As a result of this program, we will:

- Reduce the time taken to obtain accurate asset data from our systems and to resolve data inconsistences;

- Avoid the ongoing degradation of quality of the data in systems due to the creation of duplicate, inconsistent and inaccurate data records;

- Increase accuracy and quality of work orders; and

- Improve quality in customer interaction and services (in areas such as new connections and outages).

We will also:

- Upgrade our content management systems capability so that we are able to manage an increasing level of unstructured data including emails, documents (Microsoft Word), spreadsheets (Microsoft Excel), presentations and diagrams (Microsoft PowerPoint), pictures, photos, design documents, customer interaction records and digital signatures; and

- Update the data visualisation product (Tableau) that we use for analytical reporting.

If we did not proceed with this program, the quality of data in our systems and our content management and reporting capability would not be in line with accepted good industry practice would present a risk to our ongoing ability to maintain the integrity of our services.

The cost of this program is forecast to be $4.1 million over the 2018 to 2022 Access Arrangement period.

4.4. Ensure the ongoing integrity and safety of our distribution network

Managing the integrity and safety of high-pressure transmission pipelines requires effective storage and management of key data including location data, detailed asset detail, asset maintenance history and overlay aerial photography. However, currently these pipeline assets are treated in our GIS in the same way as all other distribution assets. The additional data (e.g. GPS locations, asset maintenance history), critical to maintaining the integrity and safety of this class of asset is not currently available and/or maintained within the GIS.

In the 2018 to 2022 Access Arrangement period, we will establish an ongoing project to extend the functionality of the GIS system to allow this data (including new data types and sources) for this asset class to be sourced, stored, analysed and maintained so that it is readily available for maintenance, emergency and augmentation projects on our network.

Information security incidents have been identified in our corporate risk register as one of the top 10 risks to the organisation. In the 2018 to 2022 Access Arrangement period, we will establish an ICT Security Program to manage and mitigate the operational risks caused by the increased level and sophistication of targeted cyber security threats by maintaining an industry baseline security environment across the logical, physical and process environments.

Our ICT capex for 2018 to 2022 also includes the replacement of the central systems that manage our field monitoring devices. This will allow the new generation of field-based devices to be installed and will ensure that our network monitoring capability is not disrupted.

The cost of the projects to ensure ongoing performance, resilience and safety in the distribution network is forecast at $5.5 million over the 2018 to 2022 period.

4.5. Meet customer needs and expectations

An increasing emphasis on energy efficiency and sustainability, combined with widespread use of digital communications and social media, are culminating in a change to the way customers view energy providers. Customers want communication with us to be simple and effortless. Mobile technology and digital communications are now pervasive. Customers expect information to be available wherever and whenever they require it. Based on feedback obtained during stakeholder focus groups held in July and August 2016, customers have expressed strong support for digital communications (e.g. SMS) for urgent matters related to their supply (e.g. unplanned and planned outages and disconnections).

Our retailers also want communications with us to be streamlined. Retailers require communications to be efficient and expect that we will be able to track the status of their requests and limit the amount of paperwork.

ICT applications and systems delivered in our 2018 to 2022 ICT program will support us in meeting our customers' and retailers' needs and expectations:

- Our gas customer portal will deliver an efficient digital, web-based communication capability for use by end customers enabling them to register for outage notifications and request services from Multinet gas;

- We will improve the accuracy of customer transfers to increase customer satisfaction levels by streamlining the process for transferring customers between energy retailers; and

- In addition, we will establish a small IT project to support a trial of digital meters. This project will utilise the systems already deployed by United Energy for its smart meter deployment.

These projects will deliver direct benefit to customers. However, customers will also benefit indirectly from all of the projects presented in the following sections, which together ensure that we continue to operate effectively and efficiently as a business and maintain the performance of our distribution network.

The cost of these projects are forecast to be $2.2 million over the 2018 to 2022 period.

4.6. Ensure readiness to achieve regulatory requirements

While no changes to the National Gas Rules have been identified that require ICT solutions and specific projects, a number of our ICT Capital program projects improve our ability to meet existing regulatory obligations as well as supporting potential future regulatory requirements.

For example at the time of writing, discussions are in progress relating to both the National Energy Customer Framework (NECF) and customer switching utilising estimated reads. Neither of these initiatives are confirmed as regulatory requirements however our capital program considers these as potential developments and provides a platform for implementing these requirements in the future.

4.7. Utilise field mobility to automate field work processes with service providers

Our operations are heavily outsourced. Field work is contracted out to our external service providers who carry out a range of field work in response to:

- Work orders that we generate as part of capital works programs and maintenance plans;

- Service orders originating from retailers (for example, work related to new connections, abolishments, meter replacements and special meter reads); and

- Trouble orders from retailers and end customers.

This extensive use of outsourced field service providers has proved to be highly efficient and cost effective. However, the increasing availability of low-cost smart phones, tablets and notebooks, together with workforce management software, creates opportunities for energy network operators to improve the efficiency and effectiveness of their field-based business processes.

In the 2018 to 2022 period, we will establish a project to implement work scheduling and despatch capability to improve the level of integration with service providers' mobility systems. As a result, we will be better able to:

- Monitor our compliance with Guaranteed Service Levels;

- Monitor the performance of its external service providers against their contractual service levels; and

- Provide field crews with relevant and more accurate asset, customer and location information including previous incidents, hazards and other general details.

The cost of this mobility project is forecast to be $4.6 million over the 2018 to 2022 Access Arrangement period.

5. Current period expenditure and outcomes

This section explains that our ICT capex in the current Access Arrangement period is forecast to be lower than the amount in the capex plan presented to the AER in our Access Arrangement Information, as well as the AER's capex allowance in its final decision. It shows where variations have occurred between our actual capex and the AER's allowance and outlines how these variations have been governed.

5.1. Comparison of actual / estimated capex and the AER allowance

Table 4 compares our actual and estimated capex for the current Access Arrangement period with the AER's allowance. This table shows that our actual/forecast expenditure is 9% lower than the AER's allowance.

Table 4: Current period expenditure ($M, Real 2017)

	2013	2014	2015	2016	2017	Total
AER Allowance (includes $0.67m reallocated from 'SCADA' to 'IT')	31.5	7.0	4.7	5.8	1.8	50.8
Multinet expenditure – actual for 2013/15, forecast for 2016/17[3]	26.5	3.9	6.9	6.9	2.2	46.4

Table 5 presents the status of our key IT projects (i.e. those with a cost of over $1 million) included in the AER allowance for the current period. It shows that we have completed the key projects within our allowance and that one project (our Outage Management System (OMS) Lifecycle Upgrade) was not required.

Table 5: Current Status of Key (>$1m) IT Projects in our 2013 to 2017 Allowance

Project	Status
Enterprise Resource Planning – SAP Implementation (remainder of project)	Completed
Infrastructure Refresh	Completed
Outage Management System (OMS) Lifecycle Upgrade	Not Required - Our 2012 submission assumed that a separate OMS would be implemented – however this functionality was integrated into our SAP Customer Management System solution.
Geographic Information System (GIS) Strategy and GE GIS Smallworld Upgrade	Completed
Identity and Access Management System	Completed
Data Warehouse Enhancement Program	Completed
Office Expansion	Completed
SCADA Replacement	Completed

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[3] Figures include internal management overheads for governance and control by IT senior management and executives. These figures are consistent with our RIN reports for this period when these overheads are included and when figures are adjusted as $2017.

Project	Status
Real Time System (RTS) Data Centre Relocation	Completed

The successful replacement of our core ERP system in 2013 was critical for the success of our transformation to a new business operating model. Our business transformation, in which core strategic functions were brought in-house while other functions are outsourced, has delivered significant benefits.

Our ICT investment during the current Access Arrangement period, together with our transformation to the new business model, has achieved the planned benefits to our business and our customers. The investment has:

- Completed the implementation of a suite of foundation systems that provides a robust platform for us to meet our future customer, business and regulatory requirements;

- Consolidated and rationalised legacy applications;

- Enabled us to reduce our overall business operating costs by transforming our operating model;

- Implemented systems to provide a foundation to meet regulatory reporting requirements; and

- Achieved operational cost reductions through more efficient outsourcing of IT support services to commercial service providers.

In addition to the key projects listed above, we have also:

- Implemented systems to support the replacement of our General Packet Radio Service (GPRS) field communications devices;

- Modified our meter data and revenue systems to meet the requirements of regulatory changes;

- Implemented a system to improve the management of customer claims and complaints;

- Implemented a security information and event management system;

- Upgraded network management systems to resolve security issues; and

- Implemented an Enterprise Project and Portfolio Management system to support the effective management of our information technology projects.

Table 6: ICT capex in Current Period by Functional Category (2013 to 2017)

Category	AER allowance (including IT SCADA)[4] ($M, Real 2017)	Multinet expenditure – actual for 2013 to 2015 and estimated/ forecast for 2016 and 2017 ($M, Real 2017)
Customer and Stakeholder Management	3.9	3.1
Network Management (including IT SCADA)	4.0	4.4
Asset Management	24.9	23.2
IT Management	12.0	8.7

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[4] AER 'Access Arrangement Information, Multinet Gas (DB No 1) and Multinet Gas (DB No 2) Gas Distribution Network, 1 January 2013 – 31 December 2017', October 2013 (amended to take account of orders from the Australian Competition Tribunal).

Category	AER allowance (including IT SCADA)[4] ($M, Real 2017)	Multinet expenditure – actual for 2013 to 2015 and estimated/ forecast for 2016 and 2017 ($M, Real 2017)
Meter Data and Revenue Management	0.5	0.1
Information Management	2.4	2.4
Business Support Management (including regulatory changes)	2.4	4.4
Total	**50.8**	**46.4**

Table **6** shows our actual and estimated capex for 2013 to 2017 by functional category and shows that the allocation of our actual ICT capex is in line with our IT Capital Program and the AER's allowance.

Our IT Capital Program for 2013 to 2017 was based on an assessment of our business requirements and project estimates at that time, together with an assessment of the current state of our systems.

Over a five-year period, it is inevitable that some refining of the overall plan will be required as business needs and priorities change and as project estimates are refined. We revisit our IT project portfolio regularly under our IT governance arrangements (as outlined in Appendix A).
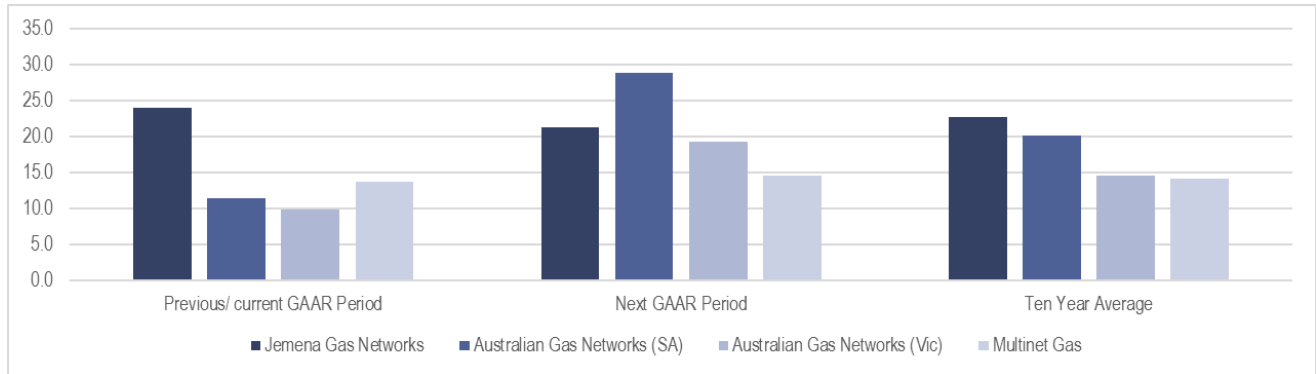
5.2. Benchmarking

Benchmarking our costs against our peers allows us to assess the efficiency of our business, and identify areas for improvement.

Our corporate-level benchmarking shows that we are one of the most efficient gas distributors.

Based on publically available information contained in recent Access Arrangement proposals and decisions, we have compared our actual/proposed ICT capex per customer, per annum against three other major gas service providers in Victoria and South Australia. Figure 2 shows that:

- In the current Access Arrangement period our ICT capex per customer was higher than AGN (but lower than JGN) as we completed our major program to bring our ICT systems up to the required standard;

- Our ICT capex per customer for the forthcoming period is lower than the other three distributors – reflecting our focus on maintaining and managing our current systems; and

- Over a ten-year period, our average ICT capex per customer will be one of the lowest of the gas distributors.

Figure 2: Comparison of average ICT capex per customer against other Gas distributors[5]

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6. Expenditure forecasting method for forthcoming period

This section provides an overview of our forecasting methodology for ICT capex for the next Access Arrangement period and explains why we consider that it is the most reasonable methodology for regulatory forecasting. Further detail of this forecasting method is found in the IT Capital Program document.

6.1. Project justification documentation

Our IT project delivery methodology (Project Delivery Framework) defines our requirements for the documentation that must be produced before any project can proceed and that expenditure is approved. This documentation includes a project Business Case. Typically, a Business Case is prepared as part of the initial stages of a project.

It is not efficient or practicable to develop detailed project approval documentation several years in advance of the initiation of a project. The investment to develop full business cases would be substantial and would not necessarily increase the accuracy of estimates as information technology costs can vary significantly over time as new products and solutions become available.

To support our submission, we have therefore created a high-level project expenditure document for each project in our IT Capital Program. This document presents details about the objectives and scope of the project, the reasons why the project is justified and the basis of the cost estimate.

Two forms of the high-level project expenditure document have been used depending on the materiality and level of justification required for a given project as follows:

- **Project Overview** – a one-to-two page document that provides a high level description, justification and estimate, has been produced for projects that are forecast to be less than $2 million in capital expenditure and/or recurrent projects for which justification for the expenditure is considered straightforward (e.g. a system lifecycle refresh project) and where estimates are generally based on actual expenditure from similar previous projects; and

- A **Project Justification** – a five-to-ten page document that provides a more detailed description, justification and estimate, has been produced for projects that are forecast to be in excess of $2 million.

Each of the Project Overview and Project Justification documents:

- Provides a description of the project;

- Documents alignment to our business and IT strategies;

- Describes the impact of not proceeding with the project (the 'do nothing' or 'status-quo' option) and the viable alternative solutions that were considered (e.g. cloud vs. in-house);

- Presents, particularly for non-recurrent projects, the project's business benefit; and

- Presents the proposed solution including the rationale for recommending this solution, approximate timing for delivery of the project and the forecast expenditure that will be incurred implementing the solution.

6.2. Forecasting method overview

Our ICT capex forecast was based on a combination of top-down and bottom-up expenditure forecasting approaches. We considered the business as usual expenditure and then set a goal of reducing this in real terms. To achieve this, we assessed the various categories of expenditure top-down and considered where efficiencies could be achieved (e.g. in IT infrastructure refresh). We then used bottom-up forecasting as described to confirm and support top-down forecasting.

Much of the recurrent investment results directly from our need to maintain our systems at industry standard. In assessing the requirement for recurrent investment, we take into account a range of factors including:

- The age profile of the equipment;
- Vendor support policies;
- Planned variations in user numbers;
- Fault rates; and
- New and prevailing technologies.

Other investment requirements were identified through an ongoing process of business consultation, seeking feedback from customers and other stakeholders and assessing technological developments which could provide performance and operational efficiencies.

As above, high-level Project Overviews or Project Justifications were prepared for each proposed project. The detail contained in, and supporting, the Project Overview/Justification was sufficient to determine whether the proposed investment became part of our IT Capital Program.

All investments approved through the business justification process were entered into our IT Capital Expenditure Cost Model. The model's primary function is to model the forecast capital expenditure of a number of projects across a five-year period. The model provides the ability to:

- Calculate capex for each project using standard "Unit Costs" e.g. Labour rates that apply across every project;
- Enter proposed start and end dates for each project;
- Enter a labour effort profile (labour type and burn rate) across the duration of the project;
- Calculate hardware and software costs for each project based on default percentages (which can be overridden where costs are known or expected to differ from defaults);
- Calculate 'Project Costs' to determine the expenditure forecast for project-related components of its capital expenditure forecasts (e.g. Security and Project Management Office Costs); and
- Provide both Calendar Year (CY) and Financial Year (FY) views of the capital expenditure.

6.3. Project estimating

Wherever possible, cost estimates were based on our experience of actual costs of a similar previous project. We have carried out many systems upgrades. The actual costs of these upgrades in the current period provided an accurate basis for estimating the costs of further upgrades in the forthcoming period. Information on recent actual costs were supplemented and verified by vendor quotes and market data if available.

Project expenditure is allocated over time in the cost model according to the timing and duration of each project.

Detailed forecast project costs comprise:

- **Labour costs**: resources (FTEs) required for project delivery. These resources include: IT consultants, developers, testers and procurement and business Subject Matter Experts (SMEs). Labour rates are largely based on the rates defined in Master Services Agreements (MSAs) with the panel of specialist project integration companies. These MSAs include daily rates for the provision of both on-shore and off-shore resources for ad-hoc project work. The model applies the average of the contracted MSA rates with each of our two major service providers. Labour rates are itemised and applied within the cost model;

- **Software costs**: purchase and licensing costs according to the specific requirements of each project. Software costs estimates are based on information from software vendors; and

- **Hardware costs**: Specific hardware required for application projects for development, testing, production, Disaster Recovery and on-going production support. With most environments now being virtual, infrastructure can be "spun up" for development and returned post deployment so these costs are taken into account accordingly. If new hardware is required, costs are estimated based on information from software vendors.

In some cases, a 'cloud' or 'software-as-a-service' solution may be a cost-effective approach to meeting a requirement. In these cases, estimates are largely based on information from suppliers.

6.4. Opex impacts of IT capital projects

Every capital project has a potential impact on both business and IT operating expenditure (opex). Every project justification has considered and captured the forecast operating cost impacts which have then been taken into account in the relevant opex budgets.

Project justification documents assess the potential impact of the project on IT operating costs associated with:

- Hardware support and maintenance (including infrastructure support provided by MG's service provider);

- Software support and maintenance;

- Application support (as provided by our applications service provider);

- Cloud service fees as appropriate; and

- Cost reductions arising from decommissioning of hardware and/or software.

In general, the implementation of new IT systems (as opposed to replacement or refresh of existing systems) will increase opex due to new licence fees, application support and vendor software maintenance costs associated with new software, ongoing maintenance and support costs associated with new hardware and contracted service fees associated with new cloud services.

However, in the past three years, we have largely contained our IT opex through:

- Procuring new IT infrastructure with increased capacity and processing power per unit – which enables maintenance and support costs to be contained or reduced;

- Retendering and restructuring our outsourced IT service provider contractual arrangements; and

- Consolidating applications to reduce the number of solutions and products and the associated costs of management, maintenance and support.

These activities will continue in the next Access Arrangement period and will offset the increases in IT opex resulting from the IT capital projects. We will therefore continue to contain our IT opex at the level of the base year (CY 2016). We have not proposed any step changes in IT opex in the next Access Arrangement period.

7. Capex forecasts and timings for the forthcoming period

This section provides an overview of the quantum and timing of our non-network ICT capex program for the 2018 to 2022 Access Arrangement period. Our total ICT capex forecast for period is $48.8 million.

This section also provides an overview of the project costs. The costs of each of the individual IT projects and the way in which we have built up our cost forecasts for the forthcoming period are presented in the supporting 'IT Capital Program' document.

7.1. Recurrent and non-recurrent capex

Of the 26 projects proposed for the next Access Arrangement period:

- 19 projects are identified as recurrent expenditure at a cost of $36.6 million. These projects are required to maintain the currency and/or capability of our IT infrastructure, applications and services over the next Access Arrangement period; and

- 7 are non-recurrent at a cost of $12.2 million. These projects are required to identify and deliver customer benefits (such as improved customer interaction) and provide improved and/or new functionality that supports the business in delivering asset management and distribution network efficiencies (such as deferred network capital expenditure).

The breakdown of capex across recurrent and non-recurrent is summarised in Table 7.

Table 7: Our forecast ICT capex by expenditure category for the next access arrangement period ($M, Real 2017)

Capex Category	Summary of Projects	Cost
Recurrent Expenditure	19 projects relating to maintaining the currency and/or capability of our IT infrastructure, applications and services (including refreshment of our client device fleet over the 2018 to 2022 period). Including a Client Device Lifecycle refresh project	36.6
Non-Recurrent Expenditure	7 projects that deliver new and/or enhanced capability to meet customer / business needs.	12.2

Recurring capex to maintain IT systems at industry standard makes up 75% of our planned ICT capex for the forthcoming Access Arrangement period. We carefully consider lifecycle refresh requirements, risks and options as part of our project delivery methodology.

The need and frequency of an IT system lifecycle refresh are determined for each system by considering a range of factors including:

- A risk assessment of the criticality of the system to our business' operation (i.e. if the system fails what is the risk to the business of not having an operational system and for how long is the business prepared to sustain that risk?);

- The physical (hardware) asset life (noting that replacing hardware assets often requires existing software assets to be upgraded as they may no longer be compatible with the newer hardware); and

- The level of integration of the IT system. Generally, the greater the integration with other systems the greater the risk of failure of the system or those integrated with it, if the system is not refreshed in a timely manner.

IT systems' lifecycle refresh is a recurring cost which covers:

- Licence fees and implementation costs to maintain application software at the current version); and

- Purchase and implementation costs to refresh hardware, firmware and systems software (such as operating systems, communications and database software).

This capex is necessary to:

- Maintain and improve the safety of services;

- Maintain the integrity of services;

- Ensure ongoing compliance with our regulatory obligations or requirements; and

- Maintain our capacity to meet the levels of demand for our services.

The key drivers of non-recurrent capex are to:

- Identify and deliver customer benefits, more specifically aimed at providing and supporting better customer interaction; and

- Provide improved and/or new functionality that supports the business in delivering a range of benefits (e.g. asset management efficiencies such as deferred network capital expenditure, and distribution network efficiencies).

7.2.   Forecast capex by ICT strategic theme

Table 8 outlines our proposed annual non-recurrent ICT capex projects for the forthcoming Access Arrangement period, categorised against our key strategic drivers which are to:

- Maintain systems to industry standard;

- Improve asset planning and management through improved data quality and reporting;

- Ensure the ongoing integrity and safety of our distribution network;

- Deliver new capability to meet customers' changing needs and expectations;

- Ensure readiness to achieve regulatory requirements; and

- Utilise field mobility to automate field work processes with service providers.

This table shows that three of the themes comprise both recurrent and non-recurrent capex.

Table 8: Our forecast ICT capex by ICT strategic theme

IT Strategic Theme	Recurrent Expenditure ($M, Real 2017)	New Initiatives ($M, Real 2017)
Maintain systems to industry standard.	31.0	1.4
Improve asset planning and management through improved data quality and reporting.	2.1	2.0
Ensure the ongoing integrity and safety of our distribution network.	3.5	2.0
Deliver new capability to meet changing customer needs and growing expectations.	-	2.2
Ensure readiness to achieve regulatory requirements	-	-
Utilise field mobility to automate field work processes with service providers	-	4.6
Total	**36.6 (75%)**	**12.2 (25%)**
Total Expenditure	48.8	

Table 9 further details our individual projects and how those projects meet our regulatory requirements.

Table 9: Our proposed ICT capex projects for the next access arrangement period ($M, Real 2017)

Key driver and outcome	Projects	Regulatory requirements met	2018	2019	2020	2021	2022	Total
Maintain systems to industry standard	IT12 - IT Infrastructure Refresh IT13 - Application Enhancement Factory IT15 - WebMethods Refresh IT16 - SCADA Refresh IT17 - SAP ERP/ISU Refresh IT18 - Small Applications Refresh IT19 - GIS Refresh IT20 - EDMS Refresh IT21 - Infrastructure Refresh - Client Device lifecycle IT22 - Infrastructure Refresh - Data Protection IT23 - SAP CRM Refresh IT24 - Infrastructure Refresh - Reporting Platform IT29 - Legacy Application Replacement Program IT33 - UAFG - Reconciliation Refresh IT35 - Time expired Meter Refresh	• NGR 79 (1) (a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently in accordance with accepted good industry practice to achieve the lowest sustainable cost of providing services. • NGR 79 (2) (c) The capital expenditure is necessary: (i) to maintain and improve the safety of services; or (ii) to maintain the integrity of services; or (iii) to comply with a regulatory obligation or requirement; or (iv) to maintain the service provider's capacity to meet levels of demand for services.	4.0	1.9	7.1	10.2	9.2	**32.4**

Key driver and outcome	Projects	Regulatory requirements met	2018	2019	2020	2021	2022	Total
	IT39 - Enterprise Project and Portfolio Management							
Improve asset planning and management through improved data quality and reporting	IT01 - Asset Data Quality Program IT06 - Enterprise Content Management IT30 - Tableau Refresh IT40 - Business Intelligence	• NGR 79 (1) (a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently in accordance with accepted good industry practice to achieve the lowest sustainable cost of providing services. • NGR 79 (2) (c) (ii) to maintain the integrity of services. NGR 79 (2) (c) (iv) to maintain the service provider's capacity to meet levels of demand for services.	0.6	2.4	0.5	0.3	0.2	**4.1**

Key driver and outcome	Projects	Regulatory requirements met	2018	2019	2020	2021	2022	Total
Ensure the ongoing integrity and safety of our distribution network	IT03 - GIS Gas Transmission Pipelines IT07 - Network Monitoring Capability IT14 - Security Program	• NGR 79 (1) (a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently in accordance with accepted good industry practice to achieve the lowest sustainable cost of providing services. • NGR 79 (2) (a) the overall economic value is positive; or • NGR 79 (2) (b) the present value of the expected incremental value to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or • NGR 79 (2) (c) The capital expenditure is necessary: (i) to maintain and improve the safety of services. (ii) to maintain the integrity of services. (iv) to maintain the service provider's capacity to meet levels of demand for services.	0.5	0.8	2.4	0.8	0.9	**5.5**

Key driver and outcome	Projects	Regulatory requirements met	2018	2019	2020	2021	2022	Total
Meet customers' changing needs and expectations	IT09 - Digital Meters IT Support IT38 - Customer Experience Improvements Program	• NGR 79 (1) (a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently in accordance with accepted good industry practice to achieve the lowest sustainable cost of providing services. • NGR 79 (2) (a) the overall economic value is positive; or • NGR 79 (2) (b) the present value of the expected incremental value to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or • NGR 79 (2) (c) The capital expenditure is necessary: (i) to maintain and improve the safety of services. (ii) to maintain the integrity of services. (iv) to maintain the service provider's capacity to meet levels of demand for services.	2.2	-	-	-	-	**2.2**

Key driver and outcome	Projects	Regulatory requirements met	2018	2019	2020	2021	2022	Total
Utilise field mobility to automate field work processes with service providers	IT08 - Mobility Integration	• NGR 79 (1) (a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently in accordance with accepted good industry practice to achieve the lowest sustainable cost of providing services. • NGR 79 (2) (a) the overall economic value is positive; or • NGR 79 (2) (c) The capital expenditure is necessary: (i) to maintain and improve the safety of services. (ii) to maintain the integrity of services. (iv) to maintain the service provider's capacity to meet levels of demand for services.	3.7	0.9	-	-	-	**4.6**

7.3. Approach to gaining synergies through IT sharing with United Energy

We have a shared management team with our sister business United Energy and share office facilities. As a result, the companies also have an opportunity to share some IT systems.

We share information systems in a way that delivers synergies (mostly in reduced operating costs) but does not compromise the ability of the two companies to be separated in the future. The arrangements for sharing are well defined with clear principles and rules.

In general, United Energy and Multinet Gas operate separate IT application software so that the two companies' data are kept separate. However, the following categories of IT infrastructure are shared across the two organisations:

- Local Area Networks (LANs);

- Wide Area Networks (WANs);

- Server hardware;

- Storage;

- Infrastructure services (active directory, management and monitoring, backup/restore and security)

- Infrastructure applications (for example, email, intranet platform, internet platform and document management); and

- Data centres.

All opportunities for sharing of IT project capital costs are assessed on a case-by-case basis. Where benefits can be obtained by each organisation as a result of a joint project or sharing of infrastructure, an equitable cost allocation approach is defined.

The following capital projects provide an opportunity to share costs. However, only the Multinet Gas costs are presented in this document, further detail for each project is provided in the detailed Project Overview and Project Justification documents:

- Mobility Integration – improved integration with Service Providers leveraging a Works Planning and Scheduling solution being implemented for UE;

- SCADA Refresh – refresh of the SCADA platform;

- EDMS Refresh – Electronic Document Management System shared with UE;

- Application Enhancement Factory – addresses a range of smaller application Change Requests under a fixed contract arrangement;

- Client Device Lifecycle Refresh – refresh of desktop Personal Computers (PCs), tablets and mobile devices;

- IT Infrastructure Refresh – lifecycle refresh of United Energy and Multinet Gas-owned hardware, servers, communications equipment and data centre equipment; and

- Security Program (IT) – a program of smaller projects and activities to address IT security in the face of increasing threats.

8. Meeting Rules' requirements

This section explains and justifies our ICT capex forecast against the new capital expenditure criteria set out in Rule 79 of the NGR. It demonstrates that our ICT capex forecast is conforming capital expenditure which should be approved by the AER as part of its final decision for our forthcoming Access Arrangement period.

8.1. The new capital expenditure criteria

Rule 79 defines the new capital expenditure criteria as follows:

(1) Conforming capital expenditure is capital expenditure that confirms with the following criteria:

    (a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently in accordance with accepted good industry practice to achieve the lowest sustainable cosy of providing services;

    (b) the capital expenditure must be justifiable on a ground stated in sub rule (2)

(2) Capital expenditure is justifiable if:

    (a) the overall economic value of the expenditure is positive; or

    (b) the present value of the expected incremental revenue to the generated as a result of the expenditure exceeds the present value of the capital expenditure; or

    (c) the capital expenditure is necessary:

        (i) to maintain and improve the safety of services; or

        (ii) to maintain the integrity of services; or

        (iii) to comply with a regulatory obligation or requirement

        (iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or

    (d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c).

(3) In deciding whether the overall economic value of capital expenditure is positive, consideration is to be given only to economic value directly accruing to the service provider, gas producers, users and end users.

(4) In determining the present value of expected incremental revenue:

    (a) a tariff will be assumed for incremental services based on (or extrapolated from) prevailing reference tariffs or an estimate of the reference tariffs that would have been set for comparable services if those services had been reference services; and

    (b) incremental revenue will be taken to be the gross revenue to be derived from the incremental services less incremental operating expenditure for the incremental services; and

    (c) a discount rate is to be used equal to the rate of return implicit in the reference tariff.

(5) If capital expenditure made during an *access arrangement period* conforms, in part, with the criteria laid down in this rule, the capital expenditure is, to that extent, to be regarded as conforming capital expenditure.

(6) The AER's discretion under this rule is limited.

8.2. How the forecast meets the new capital expenditure criteria

The information presented in this overview document and its supporting documents demonstrates that our proposed ICT capex is consistent with that of a prudent service provider, acting efficiently and in accordance with good industry practice to achieve the lowest sustainable cost of providing services, as required by Rule

79(1). In particular, the proposed forecast capex is necessary to comply with Rule 79(2)(c), in relation to maintaining the safety and integrity of our services, complying with our regulatory obligations and maintaining our capacity to meet demand on our network.

Our ICT assets are integral to our business operations. ICT systems support almost all of our core business functions (as shown in Section 1, Table 1). Without on-going investment to maintain and refresh our ICT assets, we will not be able to deliver our core network services. We would not be able to operate our business effectively, continue to meet the information needs of our customers, achieve the required system availability and performance levels required by customers or meet future industry and regulatory challenges.

The tables in Section 7.2 show how the expenditure addresses these specific rules requirements for each of our ICT capex categories.

We have achieved each of the criteria listed in Section 8.1 in relation to our ICT capital expenditure forecast:

- The scope of our ICT capex program has been defined following a robust planning process governed by an executive-level governance group (see Appendix A);

- Our ICT costs are in line with industry benchmarks (when assessed on a like-for-like basis) – see Section 5.2);

- We have a solid track record of delivering projects effectively and efficiently as demonstrated by the successful delivery of our major core system replacement program in the current period (see Section 5);

- Our forecasts unit costs for labour (approximately 67% of the total cost) are largely based on rates defined in MSAs with our panel of external systems integration service providers selected following a competitive procurement process (see Section 6.3);

- Our forecast unit costs for hardware are based on rates derived from quotations and contracts obtained through competitive procurement processes (see Section 6.3);

- Our cost estimates for recurrent expenditure are largely based on our prior actual expenditure on similar projects (see Section 6.3); and

- Our ICT capex is closely monitored and controlled through our Project Delivery Framework approach which places strict controls on projects through project monitoring and decision-making processes (see Appendix A).

9.   Supporting documentation

The following documents support our ICT capex program for the forthcoming Access Arrangement period.

- IT Capital Program 2018 to 2022
- Project Overviews
- Project Justifications
- Project Delivery Framework Version 1.0

Glossary

Term	Description
AER	Australian Energy Regulator
Capex	Capital Expenditure
CY	Calendar Year
ERP	Enterprise Resource Planning
FY	Financial Year
GIS	Geographical Information System
GPRS	General Packet Radio Service
GPS	Global Positioning System
ICT	Information and Communications Technology
ISMS	Information Security System Group
IT	Information Technology
MG	Multinet Gas
MSA	Master Services Agreement
NGR	National Gas Rules
OMS	Outage Management System
Opex	Operating Expenditure
RIN	Regulatory Information Notice
SCADA	Supervisory Control and Data Acquisition
SMS	Short Messaging Service

Appendix A: Management and governance of our capex program

A1: Deliverability

In the current Access Arrangement period, we have successfully completed the delivery of a challenging IT capital program which included several large IT projects that were critical to our business transformation.

The scope of the IT program and the projects completed were closely aligned to the IT Capital Program presented to the AER five years ago. Where changes and reprioritisations to the program were necessary, these were managed through a robust IT governance structure.

The IT systems implemented in the current period provide a sound foundation for the delivery of further projects in the next Access Arrangement period. The success of the IT program in the current Access Arrangement period shows that we are well positioned to deliver the proposed program in the forthcoming period as a result of:

- Our established panel of external IT systems implementation service providers and our track record of successfully delivering projects using those service providers;
- Our proven IT project delivery framework (outlined below); and
- Our robust IT governance structure (outlined below).

The proposed IT Capital Program will enable us to meet the needs of our customers by maintaining systems at industry standard, addressing current gaps in functionality, meeting regulatory requirements and addressing future business challenges and opportunities.

A2: IT operating model

In accordance with our overall business operating framework, our IT group (which is shared across United Energy and Multinet) is relatively small with around 23 full-time employees managing IT projects and services. This IT group:

- Develops and maintains an IT strategy and architectural framework that facilitates the implementation of the business strategy and ensures that risk is effectively managed;
- Scopes and delivers a portfolio of projects that facilitates the implementation of business and IT strategies;
- Manages the relationship between IT customers and service providers and ensures that services are cost effectively aligned with business priorities; and
- Provides cost-effective IT services that enable both ourselves and our field service providers to deliver and continually improve operational services.

Our IT systems' operations are fully outsourced to commercial service providers that were engaged following formal competitive procurement processes. This ensures that system operations are provided at the most efficient cost and achieve the best outcome for customers.

IT projects are carried out by a panel of external service providers. The panel was formed on the basis of a formal procurement process. We follow a process in which, at the start-up phase of each project, formal quotations are requested from two or more of the service providers on our panel. Work is then commissioned under rates and commercial mechanisms defined when the panel was established. In some cases, service provider resources will be supplemented with our staff and/or other contract resources.

We have established a specific contract with a commercial service provider for smaller projects and enhancements to existing systems.

Our IT Operating Model provides us with access to leading IT expertise at competitive rates. The model provides us with the flexibility to bring on resources as required to meet fluctuating patterns of project demand.

A3: IT governance framework

Our IT governance structure provides oversight, guidance and direction to our ICT capex program. A high-level committee, including key members of our executive, meets monthly to approve new projects, track and monitor existing projects and ensure overall alignment of IT expenditure with business, customer and regulatory requirements.

We will continue to operate a robust IT governance framework over the next Access Arrangement period. Currently, our IT governance framework consists of the following joint business IT governance and advisory groups:
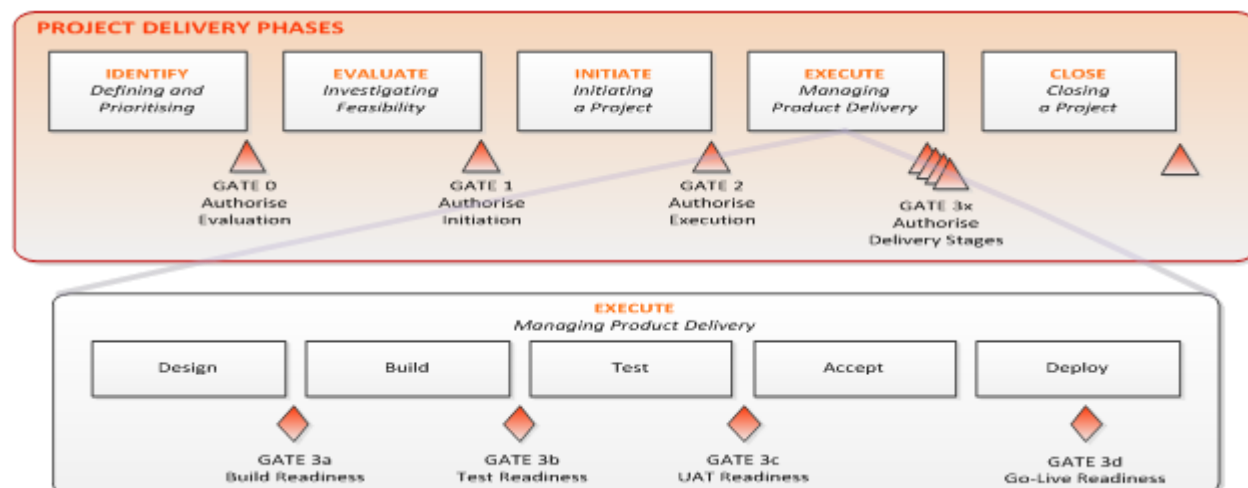
- IT Executive Forum – the peak IT governance forum in which relevant members of our executive management team oversee all IT capital investment and ensures that IT investment is aligned with business strategies and priorities;

- IT Architecture Review Board – which ensures that proposed solutions are aligned with business and IT architectural requirements and total cost of ownership considerations;

- Information Security Management System (ISMS) Governance Group – which oversees the implementation of the ISMS across business and IT functions;

- Project Steering Committees - established for all major projects; and

- Application Change Control Board – which approves and prioritises small enhancements and business change requests.

Our IT Capital Program has been reviewed and approved by the IT Executive Forum. Security aspects of the plan have been reviewed and endorsed by the Information Security Management System (ISMS) Governance Group.

A4: Project delivery framework

Project management processes and guidelines define delivery management processes and standards to ensure a consistent approach to delivering our IT programs and projects (Figure 3).

Figure 3: Our IT Project Delivery Framework[6]

The standard approach for program and project management enables effective engagement of appropriate stakeholders in governance, management review and decision making and ensures that:

- Project delivery management activities are focussed on achieving the investment value proposition (business case) and satisfying specific project objectives (requirements, risk, costs, schedule and quality) to deliver required business outcomes;

- The scope of the work to be accomplished is formalised, and products/deliverables identified that will satisfy the project objectives and deliver value;

- A formal, approved, integrated project plan guides project execution and control throughout the life of the project;

- Baselines are defined and established to enable effective monitoring and control of the utilisation of organisational resources on a program and/or project, to identify deviations from the expected plan and respond to exceptions;

- Controls are established to ensure product quality and project effectiveness including compliance with standards and performance against plan; and

- Project stakeholders ascertain whether the project, release or iteration delivered the planned results and value at the end of each project, release or iteration.

Our Project Delivery Framework also defines an approach for the management of benefit realisation. Our benefit realisation approach requires:

- Early identification of Solution benefits at the 'identify' phase;

- Production of a Benefits Realisation Plan (BRP) at the 'evaluate' stage; and

- Development of a Benefits Realisation Register to be handed over at project closure.

The Benefits Realisation Plan (BRP) is used to define how and when a measurement of the achievement of the project's benefits, expected by the Business Owner, can be made. The Plan is presented to the Executive during

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[6] For further information see the document 'Project Delivery Framework'.

the 'Initiating a Project' phase, updated at the completion of each phase, and used during the 'Closing a Project' phase to define any post-project benefits reviews that are required.

The plan is required to cover activities which will determine if the expected benefits of the project have been realised and how the solutions have performed in operational use. The level of achievement of benefits is assessed together with any additional time needed to realise the residual benefits.