Capital Expenditure Overview

SCADA

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Approval and Amendment Record

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1. Purpose of this document

This document explains and justifies our capital expenditure (capex) forecast on supervisory control and data acquisition (SCADA) systems for the forthcoming access arrangement period (1 January 2018 to 31 December 2022). This document references other supporting document in 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.

The actual 2013 to 2015 capex detailed in this document does not include overheads, as this was reported separately to the AER in our Annual Regulatory Information Notices for these years, rather than being incorporated into each capex sub-category.

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.

For clarity, Attachment 1 details how we have allocated the components of our asset costs between our different capex categories.

We have provided our SCADA Strategy documents to the AER with this Overview Document. The forecasts in these documents do not include labour escalators or overheads, whereas the forecasts in this Overview Document are total costs (unless otherwise stated). The following table reconciles the forecasts in the Strategy documents with those in this Overview Document and our Access Arrangement Information.

Table 1: Breakdown of 2018-22 capex forecasts by direct costs, overheads and escalations ($M, Real 2017)

Program	Strategy	2018	2019	2020	2021	2022	Total
Network Control	MG-SP-0002	0.6	0.6	0.5	0.5	0.4	2.6
RTU (Remote Telemetry Units)	MG-SP-0002	0.0	0.0	-	0.0	0.0	0.1
Aged Pressure Transmitter Replacement	MG-SP-0002	-	-	-	-	-	-
Jordan Actuator Replacement	MG-SP-0002	-	-	-	-	-	-
Kingfisher RTU Replacement	MG-SP-0002	0.2	0.2	0.2	0.2	0.2	1.0
TRIO Radio Replacement & Streamlining	MG-SP-0002	0.5	0.3	-	-	-	0.9
Data Logger Implementation	MG-SP-0002	0.2	0.2	0.2	0.2	0.2	0.9
Gas Detector Installation	MG-SP-0002	0.1	0.1	0.1	0.0	0.0	0.2
Vortex Flow meter Installation	MG-SP-0002	0.0	0.0	0.0	-	-	0.1

Program	Strategy	2018	2019	2020	2021	2022	Total
Hazardous zone non-compliant installations - Site Refurbishment	MG-SP-0002	0.2	0.2	0.2	0.2	0.2	0.9
Total Direct (excluding escalations)		**1.8**	**1.6**	**1.1**	**1.1**	**1.0**	**6.6**
Overheads		0.1	0.1	0.1	0.1	0.1	0.4
Total including overheads (excluding escalations)		**1.9**	**1.7**	**1.2**	**1.2**	**1.1**	**7.0**
Escalations		0.0	0.0	0.0	0.0	0.0	0.1
Total including overheads and escalations		**1.9**	**1.7**	**1.2**	**1.2**	**1.1**	**7.1**

2. Structure of this document

This document is structured as follows:

- Section 3 details our SCADA capex profile for the previous, current and forthcoming access arrangement periods.
- Section 4 explains the nature of SCADA capex and why it is necessary.
- Section 5 explains and justifies our actual SCADA capex against the Australian Energy Regulator's (AER) allowance in the current access arrangement period. It also overviews the outcomes that our expenditure has delivered;
- Section 6 explains our approach to forecasting SCADA capex for the forthcoming access arrangement period.
- Section 7 sets out our SCADA capex forecast for the forthcoming access arrangement period.
- Section 8 explains why our SCADA capex forecast meets the new capex criteria in Rule 79.
- Section 9 details the supporting documentation relevant to our SCADA capex forecast.

3. Expenditure profile

This section presents our SCADA capex for the previous, current and forthcoming access arrangement periods. Our capex for the previous and current access arrangement periods is presented in Tables 1 and 2. Our forecast capex is shown in Table 3.

Please note that:

- Data relating to the previous, current and forthcoming access arrangement periods is for gas networks SCADA hardware only. Information on our ICT-related SCADA capex forecast is presented in the ICT capex overview document; and
- Totals shown in the tables below may not reconcile exactly due to rounding.

Table 2: SCADA capex for 2008-2012 ($M, Real 2017)

	2008	2009	2010	2011	2012	TOTAL
AER Final Decision	1.2	0.9	0.9	1.0	0.3	**4.2**
Actual	0.1	0.1	-	0.1	-	**0.3**
Variance (Actual minus Final Decision)	(1.1)	(0.8)	(0.9)	(0.9)	(0.3)	**(3.9)**

Table 3: SCADA capex for 2013-2017 ($M, Real 2017)

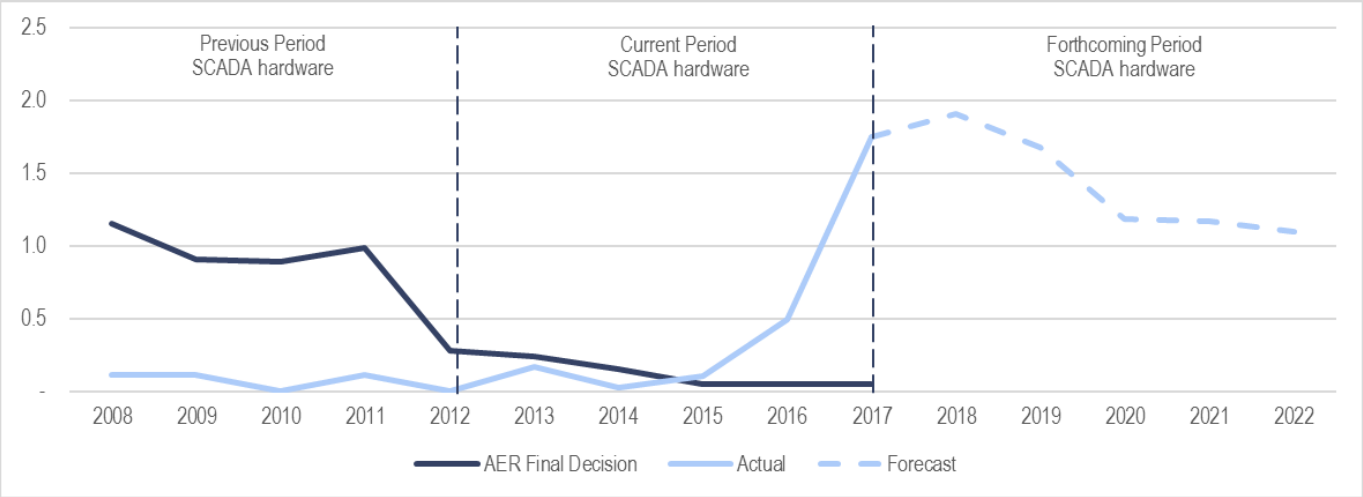
	2013	2014	2015	2016	2017	TOTAL
AER Final Decision	0.2	0.2	0.0	0.0	0.0	**0.5**
Actual / Estimated	0.2	0.0	0.1	0.5	1.8	**2.6**
Variance (Actual minus Final Decision)	-0.1	-0.1	0.1	0.4	1.7	**2.0**

Table 4: SCADA capex forecast for 2018-2022 ($M, Real 2017)

	2018	2019	2020	2021	2022	TOTAL
Forecast for the 2018-22 access arrangement period	1.9	1.7	1.2	1.2	1.1	7.1

The information in the above tables is shown in graphical form in Figure 1 below.

Figure 1: Previous, current and forecast SCADA capex ($M, Real 2017)



In the 2008 to 2012 period, our SCADA capex was well below our own forecast and the Essential Services Commission of Victoria's (ESC) regulatory allowance. The AER accepted our expenditure for the period to be conforming capex.

At the time of our last regulatory review, we proposed SCADA capex of $7.4 million for the current access arrangement period. The AER rejected our proposal and instead provided us with an allowance of $1 million. We expect our total SCADA hardware to be $2.6 million over the current access arrangement period, which is $2.0 million higher than – or nearly three times as high as – the AER's allowance.

Over the first half of the current access arrangement period, we focussed on closing out all existing project documentation before commencing further projects. Over the second half of the period, we allocated additional resources to SCADA project work, thus enabling us to ramp up our efforts to deliver these projects. Section 5.1 of this document describes the projects that we completed in the current access arrangement period.

We intend continuing to invest in SCADA hardware capex in the forthcoming access arrangement period by undertaking a range of projects to ensure that our capability to monitor, control and manage the gas distribution network is maintained in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services safely and reliably. Our $7.1 million capex forecast includes projects to:

- Improve network control across our high pressure (HP), medium pressure (MP) and low pressure (LP) networks;
- Relocate and/or add remote telemetry units (RTU);
- Replace Kingfisher RTU;
- Replace and streamline TRIO radio;
- Implement data loggers;
- Install gas detectors;
- Refurbish hazardous zone non-compliant equipment / installations; and
- Install Vortex flowmeters.

4. Nature of expenditure

4.1. Definition of SCADA capex category

Our SCADA capex involves replacing and augmenting for demand-related purposes our SCADA systems. These systems provide continuous monitoring, recording and optimal control of the gas distribution network, to enable us to:

- Operate our gas distribution network safely;
- Maximise utilisation of the distribution network for the efficient supply of energy to customers;
- Monitor and optimise pressure performance to ensure a reliable supply above the minimum average system pressures; and
- Monitor and optimise network pressures to minimise the volume of leakage from the network.

Assets included in this capex category include:

- Field instrumentation and sensors for SCADA monitoring and control systems, for example, pressure transmitters, temperature transmitters, flow transmitters and limit switches;
- Motorised actuators and solenoids for gas pilots and electrical equipment that may be found in the hazardous area of the site;
- RTU and their interface hardware, firmware and applications.
- RTU and communications equipment power supplies (AC-DC), power converters (DC-DC), solar panels, chargers and backup batteries;
- Aerials, antennas, masts, RF feeder cables and lightning arrestors;
- Communications equipment including modems, radio modems and transceivers, of wireless and wired technologies; and
- Communications networks and services used exclusively for SCADA.

4.2. Regulatory obligations or requirements

Under Rule 79, capex is justifiable if, among other things, it is necessary:

- To maintain and improve the safety of services; or
- To maintain the integrity of services; or
- To comply with a regulatory obligation or requirement; or
- To maintain the service provider's capacity to meet levels of demand for services existing at the time the capex is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity).

The assets and facilities procured through our SCADA capex are critical to ensuring the safe and efficient operation of our gas distribution network in accordance with the key regulatory obligations outlined in Table 5.

Table 5: Key regulatory obligations

Regulatory instrument	Summary of obligations
Gas Safety Act 1998	The Gas Safety Act 1997 (the Act) makes provision for the safe conveyance, sale, supply, measurement, control and use of gas and to generally regulate gas safety. Under section 32 of the Act, we must manage and operate our facilities to minimise as far as practicable: (a) the hazards and risks to the safety of the public and customers arising from gas; and (b) the hazards and risks of damage to property of the public and customers arising from gas; and (c) the hazards and risks to the safety of the public and customers arising from: (i) interruptions to the conveyance or supply of gas; and (ii) the reinstatement of an interrupted gas supply. Division 2 of Part 3 of the Act sets out provisions relating to the preparation of, and compliance with, safety cases for gas facilities. Under these provisions, we must submit a safety case to Energy Safe Victoria (ESV) for each of our facilities. We must comply with a safety case that has been accepted by ESV.
Gas Safety (Safety Case) Regulations 1999	These Regulations detail requirements relating to, amongst other things, the purpose and content of safety cases. The Regulations require us to specify the safety management system being followed to ensure compliance with its obligations under section 32 of the Act (i.e. to ensure the safe and reliable supply of gas). Regulation 17 states that the safety management system for a facility must specify the means used or to be used by the gas company to ensure that the design, construction, installation, operation and maintenance of the facility and any modification of the facility: (a) are adequate for the safety and safe operation of the facility; and (b) provide adequate means of achieving isolation of the facility or any part of the facility and pressure control in the event of an emergency; and (c) provide adequate means of gaining access for servicing and maintenance of the facility and machinery and other equipment; and (d) provide adequate means of maintaining the structure and operation of the facility; and (e) take into account the results of the formal safety assessment for the facility.
Victorian Gas Distribution System Code	The Code set out the minimum standards for the operation and use of the distribution system. Schedule 3 of the Code lists 23 Australian Standards relevant to distribution systems, or otherwise applicable to the operation of the Distribution System Code. For brevity, the Standards listed in the Code are not listed here, however it is noted that they relate to the design, construction, installation, maintenance, management and operation of gas distribution networks. We comply with these Australian Standards.
The Environment Protection Act 1970	The *Environment Protection Act 1970* empowers the Environment Protection Authority (EPA) to issue regulations and other compliance instruments relating to protection of the environment. Areas covered by the legislation include: Clean Water; Clean Air; Control of solid wastes and pollution of land; Control of noise; Transport of prescribed waste; and Environmental audits. We have detailed plans to ensure that we comply with the EPA regulations.

Regulatory instrument	Summary of obligations
Counter-terrorism requirements	Part 6 of the *Victorian Terrorism (Community Protection) 2003 Act*, together with the following State and Federal Government documents set out requirements for protecting critical assets from acts of terrorism: • Department of the Prime Minister and Cabinet, Strong and Secure: A Strategy for Australia's National Security, January 2013. • Commonwealth of Australia National Counter-Terrorism Committee, National Guidelines for Protecting Critical Infrastructure from Terrorism, 2011. • Department of Premier and Cabinet, A Roadmap for Victorian Critical Infrastructure Resilience, December 2012.

4.3. Key drivers of SCADA capex

An effective and reliable SCADA system is essential to ensuring the safe, reliable and efficient operation of our gas distribution network.

SCADA equipment is replaced when it is no longer fit for service. The key drivers of SCADA replacement capex are:

- Ageing and poorly performing equipment that is either not supported by the manufacturer or for which spare parts are not available;
- Obsolete existing equipment due to developments in communications and SCADA system technology; and
- Existing equipment no longer performing at the required standard due to changes in operating arrangements or criteria.

Additional SCADA equipment - such as RTUs - may need to be installed to provide more detailed coverage of the existing service area, or to cover new service areas or network extensions / augmentations. SCADA investment may also be required to provide enhanced capability to control flows on the network or to maintain or improve the safety, security and reliability of pipeline services in accordance with our compliance obligations.

Section 6 further explains the drivers of our forecast SCADA capex for the forthcoming access arrangement period.

5. Current access arrangement period capex

5.1. Explanation of current period capex

Table 6 compares our actual and estimated SCADA capex for the current access arrangement period to the AER's allowance – totals do not add due to rounding. As already noted, we expect our actual SCADA capex will exceed the AER's allowance by $2.0 million.

Table 6: SCADA capex and AER allowance 2013-17 ($M, Real 2017)

	2013	2014	2015	2016	2017	TOTAL
AER Final Decision	0.2	0.2	0.0	0.0	0.0	0.5
Actual / Estimated	0.2	0.0	0.1	0.5	1.7	2.5
Variance (Actual minus Final Decision)	(0.1)	(0.1)	0.1	0.4	1.7	2.0

The AER's Final Decision for the current access arrangement period allowed $0.6 million for one IT-related SCADA project (this is in the ICT Overview Document) and approximately $0.5 million to install 12 additional RTUs and to upgrade radio equipment in selected RTUs from D to E series.

Over the current access arrangement period, we:

- Installed additional RTUs at seven sites – Canterbury/Boronia, Huntingdale North, Huntingdale South, Hammond Road, Olinda South, Ringwood/Olinda and Magnolia. It was not necessary to install all 12 RTUs as originally proposed because network reconfiguration undertaken during the current access arrangement period enabled us to reduce the number of fringes, and some reclaimed sites were made redundant;
- Upgraded D series radio equipment to E series in accordance with our plans;
- Completed minor miscellaneous works, including replacing cabling and equipment at Vermont Outstation, fringe modification at Murray Goulbourn Fringe RTU and upgrading of 3G modems;
- Installed variable control on our HP network at Oakleigh. We also installed step control on our MP13 network to improve our operation and control of the network so that safety risk is reduced and supply integrity is improved. The AER provided no capex allowance for this capex;
- Installed gas detectors at Wantirna, Rowville, Port Melbourne, Donvale, Noble Park, Prahran, Vermont and Tooronga. This equipment allows real time detection of gas escapes, thus enhancing public safety and the integrity of assets and gas services. The AER provided no capex allowance for gas detectors;
- Replaced aged pressure and temperature transducers / transmitters as the equipment was no longer supportable as industry supplied spare parts are not available. The AER provided no capex allowance for this capex;
- Started to replace aged Jordan actuators at 31 sites across our network. The AER provided no capex allowance for this capex;
- Started a trial of Blue Point logger telemetry for corrosion protection systems. The AER provided no capex allowance for this capex, which is explained in section 6; and
- Started installing vortex flowmeters. The AER also provided no allowance for this capex, which is explained in section 6.

5.2. Efficiency of actual expenditure

As already noted, SCADA capex provides control and data acquisition functions that are essential to the safe and efficient delivery of pipeline services. We aim to meet our SCADA requirements at minimum total cost. Customers benefit from the proposed capex as it enables us to continue to deliver pipeline services safely and efficiently.

Our capex is assessed and executed in accordance with the principles underpinning our Asset Management Plan[1]. That plan provides an integrated and structured framework to guide the development, coordination and execution of asset creation and maintenance activities to optimise the total lifecycle costs, risk and performance of our assets and operations.

We delivered our SCADA capex in the current access arrangement period through our Operational and Management Services Agreements (OMSAs) with our two service providers. These arrangements provide strong incentives for our contractors to deliver services as efficiently as possible, and for the prices we pay for services to reflect efficient costs. Although it exceeded the AER's allowance, our actual expenditure was required to ensure that we:

- Maintain an effective and reliable SCADA system which enables us to operate the gas distribution network safely, reliably and efficiently; and
- Maintain the capability to operate the network safely and efficiently, and in accordance with our regulatory obligations at an efficient cost, to achieve the lowest sustainable cost of providing services.

[1] Further details are provided in Document № MG-PL-0005, Multinet Gas Network Asset Management Plan.

6. Developing our capex forecasts

We forecast our SCADA capex based on individual projects that are identified having regard to the capex drivers detailed in section 4.3.

In broad terms we identify our SCADA capex requirements by:

- Analysing asset age profiles, which provide an indication of the likely timing of required asset replacements;
- Assessing developments in communications and SCADA system technology which have or are likely to lead to obsolescence of existing equipment;
- Assessing the costs and benefits of improving network control across our HP, MP and LP networks; and
- Identifying (through the network planning process) the fringe points that need to be installed or relocated.

Generally, we prepare bottom-up cost estimates of each project. For more standardised activities, such as data loggers and fringe point relocation, unitised rates are used to develop cost forecasts.

We need to undertake the following projects in the forthcoming access arrangement period so that we have the SCADA systems to maintain the integrity of our services and to operate the gas distribution network reliably, safely and efficiently.

Table 7: SCADA projects for the forthcoming access arrangement period

Project	Rationale
1. Network control	
(a) Variable control on HP network	At present, some of our HP network is operated on variable control. During the forthcoming access arrangement period, we propose upgrading the remainder of the HP network that is still operated on step control. By 2022, all of our HP networks will be operated on variable control. Upgrading the HP network to variable control will deliver improved safety especially during maintenance works and emergency situations, along with improved reliability of pipeline services. Our forecast capex for this work is based on unit rates that reflect the actual cost of similar work completed recently under our competitively tendered outsourced service provider model. The planned program of works involves the installation of variable control at one sites (at Church Street Keysborough) in 2018.
(b) Control on Eastern MP network	As part of our Mains Replacement program, many MP networks have to be maintained to continue supply to our target low pressure zones. As a result, there will be several sites on the Eastern MP network that will still be in service well into the tail end of the Mains Replacement program. In order to maintain reliability and to control leaks on the remaining MP network, we propose to establish control on key sites not targeted for decommissioning or upgrading under the Mains Replacement program in the forthcoming regulatory period. As previously noted, control provides us with a greater level of control and responsiveness in the event of emergencies or unplanned outages on the gas network. This delivers improved safety and reliability. The planned program of works involves the installation of variable control at: • Five sites (all of which are not currently SCADA monitored) in 2018; • Five sites (including four of which are not currently SCADA monitored) in 2019; • Five sites in 2020; • Five sites in 2021; and • Four sites in 2022. Forecast unit costs are based on actual costs incurred in delivering similar projects.

Project	Rationale
(c) Step control on district regulators	The duration of the Mains Replacement program also raises network control issues on the remaining LP networks. In order to maintain the reliability of the network and to control leaks on the cast iron mains that remain in service, we plan to establish step control at sites that are expected to be in service for much of the remainder of the P Mains Replacement program. Step control will provide a higher level of control over the LP network, delivering safety and reliability improvements compared to the current arrangements. Over the forthcoming access arrangement period, the planned work involves the installation of step control on five district regulators in each year of the period (a total of 25 district regulators).
2. RTU fringe installation	Installing fringe RTUs is required to ensure that we maintain adequate pressure monitoring capability in areas of the network that are subject to new connection growth. Over the forthcoming access arrangement period we are forecasting capex of $0.1 million to install five additional fringe point RTUs. Forecast costs for this work are also based on historical costs.
3. Kingfisher RTU replacement	The Kingfisher RTUs are no longer in production. We have undertaken continuous refurbishment of these assets over the previous and current access arrangement periods and they are now approaching end-of-life. The manufacturer has advised that because these RTUs are no longer manufactured there is now minimal support in place. We consider that the most prudent approach to managing the risk of undetected failure of our ageing Kingfisher RTU fleet is to implement a proactive replacement program over the forthcoming access arrangement period.
4. TRIO radio replacement and streamlining	The previous E series equipment that was implemented during the current access arrangement period is now outdated and does not provide adequate protection from cyber-security risks. We plan to replace the TRIO radio network with new, more secure technology to ensure the prudent and efficient management of cyber security risks. We plan to separate and streamline the communication pathways which are currently shared by United Energy and Multinet to strengthen security further. This will allow data to be transferred on separate and secure pathways, and will also reduce the number of base stations required for operation.
5. Data logger implementation	Our existing Cello dataloggers are used primarily for winter testing, outage management and pressure investigations. They are approaching their end of life and are also still running on the 2G network. Vodafone has said that they will maintain their 2G network following the closure of 2G services by Telstra. Notwithstanding this, it is not prudent to be exposed to two modes of failure - the first being the age of the asset and the second being the potential closure of the only remaining 2G network. We propose to implement data loggers to address these issues. These dataloggers will provide us with an efficient means of conducting crucial network planning activities such as winter testing and outage management, as well as pressure investigations. Additional benefits include the potential to conduct corrosion protection testing activities remotely, thus reducing safety risks to staff. In some cases, new dataloggers will also function as RTUs for large industrial and commercial sites. Our forecast expenditure is based on price quotations from equipment suppliers.
6. Gas detector installation	We have already installed gas detectors at various locations across our network, however there remain a small number of sites where installation of this key safety monitoring device is prudent. Typically, the devices are placed in regulating stations which are, or have the potential to be, located in public areas or thoroughfares. The installation of gas detectors is necessary to maintain public safety and the integrity of assets and gas services. The forecast is based on historical unit rates.

Project	Rationale
7. Hazardous zone non-compliant installation refurbishments	There are several sites on our network that do not meet the current hazardous zone regulations for electrical equipment located within a gas/air environment (Australian Standard AS 3000). Consequently, when significant modifications are made at these sites, we undertake the necessary work to ensure that the site is compliant with current standards. The refurbishment work we undertake ensures that we maintain a safe environment for the public and our personnel. For the forthcoming access arrangement period, we plan to undertake modification works at 92 substandard installations. Our forecast capex for this work is based on historical unit rates.
8. Vortex flowmeter installation	Flow-metering at sites that have a large throughput of gas allows us to differentiate flows that enter our distribution networks. This enables us to better calibrate our network models to identify the need for future investment or other corrective action. As more accurate data is collected and modelled, it should enable us to deliver more efficient network augmentation capex. We plan to install vortex flowmeters at the Korumburra, Leongatha, and Lilydale city-gates over the forthcoming access arrangement period. Our forecast is based on cost estimates provided by an independent consultant.

7. Expenditure forecasts

Table 8 details our forecast SCADA capex for the forthcoming access arrangement period.

Table 8 – SCADA capex forecast ($M, Real 2017)

SCADA projects	2018	2019	2020	2021	2022	Total
Variable control on HP network	0.0	-	-	-	-	0.0
Control on Eastern MP network	0.3	0.3	0.3	0.3	0.2	1.4
Step control on district regulators	0.3	0.3	0.3	0.3	0.3	1.3
RTU Fringe installation	0.0	0.0	-	0.0	0.0	0.1
Kingfisher RTU replacement	0.2	0.2	0.2	0.2	0.2	1.1
TRIO radio replacement and streamlining	0.6	0.4	-	-	-	0.9
Data Logger implementation	0.2	0.2	0.2	0.2	0.2	1.0
Gas Detector Installations	0.1	0.1	0.1	0.0	0.0	0.2
Hazardous area non-compliant sites	0.2	0.2	0.2	0.2	0.2	0.9
Vortex Flowmeter Installation	0.0	0.0	0.0	-	-	0.1
Total	**1.9**	**1.7**	**1.2**	**1.2**	**1.1**	**7.1**

Our forecast SCADA capex is expected to increase from $2.9 million in the current access arrangement period to $7.1 million in the forthcoming access arrangement period. While this increase is significant, each project is fully justified as explained in this document. Further information on these projects is provided in the SCADA strategy (MG-SP-0002).

8. Meeting Rules requirements

This section explains and justifies our SCADA capex forecast against the new capex criteria set out in Rule 79. For the reasons set out below, our SCADA capex forecast is conforming capex which should be approved by the AER as part of its final decision for our forthcoming access arrangement period.

Rule 79 defines the new capital expenditure criteria as follows:

(1) Conforming capital expenditure is capital expenditure that conforms 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 cost of providing services;

  (b) the capital expenditure must be justifiable on a ground stated in subrule (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 be 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; or

    (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.

The information presented in this overview document and its supporting documents demonstrates that our proposed SCADA capex is consistent with 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 capex is necessary to comply with the following provisions of the National Gas Rules:

- Rule 79(2)(c)(i) – The forecast capex is required to maintain safety, by enabling us to operate the system in a way that mitigates the hazards and risks to the safety of the public, and the risk of property damage associated with gas supply; and
- Rule 79(2)(c)(ii) – The forecast capex is required to maintain the integrity of services by ensuring that we have the SCADA systems we require to operate the gas distribution network reliably, safely and efficiently.

Given the above, the SCADA capex forecast for the forthcoming access arrangement period is consistent with the National Gas Objective, in that it promotes efficient investment in natural gas services that is in the long-term interests of consumers in terms of price, quality, safety, reliability and security of supply of natural gas services.

9. Supporting documentation

The following documents support our SCADA capex forecast for the forthcoming access arrangement period:

- SCADA Strategy (MG-SP-0002);
- Project planning report – Oakleigh;
- Project planning reports - South Melbourne;
- Project planning reports – Korumburra; and
- Project planning reports – Eastern.

Glossary

Abbreviations	
Act	*Gas Safety Act 1997*
AER	Australian Energy Regulator
ESC	Essential Services Commission of Victoria
EPA	Environment Protection Authority
ESV	Energy Safe Victoria
HP	High pressure
OMSA	Operational and Management Services Agreements
LP	Low pressure
MP	Medium pressure
M	Million
NGR	National Gas Rules
RTU	Remote telemetry units
SCADA	Supervisory control and data acquisition

Attachment 1 – Allocation of Asset Costs between Capex Categories

Expenditure Category		Capital Allocations							
		Transmission & Distribution Mains	Services	Cathodic Protection	Meters[2]	Supply Regulators / Valve Stations	SCADA	IT Systems	Other
Mains Replacement	Planned and reactive replacement of distribution mains	Yes: 1. LP to HP replacement 2. MP replacement 3. Early Generation High Density Polyethylene pipe replacement 4. Reactive mains replacement.	Yes: 1. Where of a suitable standard reconnecting service after mains replacement 2. Replacement as part of the mains replacement program 3. Unplanned services renewal (i.e.~$1m pa) – not related to proactive Mains Replacement programs	No	No	Yes, installation of new supply regulators and valves	No	No	No
Customer Connections	Residential and C&I Connections	Yes, installation or extension of mains related to a new connection	Yes, installation of new service	No	Yes, purchase of new meters and installation of meters for new connections (excluding as part of the digital meter trial). (Note – purchases of new meters were previously part of Meters Capex.)	No	No	No	No

[2] For the purposes of capital allocation Meters is inclusive of the consumer service regulator.

Expenditure Category		Capital Allocations							
		Transmission & Distribution Mains	Services	Cathodic Protection	Meters[2]	Supply Regulators / Valve Stations	SCADA	IT Systems	Other
Meters Replacement	Planned and unplanned replacement of existing metering fleet	No	No	No	Yes, purchase of new meters: 1. to replace a failed meter; 2. to seed the time-expired meter program; and 3. for digital meter trial	No	No	No	No
Augmentation	Project to increase the capacity of the network	Yes, demand related mains augmentation	No	No	No	Yes, demand related regulator augmentation	No	No	No
Information Technology	-	No	No	No	No	No	No	Yes, complete IT program	No
SCADA	-	No	No	No	Yes, for vortex flow meter installations associated with supply regulators	No	Yes, complete SCADA program	No	No
Other capex	Supply Regulators – Replacement	No	Fire valve program	No	No	Yes, 1. integrity related supply regulator upgrades 2. Network valve repayment	No	No	No

Expenditure Category		Capital Allocations							
		Transmission & Distribution Mains	Services	Cathodic Protection	Meters[2]	Supply Regulators / Valve Stations	SCADA	IT Systems	Other
	Network Valves	No	No	No	No	Yes, All network valve programs	No	No	No
	Recoverable works	Various, assets created depend on project							
	Corrosion Protection	No	No	Yes, complete CP program	No	No	No	No	No
	Services / Meters	No	No	No	No	No	No	No	No
	Gas Heaters	No	No	No	No	Yes, installation / replacement of heating installations	No	No	No
	Pigging Capex	Yes, Non-piggable pipeline alteration program	No	No	No	No	No	No	No