



---

# **AusNet Gas Services Pty Ltd**

## **Gas Access Arrangement Review 2018–2022**

### **Appendix 6K: Program of Works - Gas Digital Metering**

**Submitted: 16 December 2016**



# Program of Works

## Gas Digital Metering

<b>Document number</b>	N/A
<b>Issue number</b>	1
<b>Status</b>	Approved
<b>Approver</b>	J Dyer
<b>Date of approval</b>	7 Dec. 16

**ISSUE/AMENDMENT STATUS**

Issue No	Date	Description	Author	Approved
1	Nov 2016	Initial draft	J Perri	J Dyer

**Disclaimer**

This document belongs to AusNet Services and may or may not contain all available information on the subject matter this document purports to address. The information contained in this document is subject to review and AusNet Services may amend this document at any time. Amendments will be indicated in the Amendment Table, but AusNet Services does not undertake to keep this document up to date.

To the maximum extent permitted by law, AusNet Services makes no representation or warranty (express or implied) as to the accuracy, reliability, or completeness of the information contained in this document, or its suitability for any intended purpose. AusNet Services (which, for the purposes of this disclaimer, includes all of its related bodies corporate, its officers, employees, contractors, agents and consultants, and those of its related bodies corporate) shall have no liability for any loss or damage (be it direct or indirect, including liability by reason of negligence or negligent misstatement) for any statements, opinions, information or matter (expressed or implied) arising out of, contained in, or derived from, or for any omissions from, the information in this document.

**Contact**

This document is the responsibility of Gas Networks, AusNet Services. Please contact the indicated owner of the document with any inquiries.

E Raffoul

AusNet Services

Level 31, 2 Southbank Boulevard

Melbourne Victoria 3006

Ph: (03) 9695 6000

---

## Gas Digital Metering

---

### Table of Contents

<b>1</b>	<b>Summary</b> .....	<b>4</b>
<b>2</b>	<b>Program Scope</b> .....	<b>4</b>
2.1	Program Expenditure Forecast .....	4
<b>3</b>	<b>Program Alignment</b> .....	<b>5</b>
<b>4</b>	<b>Overview</b> .....	<b>5</b>
4.1	Summary .....	5
4.2	Background .....	5
4.3	Current State .....	6
4.4	Future State .....	6
<b>5</b>	<b>Benefits</b> .....	<b>6</b>
<b>6</b>	<b>Risk Assessment</b> .....	<b>7</b>
<b>7</b>	<b>Options</b> .....	<b>8</b>
7.1	Option 1: Do Nothing .....	8
7.2	Option 2: Carry out a trial of gas digital meters (Recommended Option) .....	8

## Gas Digital Metering

### 1 Summary

PROGRAM	Capital Expenditure – Gas Digital Metering
SERVICE DATE	On-going throughout period 2018 – 2022
LOCATION	Various AusNet Services gas distribution network
VALUE	\$ 3.22M

### 2 Program Scope

This program will analyse options to deploy smart gas metering within the AusNet Services' network and identify potential value in technology trial activities. A trial will involve digitising the meter data collection process, enabling the collection of more accurate and frequent consumption data, and using this information to improve billing, regulatory and internal reporting, network configuration and network planning.

The trial will be carried out in 3 phases as described below.

#### Phase 1 – Analysis

- Business requirements and technical architecture;
- Feasibility study of options and scenarios including:
  - Option 1 – Leveraging existing smart meter communications infrastructure and technology solutions for example meter data management capability and the customer information system;
  - Option 2 – Retrofitting of existing meter fleet to enable pulse output based consumption measurement and remote meter reading of the existing fleet;
  - Option 3 – Gradual replacement of the existing metering fleet with a smart meter alternative. Such units are available on the market offering characteristics over the retro-fit option.

#### Phase 2 – Conduct Trial

- Demonstration of feasibility including proof of concept to validate the proposed technology solution and ensure customer value:
  - Digitising and enabling remote access to approximately 5,000 gas meters;
  - Develop gas consumption modelling capability to improve/enhance network planning capability;
  - Trial and test integration to gas distribution management system (SCADA) and reporting system.

#### Phase 3 – Trial Summary / Conclusion:

- Detailed assessment, planning and development of rollout strategy for the subsequent GAAR period.

#### Out of Scope:

- Changes to existing manual meter reading process and systems outside the trial.

### 2.1 Program Expenditure Forecast

Table 1: Forecast program timing and expenditure

Program Cost	2018 (\$k)	2019 (\$k)	2020 (\$k)	2021 (\$k)	2022 (\$k)	Total (\$k)
Digital Metering	-	-	660	2,164	500	3,324

## Gas Digital Metering

Forecast costs shown in Table 1 are \$2016 real costs. These costs exclude overheads, finance charges and cost escalation.

Allocation of cost can be sought from AMS 30-54 Meter Management Strategy and ICT Strategy

### 3 Program Alignment

The objective of this program is to improve digital capabilities by performing a trial of gas digital meters. The results of this trial will help AusNet Services determine the benefits of this technology for the gas distribution network and enable more informed decisions about whether a broader deployment of this technology would be in the long-term interests of customers.

The alignment of the program to corporate objectives is shown in Table 2.

Table 2: Alignment to objectives

Corporate Strategic Objective	Contribution
Lead network transformation and embrace change	Contributes to improved systems and processes that support innovative technology and business solutions.
Drive efficiency and effectiveness throughout the portfolio	Contributes to improved business efficiency and effectiveness through timely access to the correct information, facilitating improved decision making and planning, and eliminating manual processes.
Generate trust and respect with customers and partners	Reduced billing errors enhancing customer service quality.
We work safety	Contributes to improved gas leak detection capability at a customer site and improved response times for potential gas leaks leading to improved public safety.

### 4 Overview

#### 4.1 Summary

With the potential risk of the metering market shifting exclusively to digital metering, AusNet Services has identified the need to investigate the potential implications and benefits of digital metering. In order to optimise performance and understand the full implications of introducing a digital metering fleet, an investigation is proposed to test the capability of the new metering technology.

#### 4.2 Background

AusNet Services' gas distribution arrangement requires gas meter reads to be captured and provided to retail participants. This is completed manually every two months by meter readers who obtain household readings from AusNet Services' customer meters to ascertain their usage. This information is then used for billing, internal and regulatory reporting, network configuration and network planning purposes.

Current gas Technology systems are used to provide the following business capabilities:

## Gas Digital Metering

- Managing market transactions
- Issue and control of field work
- Monitoring and recording gas deliveries to customer sites
- Emergency response
- Monitoring network condition
- Analysing network capacity
- Recording the configuration and location of assets
- Reporting against compliance and contractual obligations

### 4.3 Current State

AusNet Services has approximately 660,000 basic metered customers in its Victorian network. These customers are visited every two months by a meter reader to obtain a meter read. This involves physically visiting sites to access meters, recording consumption usage in a handheld data collection device, then travelling back to the dispatch site to download information from the handheld device to the desktop data collection system in order to measure gas volume consumption.

Limitations:

- The current gas meter readings arrangement has the following limitations:
- Meter reads will continue to be costly and laborious requiring manual visits every two months.
- No existing capability to detect gas leaks at a customer site.
- Risk of meter reads being missed and/or inaccurate. While AusNet Services meets its obligation to attend and read basic metered sites, in many instances the meter reader is unable to obtain an actual meter read due to inaccessibility of the meter on the site.
- Inability to measure gas volume consumption – This is currently done annually by manual field visit.

### 4.4 Future State

This initiative will analyse options to deploy smart gas metering within the AusNet Services' network and identify potential value in technology trial activities. A trial would involve digitising the meter data collection process, enabling the collection of more accurate and frequent consumption data, and using this information to improve billing, regulatory and internal reporting, network configuration and network planning.

The trial will prepare AusNet Services for the future by building a meter reading infrastructure that would enable implementation of more efficient and advanced data collection technologies.

## 5 Benefits

Benefits expected to be realised from the delivery of this program are detailed below:

### Measurable Benefits: Quantitative Benefit

- Improved meter reading process, eliminating the need for manual visits and estimated reads.
- Accurate and timely consumption data and billing to customers will reduce billing errors, high-bill complaints, and rework involved with processing billing adjustments, improving customer service. The use of optional in-home displays would facilitate real time monitoring of gas consumption, offering the customer the ability to alter their usage patterns and minimise their consumption and hence cost.
- Improved public safety by enabling detection of gas leak incidents.
- Reduction in safety risks associated with manual meter reads including slips, trips and falls, and other environmental risks by eliminating the need to physically enter properties to obtain meter reads.
- Improvement in consumption modelling, network planning and forecasting.

## Gas Digital Metering

- Reduction of unplanned outages.
- Improved information management and reporting capabilities.

### Non Measurable Benefits: Qualitative Benefits

- Assess feasibility of incorporating gas data into future customer energy consumption portals.

## 6 Risk Assessment

	Details of risk	Details of consequence	Consequence rating	Likelihood rating
Current Risk Assessment	Risk 1: No existing capability to detect gas leaks at a customer site.	Not being able to quickly respond to potential gas leaks may result in compromised public safety.	5	C
	Risk 2: Lack of visibility of gas customer's consumption pattern.	Currently gas meters are read manually every 2 months. This data collection method does not support efficient allocation of funding where it is required to maintain the reliability and resilience of the gas distribution network.	3	D
	Risk 3: Health and Safety of Meter Readers.	Risk of meter reader safety will remain as physical visits are required for each site.	4	D
Post Project Risk Assessment	Risk 1: Timely response to gas leak incident.	While gas digital meters can provide near real-time gas leak notifications to SCADA systems, if they are not integrated properly then it may result in a false alarm or missing the event completely.	5	B
	Risk 2: Poor data quality	If data collected from gas digital meters do not have acceptable quality then this would affect decisions and planning activities.	3	B

## **7 Options**

### **7.1 Option 1: Do Nothing**

Option 1 forms the baseline for decision making and describes the risks and impacts associated if AusNet Services continued with current 'business as usual'. This continuation of 'business as usual' will result in impacts to the business if this option is adopted. This option is not recommended as all gas meter reads will continue to be manual and the issues outlined in this document will persist:

- Meter reads will continue to be costly and laborious requiring manual visits every two months.
- Risk of meter reads being missed and/or inaccurate.

### **7.2 Option 2: Carry out a trial of gas digital meters (Recommended Option)**

Option 2 involves carrying out a trial of gas digital meters to improve meter reading efficiency and billing accuracy, reduce estimated reads, billing complaints and adjustments. Feasibility study options include:

Option 1 – Leveraging existing smart meter communications infrastructure and technology solutions, for example meter data management capability and the customer information system.

Almost all AusNet Services' gas meters are on the Powercor Electricity network. This significantly reduces the leverage of any existing AusNet Services' communication infrastructure for a production deployment. All data would need to be conveyed via a 3rd party meter, communication network and back office with all relevant B2B systems to be developed. Data security and privacy issues increase the complexity of such a solution. In order to validate the feasibility of such a solution a limited technology trial, that includes the production deployment environment, would need to be undertaken.

Option 2 – Retrofitting of existing meter fleet to enable pulse output based consumption measurement and remote meter reading of the existing fleet. This can be accomplished via the use of retrofittable pulse outputs for modern meters. Specialist technical solutions would be needed for the retrofit of the older, currently non-pulse compatible units. The pulse signal or alternative reading would then need to be converted to an energy based unit suitable for billing purposes and transmitted to AusNet Services' metering/billing systems.

Option 3 – Gradual replacement of the existing metering fleet with a smart meter alternative. Such units are available on the market offering characteristics over the retro-fit option, namely volume and flow measurement, pressure, temperature data and UAFG impact and remote shutoff capability, used for area wide emergency isolation in the event of bushfires or other safety related events.

NB: The specific technology solutions identified above are subject to revisions based on further analysis performed as part of the project feasibility study and full business case development.