Digital Gas Metering Pilot Study

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Approval and Amendment Record

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1. Executive Summary

This document provides an overview of our proposed Digital Gas Metering Pilot Study, which we plan to undertake over the forthcoming access arrangement period (1 January 2018 to 31 December 2022).

The rollout of smart meters in the electricity sector is delivering significant benefits to customers in Victoria. It is timely to consider whether similar benefits can be achieved in the gas sector and, if so, whether the rollout of digital gas meters is justified from a cost-benefit perspective. For gas customers, the benefits of a mass rollout of digital meters include:

- Eliminating the need for manual reading and estimated bills, which are a significant source of customer queries and dissatisfaction;
- Improved information on gas usage, which will facilitate better consumption and investment decisions;
- Facilitating more efficient retailer change processes, which will encourage retail competition;
- Enabling more efficient and timely move in / move out meter reads, increasing customer satisfaction;
- Enabling innovative pricing (tariff) arrangements, which will encourage more efficient consumption and investment decisions;
- Improving the identification of gas leakage, leading to improved safety and better customer service, and reductions in unaccounted for gas.

We have embarked on an initial trial to determine whether the AMI information and communications technology developed for the electricity distribution network can be leveraged to facilitate the mass rollout of digital gas meters. We are confident that the trial will demonstrate the feasibility of a leveraged solution.

The next step is to conduct a pilot study to provide a reliable assessment of the costs and benefits of a mass rollout of digital meters. In particular, the pilot study will provide the following information, which is crucial to a robust cost benefit analysis:

- The actual costs of the digital gas meter solution, including meter installation effort/costs, licence fees and support costs through the implementation period;
- The functional capabilities of the digital meters and the ability of these functions to service our forward metering and network information, and operational needs;
- The risks, costs or potential efficiencies associated with a mass rollout of digital meters; and
- The likely benefits of the digital gas meter solution.

The key deliverable from the pilot study will be a reliable cost benefit assessment of the mass rollout of digital meters.

As a prudent and efficient network business, we do not support the mass rollout of digital gas meters without first gathering the information from the proposed pilot study. Furthermore, we cannot support a 'do nothing' approach, which would deny gas customers the significant potential benefits from the rollout of digital meters.

Our pilot scheme involves the installation of 10,000 digital meters, which is less than 2 per cent of the meter population. The size and scope of the pilot scheme balances the need to gather accurate information, with the objective of minimising costs to customers. For the reasons set out in this overview paper, we consider that the cost of the proposed pilot scheme is conforming capital expenditure in accordance with National Gas Rule (NGR) 79(2)(a).

2. Introduction and background

The mass rollout of smart meter infrastructure across the Victorian electricity distribution networks is delivering significant on-going cost savings and other benefits to Victorian electricity customers.

The use of such technology in other utility sectors such as gas and water is less advanced, although a number of Australian water utilities are currently proceeding with pilot initiatives and rollouts of remotely read meters[1]. In the United States, it is estimated that at least 2.5 million remotely read smart meters have been installed in gas distribution networks since 2002.

Given the success of the electricity smart meter rollout, and the potential benefits of remotely read digital gas meters, it is both appropriate and timely for us to explore the potential for digital meters to deliver benefits to gas consumers.

Accordingly, in 2016, we commenced an initial trial involving the development, installation and testing of 100 digital meters on the gas network. The trial involves us working with a local Australian standards-compliant gas metering vendor and Silverspring Networks to prototype a mesh integrated remotely read digital gas meter that requires very low battery power.

Based on our assessment of progress to date and conversations with meter providers, we are confident that the trial will demonstrate the successful operation of remotely read digital meters in our network. We therefore plan to extend the trial to a full pilot study involving the installation of 10,000 digital meters on the gas network over a four year period commencing in 2018. The pilot study will enable us to capture information on the costs, benefits, and risks of a mass rollout of digital gas meters.

This overview paper provides information on the objectives, costs and potential benefits of the proposed trial. It explains the rationale for undertaking the trial and it demonstrates that the capital expenditure associated with the trial is conforming capex as defined by the NGR.

The remainder of this paper is structured as follows:

- Section 3 sets out our approach to investigating the benefits of digital metering;
- Section 4 discusses the costs and benefits of a mass rollout of digital meters;
- Section 5 sets out the details of the pilot scheme; and
- Section 6 explains why the proposed pilot scheme is conforming capex in accordance with the NGR.

The views of stakeholders and customers have been taken into account in developing the pilot scheme, as explained in sections 3 and 4.

[1] The Australian Water Association reports that Wide Bay Water Corporation trialled the application of smart metering in Harvey Bay that aimed to provide customer consumption data for the first time at city-wide level. The trial involved replacing 20,000 domestic water meters within their jurisdiction with a smart metering system. The system is designed to improve leak detection and enhance the understanding of customer water use patterns at the household scale. The Wide Bay Water Corporation also anticipates that improved innovation in remote meter reading will enable time of use billing. Further details are available at https://www.awa.asn.au/Documents/Smart%20Water%20Meters.pdf.

3. Our approach to investigating digital gas metering

We are uniquely placed to investigate and demonstrate the operation of digital gas metering by leveraging United Energy's information and communications technology which is already in place following the successful rollout of smart meters in the electricity sector. This is because:

- Approximately 70% of our customers are located in United Energy's geographic area; and
- Together with United Energy, we have established a single shared point of network operational control.

The successful operation of AMI meters in the electricity sector highlights the significant potential benefit of this technology in the gas sector. We are keen to take a lead in the gas industry in investigating the full potential of remotely read gas meters, and to establish the model for the industry. To this end, we have adopted a staged approach to investigate the costs and potential benefits of digital gas metering, as shown in the table below.

Table 1: Our staged approach to investigating digital gas metering technology

Stage	Timing	Objectives and Scope
1. Initial trial	Complete by mid-2017	The objective is to test and verify: • The successful operation of a mesh integrated remotely read digital meter prototype that is powered by a long life battery; and • The feasibility of leveraging the existing information technology and communications infrastructure established through the electricity smart meter rollout. The trial involves the development, installation and operation of 100 digital meters equipped with an AMI network integrated communications unit (NIC). The digital meters are being installed at gas customer sites located within United Energy's service territory. A variety of situations are being targeted to enable testing of the meter's performance under a range of operating conditions. A more detailed outline of the scope and cost of the initial trial is provided in the Appendix.
2. Full pilot study	Five years from 2018	Following the validation of the technology in the initial trial (Stage 1), the objectives of the full pilot study (Stage 2) are to evaluate the costs of the digital gas meter solution; test and assess the functional capabilities of the digital meters; identify any risks, costs or potential efficiencies associated with a network wide rollout; and assess the benefits of the digital gas meter solution. The pilot study involves us: • Procuring and installing 10,000 digital gas meters; • Undertaking the investment in IT and communication technology required to enable full functioning of the meters; • Working in conjunction with retailers, identifying and quantifying the operational and customer benefits arising from the meters; and • Monitoring the actual costs of the pilot study. As noted above, the pilot study would provide detailed information on the functionality, costs and benefits of digital gas meters across a significant number of customer sites, to enable a fully informed decision to be made on whether to proceed to a complete rollout of the technology. The key deliverable of the pilot study is a detailed cost-benefit analysis of a rollout of digital gas meters. A full description of the objective and scope of the pilot study is provided in section 5.
3. Rollout of digital gas meters	Commence in 2023	Subject to the results of a full cost benefit analysis produced at the conclusion of the pilot study, Stage 3 would involve the rollout of remotely read digital gas meters across our network.

4. Costs and benefits of a mass rollout of digital gas meters

4.1. Potential benefits of a mass rollout

Remotely read digital gas meters offer a range of potential benefits, as explained in the table below.

Table 2: Potential benefits of digital gas meters

Benefit	Description
Eliminate manual reading	The elimination of the need for manual meter reading provides operating cost savings and improved billing accuracy. We currently have approximately 695,000 small diaphragm meters installed. These meters are manually read on a bi-monthly route basis.
Eliminate estimated reads	At present, around 5 per cent of bills that we issue are estimated because meter readers are unable to access meters. Remotely read digital gas meters eliminate the need for estimated meter reads to be applied. This provides customers with accurate bills, leading to increased customer satisfaction and reduced customer complaint handling costs.
Greater flexibility for customers	Flexible bill cycle dates can be introduced for customers who wish to manage their cash flow, without compromising the accuracy of billing information.
Better information for customers	Remotely read digital gas meters provide customers with detailed information on their gas usage. In particular customers can access their data via our energy management portal (Energy Easy). This information will support more efficient decisions by customers on their gas consumption, as well as more efficient investment decisions on gas appliances.
More efficient customer / retailer change processes	Digital gas meters support rapid and efficient customer retailer change processes. They also enable timely and efficient move in / move out meter reads. The costs of special reads actioned remotely are negligible compared with those under current arrangements. Reduced costs will provide immediate tangible benefits to customers, and improved timeliness and efficiency of special reads will increase customer satisfaction.
Remote shut-off / turn-on	Remotely read digital gas meters would provide us with the ability to shut-off and turn-on gas to individual premises remotely, delivering an improved process and cost outcome.
More efficient gas pricing (tariffs)	Digital gas meters enable the introduction of cost reflective tariffs to improve network utilisation and market efficiency. This has the potential to lead to lower infrastructure investment needs - and therefore lower costs to customers - over the long term.
Improved safety, reduced leakage and reduced network operations costs	Digital gas meters enable more timely identification of leaks on the customer side of supply. They can also be used to alert customers as soon as any leakage is detected. This provides improved safety and better customer service. Digital gas meters also enable rapid identification of network leakage and other network supply issues (for instance, water ingress), thereby delivering safety and service improvements and reductions in unaccounted for gas. It is anticipated that algorithms for automatic leakage location detection could lead to significant cost savings by pinpointing the leak location (thus avoiding digging up the gas main in multiple locations).
More accurate energy consumption data	Remotely read digital gas meters could be employed to enable the use of: • 'Actual pressure factor' in lieu of the static pressure factor in use within the industry at present; and • 'Actual heating value' as a substitute for generic or zonal heating values within the industry.
Better information for network planning purposes	Installation of digital meters across the full base of customers below a single district regulator would allow for direct mapping of SCADA data (for the regulator) against the customer data. This would provide valuable new information for network planning purposes. In particular, the new data would enable detailed assessment of benefits associated with more cost effective network options, including deferral of capital investment.

The value of some of these benefits such as the elimination of manual meter reading and estimated reads - can be estimated with confidence now. However, the value of many benefits such as automated leak detection, and the use of digital meter data to improve the efficiency of network planning is highly uncertain. The proposed pilot will enable all of the benefits set out above to quantified. As already noted, this will a robust cost benefit analysis of a digital gas meter rollout to be prepared.

4.2. Stakeholders' views

In the course of developing and planning our proposed pilot study, we have engaged with a range of stakeholders. The table below summarises the outcomes.

Table 3: Summary of stakeholders' views

Stakeholder	Stakeholders' views
A Gas Access Arrangement Review (GAAR) Reference Group	Our GAAR Reference Group supported the pilot study particularly top determine the tariff benefits that will arise from the study.
Retailers	In planning the pilot study, we have worked closely with two host retailers (Red Energy and AGL) who are very active in our gas distribution area. There was general support for the trial from retailers at the 22 November retailer workshop. In particular, the retailers supported leveraging the existing United Energy infrastructure to undertake the trail.
Residential and Business Focus Groups	General support for a controlled pilot program, particularly one that focusses on replacing faulty meters and new connections, provided that it avoids the costly problems associated with the electricity AMI rollout.

The engagement we have conducted indicates broad support for our proposed digital gas metering pilot study.

4.3. Costs

The costs of a digital gas meter rollout are comprised of two main elements, being:

- Meter purchases and other project costs excluding IT; and
- IT capital expenditure.

Based on the results of the initial trial to date, the cost of a digital gas meter fitted with a communications card is currently around $260 compared with the costs of conventional diaphragm meters of $122 (for a <10m^3 unit). While there is a significant difference between the costs of digital and conventional meters at present, we expect that the cost of purchasing digital meters will fall as volumes increase.

At this time, there is considerable uncertainty regarding the unit cost of digital gas meters purchased in volumes consistent with a mass rollout in Victoria. Moreover, increasing penetration of digital gas metering globally would also be expected to place downward pressure on meter prices.

The proposed pilot involves the purchase and installation of meters over a four year period commencing in 2018. The volume and timing of meter purchases over the course of the pilot study will provide important information about the likely meter unit prices that would be available if a full rollout were to proceed from 2023. Meter technology is not expected to affect meter installation costs.

The completion of the pilot study will provide information on the actual cost of IT investment required to enable the benefits of digital gas meters to be fully realised. This information will be a key input to the cost benefit analysis of a mass rollout of digital gas meters.

4.4. Concluding comments

The potential benefits of a mass rollout of digital meters are very large, as are the costs. As a consequence, the net benefit is likely to be sensitive to different cost and benefit outcomes. Furthermore, given the uncertainty regarding the costs and benefits (and the range of possible outcomes), it would be inappropriate to proceed with a mass rollout of digital meters without first undertaking a robust pilot scheme to inform a thorough cost benefit analysis.

Furthermore, given the progress in technology and the possibility of leveraging off the existing United Energy AMI systems, it would not be appropriate to adopt a 'do nothing' approach. While there is considerable uncertainty regarding the actual costs and benefits, there is reason to believe that a mass rollout of digital gas meters would promote the long-term interests of gas consumers, consistent with the National Gas Objective.

On this basis, we propose to undertake the pilot study described in section 5 below, to enable a robust evaluation of the costs, benefits and risks of a mass rollout of digital gas meters.

5. Details of proposed pilot study

5.1. Objectives and rationale

The objectives of the pilot study are to:

- Capture the actual costs of the digital gas meter solution, including the meter installation process and costs; licence fees; and support costs through the implementation period;
- Assess the functional capabilities of the digital meters and the ability of these functions to service our forward metering and network information, and operational needs;
- Identify any risks, costs or potential efficiencies associated with a network-wide rollout; and
- Assess the benefits of the digital gas meter solution, and determine whether a network-wide rollout is justified from a cost-benefit perspective.

The pilot study involves the installation of 10,000 digital gas meters across our gas network. We consider that this number of meters represents the minimum study size needed to gather sufficient information to enable a robust evaluation all costs, benefits and risks of a mass rollout. It is noted that 10,000 meters is less than 2 per cent of the meter population. Despite this small size, we consider that it will provide sufficient evidence to assess the net benefits of a mass rollout with reasonable accuracy.

We also note that the four year duration of the pilot study provides time for the exploration and development of additional meter functionality that may provide additional network operational benefits (for instance, real time temperature and pressure monitoring). This approach recognises the experience from the AMI meter rollout in electricity, which shows that meter functionality continued to evolve and be developed well after the rollout had commenced. The planned duration of the pilot scheme will therefore provide more certainty in relation to the benefit assessment. Further information may also become available regarding meter purchase costs.

5.2. Scope of work and expenditure forecasts

5.2.1. Project costs excluding IT

The table below provides an overview of the scope of work and estimated cost of the digital meter pilot excluding IT costs, which are addressed separately in section 5.2.2.

Table 4: Scope and cost of digital metering pilot - excluding IT ($ real, 2017)

Function	Trial Services	Units	Unit Price	Project Cost ($000)	Comments
Meter & Installation	Digital Gas Meter (EDMI or Secure Australasia) & Mill-NIC	10,000	$276	$2,756	Including cost of meter vendor doing NIC insertion into the meter. NIC is SSN Supply – available as a schedule to the existing NMS License Agreement.
	Installation – Replacement of existing meters	8,000	$33	$263	
	Installation – New Metes	2,000	$114	$229	
Communications	UtilityIQ license fee per meter - Trial license for gas meters	10,000	$21	$212	Proposed as a SoW behind the existing UE SSN NMS License Agreement.
	SSN Trial Support Services	NA	NA	$64	Support for first Australian digital gas meter and milli-NIC deployment. Proposed as T&M Services (available under existing Ts & Cs of the NMS License).
Customer Service	Incremental 3.0 x FT resources for coordination and enquiry support	NA	NA	$398	Allow 8 months x 1; 6 months x 1; 4 months x 1; then BAU
Analysis	Gas Graduate Engineer	NA	N/A	$64	Undertake all analysis for the project to support business case benefits and costs evaluation
Total cost excluding IT				**3,985**	

To minimise the cost of the pilot study, we propose to install digital meters in parallel with the Time Expired meter replacement program and new customer connections. Meter installation will take place over the four year period commencing in 2018 at a rate of 3,000 installs each year from 2018 to 2020, and 1,000 installs in 2021.

The incremental cost of the pilot study is calculated by taking into account the avoided cost of purchasing 10,000 conventional meters and by utilising existing programs (Time expired meter replacement & new customer connections) eliminating field installation costs. The table below shows the calculation of the ongoing BAU activities used to offset the cost of the pilot study.

Table 5: Incremental cost of digital meter purchases ($'000s real, 2017)

Function	BAU Activity	Units	Unit Price	Project Cost ($000)	Comments
Meter & Installation	Meter Purchase (<10m^3 unit)	10,000	$129	$1,293	Including cost of meter vendor doing NIC insertion into the meter. NIC is SSN Supply – available as a schedule to the existing NMS License Agreement.
	Installation – Replacement of existing meters	8,000	$33	$263	Meters to be installed as part of annual Time Expired Replacement Program.
	Installation – New Metes	2,000	$114	$229	Meters to be installed at new connections.
Total Offset cost				**$1,785**	

The table below provides the estimated cost of the digital meter pilot (excluding IT costs) discounting for BAU activities.

Table 6: Scope and cost of digital metering pilot costs excluding IT ($ real, 2017)

Function	Trial Services	Units	Unit Price	Project Cost ($000)	Comments
Meter & Installation	Digital Gas Meter (EDMI or Secure Australasia) & Mill-NIC	10,000	146[2]	$1,463	Including cost of meter vendor doing NIC insertion into the meter. NIC is SSN Supply – available as a schedule to the existing NMS License Agreement.
	Installation – Replacement of existing meters	8,000	NA	$0	Meters to be installed as part of annual Time Expired Replacement Program.
	Installation – New Metes	2,000	NA	$0	Meters to be installed at new connections.
Communications	UtilityIQ license fee per meter - Trial license for gas meters	10,000	21	$212	Proposed as a SoW behind the existing UE SSN NMS License Agreement.
	SSN Trial Support Services	NA	NA	$64	Support for first Australian digital gas meter and milli-NIC deployment. Proposed as T&M Services (available under existing Ts & Cs of the NMS License).
Customer Service	Incremental 3.0 x FT resources for coordination and enquiry support	NA	NA	$398	Allow 8 months x 1; 6 months x 1; 4 months x 1; then BAU
Analysis	Gas Graduate Engineer	NA	N/A	$64	Undertake all analysis for the project to support business case benefits and costs evaluation
Total cost excluding IT				**2,200**	

5.2.2. IT system costs

Operating a 10,000 meter pilot of remotely-read digital meters requires IT systems capability in the areas of:

- Meter and communications network management;
- Meter data management;
- Customer configuration management; and
- Analytics and reporting.

All credible options to meet the IT requirements for the digital meter pilot study have been assessed. The options are outlined in the table below.

[2] Cost difference between a digital meter ($276) and the average cost of a standard <10m^3 meter ($129).

Table 7: Assessment of options for meeting IT system requirements

Option	Assessment
1. Use manual processes	This option was rejected because it would not enable the pilot to achieve its objective of enabling us to gather the information needed to prepare a comprehensive cost benefit analysis of a mass rollout of gas digital meters.
2. Implement separate stand-alone systems	This option was not selected because of the relatively high cost and risk of implementing new IT systems.
3. Utilise United Energy's existing IT AMI systems	This is the preferred option because it delivers the required IT capability at the lowest sustainable cost, by making maximum use of existing systems. It also minimises the risk associated with providing the required IT capability.

For the pilot study, we will enter into an arrangement with United Energy to utilise the existing IT applications already in operation within United Energy for its Advanced Metering Infrastructure (AMI) deployment. While some modifications to these systems will be necessary, the use of the United Energy systems will allow the pilot to be carried out with reduced IT cost and risk.

A limited number of modifications will be made to the systems to:

- Add a new meter type in the customer management system (SAP ISU);
- Ensure that the trial of digital meters does not impact the transactions sent to retailers and/or the market operator;
- Allow interception of service order requests for reconnections and disconnections so that they can be manually processed via the meter and network management system;
- Allow interception of special read requests so that they can be processed manually; and
- Extract, transform and load meter reading and event information.

The total capital cost of undertaking these modifications is $0.594 million[3]. No additional hardware or software will be required for the project. The IT costs are labour costs, which will be incurred in 2018 to cover:

- Project management (including project management office and security);
- Technical subject matter experts/analysts;
- Business subject matter experts;
- Change analysts;
- Solution lead;
- Solution analyst / developer;
- Integration developer; and

[3] Our cost estimates assume the following:

- Existing IT systems will be used with only minimal change and reconfiguration;
- No new IT systems will be introduced; and
- Analytics and reporting will use the existing Information Hub system and will be supported by the 'Information.Next' team within IT.

- Testers.

5.2.3. Total incremental cost

The table below shows the calculation of the total incremental cost of the digital meter pilot over the period from 2018 to 2022 inclusive.

Table 8: Total incremental cost of digital meter pilot ($M real, 2017)

Element	Cost
Incremental cost of digital meter purchases for pilot	1.46
Installation	-
Communications	0.28
Customer service	0.40
Analysis	0.06
IT modifications	**2.79**
Total incremental cost	1.46

5.3. Deliverables

The key deliverable from the pilot study will be a comprehensive cost benefit analysis of a mass rollout of gas digital meters. The analysis will include sensitivity analysis to show the range of net benefits that may eventuate depending on different cost and benefit assumptions.

The cost benefit analysis will be completed by December 2021. This will enable a decision to be made on whether to proceed with a mass rollout at the time of our next access arrangement review.

6. Meeting Rules requirements

This section justifies our proposed capex for the digital gas material pilot study against the new capital expenditure criteria set out in Rule 79. It demonstrates that our proposed capex is conforming capex, which should be approved by the AER as part of its final decision for our forthcoming access arrangement period.

6.1. The new capital expenditure criteria

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.

6.2. How the forecast meets the new capital expenditure criteria

The information presented in this overview document and its supporting documents demonstrates that the pilot scheme satisfies the conforming capital expenditure criteria. In particular, the mass rollout of digital meters will only proceed if Rule 79(2)(a) is satisfied, namely the overall economic value of the expenditure is positive.

As explained in this overview document, the pilot scheme will provide a reliable cost benefit assessment of the mass rollout of digital meters. The economic value of the pilot scheme is therefore derived from the value of reliable cost benefit assessment of the larger project. In particular, the pilot scheme avoids two potentially costly outcomes for customers:

1. A decision not to proceed with the mass rollout, even though it would deliver a net benefit to customers; or

2. A decision to proceed with the mass rollout, even though it would deliver a net cost to customers.

The size of the pilot scheme – being less than 2 per cent of the meter population – provides confidence that:

- It will yield the necessary information to undertake a reliable cost benefit analysis of the mass rollout; and

- The costs of the pilot scheme are likely to be small compared to the loss of value arising from the adverse outcomes set out in (1) and (2) above.

For these reasons, the proposed pilot scheme is conforming capital expenditure in accordance with Rule 79(2)(a).

Appendix: Scope and cost of initial trial of 100 digital meters

For the initial trial, an ultrasonic gas meter has been developed and certified by EDMI against the international standard R137-142:2012 (OIML). The model is the Helios G6000, which has several features which benefit both the network and the end use customer including:

- Ability to utilise remote communications via United Energy's AMI platform
- Remote shutoff
- Remote reads for retailer transfer.

The table below provides an outline of the scope of work and cost of the initial digital meter trial.

Table 9: Scope of work and cost of 100 digital meter trial

Function	Trial Services	Unit Price	Project Cost ($000)	Status / Notation
Meter & Installation	Digital Gas Meter (EDMI or Secure Australasia)	400.0	40.0	Including cost of meter vendor doing NIC insertion into the meter ($15)
	Mill-NIC	50.0	5.0	SSN Supply – available as a schedule to the existing NMS License Agreement.
	Installation – Replacement	31.0	-	Standard BAU replacement cost. These meters will simply substitute for standard replacement activity
	Installation – New Connection	108.0	-	Standard BAU new installation cost. These meters will simply substitute for standard new connection activity (~ 500 units per month)
Communications	UtilityIQ license fee per meter - Trial license for gas meters	20	2	Proposed as a SoW behind the existing UE SSN NMS License Agreement.
	SSN Trial Support Services	NA	30	Support for first Australian digital gas meter and milli-NIC deployment. Proposed as T&M Services (available under existing Ts & Cs of the NMS License).
Systems	Accenture Configuration of MG SAP, UIQ Interface and BI	Quote	120	As per Accenture Estimate. Constrained for essential changes in pilot- including 20% IT loading.
PMO	Project Manager (PT 2 days pw)	2,000	32	Allow 2 months; then hand-over to BAU.
Customer Service	Absorb into C&MO			
Analysis	Assign to Gas Graduate Engineer	NA		
Contingency	Base Cost ~ $	10%	23	Project contingency allowance.
Total Cost			**250**	