ACS Metering capex

Regulatory Business Case (RBC) 2024-29

PowerWater

Contents

1. Summary

This business case has been prepared to support the 2024-29 Regulatory Proposal. The business case demonstrates that Power and Water has undertaken appropriate analysis of the need and identified a full suite of credible options that will resolve the need, to ensure that Power and Water continues to meet the National Electricity Objectives and manage the network prudently and efficiently.

The project/program identified in this business case will undergo further assessment and scrutiny through Power and Water's normal governance processes prior to implementation.

This business case addresses ACS Metering Capital Expenditure for the 2024-29 Regulatory Period.

1.1 Business need

Power and Water Corporation (PWC) has an ongoing need to install and replace electricity meters to ensure ongoing compliance with Chapter 7A of the Northern Territory National Electricity Rules (NT NER) and the conditions of its distribution licence during the 2024-29 regulatory period. During this period PWC has planned to replace around half its remaining aged mechanical meter fleet, as well as provide new connections and replace failed meters. PWC's policy in line with our Metering Asset Management Strategy (Control 00738) is to use smart meters with communications enabled for all new and replacement meters.

1.2 Options analysis

The options considered to resolve this need are shown in Table 1.

Table 1 Summary of credible options

Option No.	Option Name	Description	Recommended Option
1	Only replace meters on failure	Replace old meters only on failure, and install smart meters for new connections	No
2	Progressive implementation	Planned program of aged meter replacements over 3 regulatory periods and install smart meters for new connections	Yes
3	Accelerated implementation	Accelerated program of meter replacements more rapidly replacing all mechanical meters by June 2029 and installing smart meters for new connections	No

1.3 Recommendation

The recommended option is Option 2 – Planned program of aged meter replacements over three regulatory periods at an estimated cost of $41.5 million (real 2023/24) for the 2024-29 period.

Table 2 shows a summary of the expenditure requirements for the next Regulatory Control Period (RCP). The detailed financial analysis is available in the accompanying Financial Model.

Table 2 Annual proposed capital expenditure ($m, real FY24)

Item	FY25	FY26	FY27	FY28	FY29	Total
Meter purchase and installation	2.4	2.4	3.8	3.8	3.8	16.2
Meter projects (Asbestos, disposal)	0.8	0.7	1.3	1.3	1.3	5.4
Communications purchase and installation	0.2	0.2	0.3	0.3	0.3	1.3
Dedicated CTs and VTs	0.1	0.1	0.1	0.1	0.1	0.3
Total ACS Metering Direct Capex	**3.5**	**3.4**	**5.4**	**5.4**	**5.4**	**23.2**
Overheads	1.4	1.3	2.2	2.2	2.1	9.1
Non network capex	0.9	1.1	1.2	2.7	3.6	9.5
Total ACS Metering Capex	**5.7**	**5.8**	**8.7**	**10.2**	**11.1**	**41.5**

2. Identified need

2.1 Investment drivers

2.1.1 Compliance and statutory requirements

PWC has an ongoing need to install and replace electricity meters to ensure compliance with Chapter 7A of the NT NER and conditions of its distribution licence during the 2024-29 regulatory period.

Chapter 7A of the NT NER requires meters to continually meet the accuracy requirements of schedule 7.4. The meters to be replaced have been identified as no longer meeting these requirements and are scheduled for replacement with new smart meters.

2.1.2 Installation of meters at new premises and connections

PWC is required to make an offer to connect consumers and each connection point must be metered so that energy flows can be determined and charged for.

2.1.3 Replacement of meters for failures and faults

Meters that fail in service or no longer meet the accuracy requirements of the NT NER require replacement within the timeframes prescribed in Chapter 7A 6.9. Meters are replaced with a smart meter as per the Metering Asset Management Plan.

2.1.4 Replacement of aged meter families

Mechanical electricity meters have an economic life of 22 years, a life commonly applied in regulatory determinations by the AER, and a reliable in-service life of around 30 years in the Northern Territory's operating environment. PWC's Metering Asset Management Plan and submission to the AER identified populations of meters that have been installed for more than 35 years and therefore require replacement, in particular as:

- PWC is experiencing high levels of meter investigations for low/high bills being generated by customers and retailers.
- PWC is increasingly replacing meters due to failure in service (both mechanical meter failures and electronic meter failures – many electronic meters are suffering from failures of the LCD display before the end of their predicted 15 year life).
- Replacement of large families of meters need to be planned over more than one regulatory period to ensure resources are available and price impacts on customers are smoothed.

3. Options analysis

This section describes the various options that were analysed to address the increasing risk and identify the recommended option. The options are analysed based on ability to address the identified needs, prudency and efficiency, commercial and technical feasibility, deliverability, benefits and an optimal balance between long term asset risk and short-term asset performance.

3.1 Comparison of credible options

Credible options are identified that address the identified need, are technically feasible and can be implemented within the required timeframe. The following options have been identified:

- Option 1: Only replace meters on failure.
- Option 2: Progressive implementation. This is the preferred option.
- Option 3: Accelerated implementation.

A comparison of the three identified credible options and the issues they address in the identified need is depicted in the table below. A detailed discussion of each option is provided below.

Table 3: Summary of options analysis

Assessment metrics	Option 1	Option 2	Option 3
NPV ($m, real 2022)	Not available	Not available	Not available
Capex ($m, real 2022)	Lower	$41.5M	Higher
Opex ($m, real 2022)	0.00	0.00	0.00
Meets customer expectations	○	●	◑
Aligns with Asset Objectives	○	●	●
Technical Viability	●	●	●
Deliverability	●	●	◕
Preferred	×	✓	×

● Fully addresses the issue ◕ Adequately addresses the issue ◑ Partially addresses the issue ○ Does not address the issue

The sections below discuss each of the three options considered with respect to the speed of implementing PWC's policy of installing smart meters when replacing old or faulty meters over the 2024-29 period.

3.2 Option 1: Only replace meters on failure

This option involves replacing existing meters only on failure, and installing smart meters for new connections.

The advantages of this option include minimising costs to customers, and a manageable resourcing requirement for PWC.

The disadvantages of this option include delays in unlocking the benefits of smart meters for customers (such as improving the ability of the network to cope with increasing levels of renewables, removing the need for access to customer premises to do manual meter reads, improved accuracy of meter reads, and tariff reform) as well as having to manage ongoing compliance and safety issues.

3.3 Option 2: Progressive implementation

This option involves a planned program of aged meter replacements over three regulatory periods, replacing meters which are beyond their economic life, and installing smart meters for new connections.

The advantages of this option include the gradual unlocking of smart meter benefits for customers and progressive resolution of safety and compliance issues, while still being manageable in terms of resourcing.

The disadvantage of this option is the higher price impacts for customers.

3.4 Option 3: Accelerated implementation

This option involves an accelerated program of meter replacements more rapidly replacing all mechanical meters by June 2029, and installing smart meters for new connections.

The advantage of this option is that it provides the most rapid realisation of smart meter benefits and resolution of safety and compliance issues.

The disadvantages of this option include significantly higher price impacts for customers, a high likelihood that the program would be unable to be delivered because of resourcing constraints, and creation of a similar ‘bow wave’ problem in the future when mass replacement would again need to occur at end of life for the smart meters.

4. Recommendation

The recommended option is Option 2 as it is the most balanced and sustainable option in terms of delivery and cost to customers. The estimated cost is $23.2 million direct (real 2023/24) for the next RCP.

The proposed program is consistent with the National Electricity Objective as the expenditure is required to maintain PWC's metering assets in accordance with the requirements of Ch7A.

Other optimisation and efficiency considerations include:

- The metering procurement process has identified savings when compared to current costs for the purchase of meters and metering installation. Competitive tender processes have been conducted for both and a panel of metering service providers has now been established to deliver the increased installation rates.
- Works programming and scheduling will allow efficient use of internal and contract resources throughout the Territory.
- Reduced manual reading costs are expected to be achieved through the smart meters being remotely read.
- Increased remote communications coverage using CAT M network will enable reliable communications in more locations without the need to install additional antennae.
- Increase DER hosting capacity in the LV network will be delivered by enabling PWC to implement dynamic operating envelopes.

4.1 Strategic alignment

The "Power and Water Corporation Strategic Direction" is to meet the changing needs of the business and our customers, and is aligned with the market and future economic conditions of the Northern Territory projected out to 2030.

This proposal aligns with Asset Management System Policies, Strategies and Plans and contributes to the D2021/260606 "Power and Water Strategic Direction" as indicated in the table below.

Table 4 Alignment with corporate strategic focus areas

No.	Strategic Direction Focus Area	Strategic Direction Priority
1	Living within our means	Cost Prudency
2	Customer and the community at the centre	Enhance Customer Experience and Engagement
3	Sustainable solutions for the future	Renewables Enablement

4.2 Dependencies

Smart meters are critical to enable:

- The NT Government's 50 per cent renewable by 2030 target.
- Tariff reform.
- Improved network utilisation.
- Reduced meter reading costs.

4.3 Deliverability

4.3.1 Strengths

PWC has trained metering staff who understand what is required and this will allow us to train staff in other areas and manage contractor performance to ensure the work program can be delivered to time, cost and quality outcomes.

PWC systems MV90, Maximo and RMS are able to manage the required volumes of metering work and processing of the remotely read metering interval data.

New meter to cash system coming on line in 2023 will improve efficiency.

Metering equipment vendors can supply the required volumes of equipment.

4.3.2 Weaknesses

Existing systems currently require manual processes that are not efficient.

PWC does not have sufficient internal resourcing as trained staff will be required to complete BAU and customer driven metering work in conjunction with the program.

4.3.3 Opportunities

Upskill Power Services staff in regional areas in metering work.

Increase utilisation of Power Services staff in regional areas.

4.3.4 Threats

NT Government deciding that PWC is not responsible for metering beyond June 2024.

Electricity retailers pushing NT Government to introduce metering contestability.

Pandemic issues affecting staff and contractor availability.

Competing priorities within Power Services.

4.4 Customer considerations

As required by the AER's Better Resets Handbook, in developing this program Power Services has taken into consideration feedback from its customers. Feedback was very positive around the continued deployment of smart meters for all customers.

Our various customer engagement processes have revealed that:

- Manual meter reading is a growing source of annoyance and aggravation.
- Customers prefer smart meters provided that the costs of doing so are reasonable, recognising benefits such as eliminating the need for manual meter reads and supporting new technology such as solar, batteries and in-home automation.

4.5 Expenditure profile

The table below shows a summary of the annual expenditure requirements during the next RCP.

Table 5 Annual capital and operational expenditure ($m, real FY24)

Item	FY25	FY26	FY27	FY28	FY29	Total
Meter purchase and installation	2.4	2.4	3.8	3.8	3.8	16.2
Meter projects (Asbestos, disposal)	0.8	0.7	1.3	1.3	1.3	5.4
Communications purchase and installation	0.2	0.2	0.3	0.3	0.3	1.3
Dedicated CTs and VTs	0.1	0.1	0.1	0.1	0.1	0.3
Total ACS Metering Direct Capex	**3.5**	**3.4**	**5.4**	**5.4**	**5.4**	**23.2**
Overheads	1.4	1.3	2.2	2.2	2.1	9.1
Non network capex	0.9	1.1	1.2	2.7	3.6	9.5
Total ACS Metering Capex	**5.7**	**5.8**	**8.7**	**10.2**	**11.1**	**41.5**

The table below shows the annual expenditure requirements during the next RCP by capex category.

Table 6 Annual capital and operational expenditure by category ($m, real FY24)

Driver	2024-25	2025-26	2026-27	2027-28	2028-29	Total
Replacement	4.4	4.2	7.1	7.1	7.0	29.7
Connections	0.5	0.5	0.5	0.5	0.5	2.6
Non network	0.9	1.1	1.1	2.6	3.6	9.2
Total	5.7	5.8	8.7	10.2	11.1	41.5

4.6 High-level scope

The scope of this program is a continuation of the existing metering replacement program within PWC.

4.6.1 Assumptions

- The work is proposed on the assumption that PWC continues to retain responsibility for being the Meter Provider in the NT. If this should change, the need for the work would be reconsidered.
- Meter to Cash project – completion of this project reduces manual work required to process meter reads.

4.6.2 Replacement of aged meter families

- Metering in the Northern Territory regulated network needs to comply with Chapter 7A of the NT NER which requires meters to continually meet the accuracy requirements of Schedule 7.4. The meters to be replaced have been identified as no longer meeting these requirements and are scheduled for replacement with new smart meters
- Replacing around 24,600 old meters which are beyond their economic life, are faulty or fail, this includes meters driven by solar installations, where the customer does not already have a smart meter.

- Installing 562 smart meters per year to meet customer connections growth as forecast.
- Remediating 4,400 asbestos meter panels on customer premises where it is unsafe to replace the meter on the existing panel.
- Storage and environmentally appropriate disposal of removed meters.

4.6.3 Field Resourcing

- The Power Services metering team will focus on the more technically challenging aspects of the program whilst also completing the Chapter 7A compliance work program. (Meter testing, Inspections, CT and VT testing etc.)
- Other Power Services staff will be engaged to replace meters depending on availability. (Darwin, Alice Springs, Katherine and Tennant Creek.)
- The panel of contractors has been established to provide a mixed level of skills and experience and the work will be distributed to match their availability and skill levels.
- Consultation has taken place with the Electrical Trades Union who have noted the requirement to engage contractors to meet this peak in the metering workload.

4.6.4 Back office resourcing

- Processing a meter movement advice (MMA) for a meter replacement takes approximately 10-15 minutes per MMA.

4.6.5 Planning and scheduling resources

- Work planning will be done in focused geographic areas on a street by street, suburb by suburb approach to maximise efficiency, starting in the major centres and working out.
- Contractors from the Panel will be issued work in geographical batches and will be required to plan and manage their work including customer notifications.
- Power Services metering staff will focus on oldest least reliable meters first, and work with the panel to develop a process for asbestos panel management.
- Maximo task work orders will be used to create the individual jobs and manage the work programs. The task works orders will be linked to the appropriate Capex work order. The task work orders can be batch created and updated to minimise the manual work required.

4.6.6 Supply of metering equipment

- The metering procurement showed the best value option for replacement meters is to use a mix from existing suppliers Secure and EDMI balanced by price and availability.

4.6.7 Meter reading

- New and existing Secure meters will continue to be read by the “SFE” headend system with the interval data fed through MV90 on to RMS for billing.
- For EDMI meters PWC will implement the “storm” headend system for the management and reading of meters.
- Existing EDMI meters will continue to be remotely read using MV90.

- When a new EDMI meter is installed or an existing EDMI meter has a modem installed or replaced, it will be set up and managed in storm but continue to be read in MV90 with the interval data fed through MV90 on to RMS for billing.
- Engineering data is collected daily by the head end systems and is available to Power Services as required.

4.6.8 Project reporting physicals

- Tracking of work progress will be managed through Maximo with monthly reports run by the project manager.

4.6.9 Project reporting financials

- Tracking of expenditure will be performed monthly with a review of expenditure for internal and external labour, meters and modems.

4.6.10 Technical Requirements

- All meters are required to have a current Certificate of Pattern Approval issued by the National Measurement Institute of Australia. (Critical)
- All meters are to have been verified by an authority that has current accreditation from the National Measurement Institute of Australia as a verification authority for electricity meters. (Critical)
- Individual meters shall bear the verification authority's official verification mark and, electronic copies of the initial verification test certificates for individual meters (referenced by PWC property number) are to be supplied at the time of delivery. (Critical)
- All modems must comply with the meter manufacturer's requirements for connectivity and operate on either the 4G, LTE, CATM or NBIoT public carrier networks and comply with all relevant Australian Communications and Media Authority (ACMA) requirements. (Critical)
- This program is being delivered to ensure PWC can meet its obligations as Metering Coordinator, Metering Provider and Metering Data Provider under chapter 7A of the NT NER.

Appendix A. Risk register summary

Risk Description	Mitigation	Current Risk Rating			Treatment Plans	Post Project Delivery Target Risk Rating		
		Likelihood	Consequence	Rating		Likelihood	Consequence	Rating
Potential of insufficient meters for the planned work volumes	Early orders to be placed to allow for global component shortages and logistics delays.	Unlikely	Moderate	Medium	Order additional equipment early to ensure a reliable supply.	Unlikely	Minor	Low
Insufficient installation or back office resources	Provide early notice to panel of suppliers for resources to meet the program needs. Plan developed with 4 additional contractors now approved to support internal back office workforce.	Likely	Major	High	Provide consistent flow of work and materials to suppliers to enable them to operate efficiently. Reassess back office resourcing needs when Meter to Cash project is completed.	Possible	Major	High
Customer pushback regarding access to their premises	Communicate with customers about the work we are doing and ensure a positive experience.	Likely	Major	High	Continually review and update our customer communications strategy based of staff, contractor and customer feedback.	Possible	Major	High
Higher than planned rate of asbestos meter panels	Ensure panel of suppliers has capability to manage the asbestos volumes.	Possible	Moderate	Medium	Reschedule local works programs to avoid bottlenecks caused by asbestos.	Possible	Major	Medium
NTG decision that PWC is not responsible for metering beyond 2024	Request clarification and certainty from NTG and AER through Regulatory team.	Rare	Severe	Medium	Reshape program to provide best value for PWC in the changed regulatory environment.	Rare	Severe	Medium

Risk Description	Mitigation	Current Risk Rating			Treatment Plans	Post Project Delivery Target Risk Rating		
		Likelihood	Consequence	Rating		Likelihood	Consequence	Rating
AER does not approve capital program	Re-sculpt program to fit approved expenditure.	Likely	Moderate	Medium	Support the case for expenditure, including responding to any AER requests for additional explanation.	Possible	Moderate	Medium

Appendix B. Key Stakeholders

Key Stakeholder	Represented by	Interest	Consulted? (Y/N)
Customers	Customer panel	Safe smooth interaction with PWC. Improved billing accuracy, reduced estimated reads, accommodating additional PV on the network.	Y
Retailers	Jacana / Rimfire	Improved billing accuracy, reduced estimated reads, reduced costs.	Y
Electrical Trades Union	Darwin Representative	Ensuring PWC has sufficient staff to do all of the required metering work.	Y
AER	AER staff and CCP	Seeing PWC is able to demonstrate the ability to deliver on our commitments, justification of costs that will be imposed on consumers.	Y
PWC Corporate Comms	SM Corporate Affairs	Customer notifications and comms/knowledge of program and replacement meter processes etc.	Y
PWC Customer Experience & Operations (CXO)	SM Customer Experience and Operations	The contact center will field enquiries from the public about new meters / accessibility issues to replace etc.	Y
PWC Safety	SM Health Safety and Environment	Completing the work associated with the meter program safely.	Y

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