AusNet

Electricity Distribution Price Review FY2027 to FY2031 (EDPR 2027-31)

Business case: Smart meter replacement

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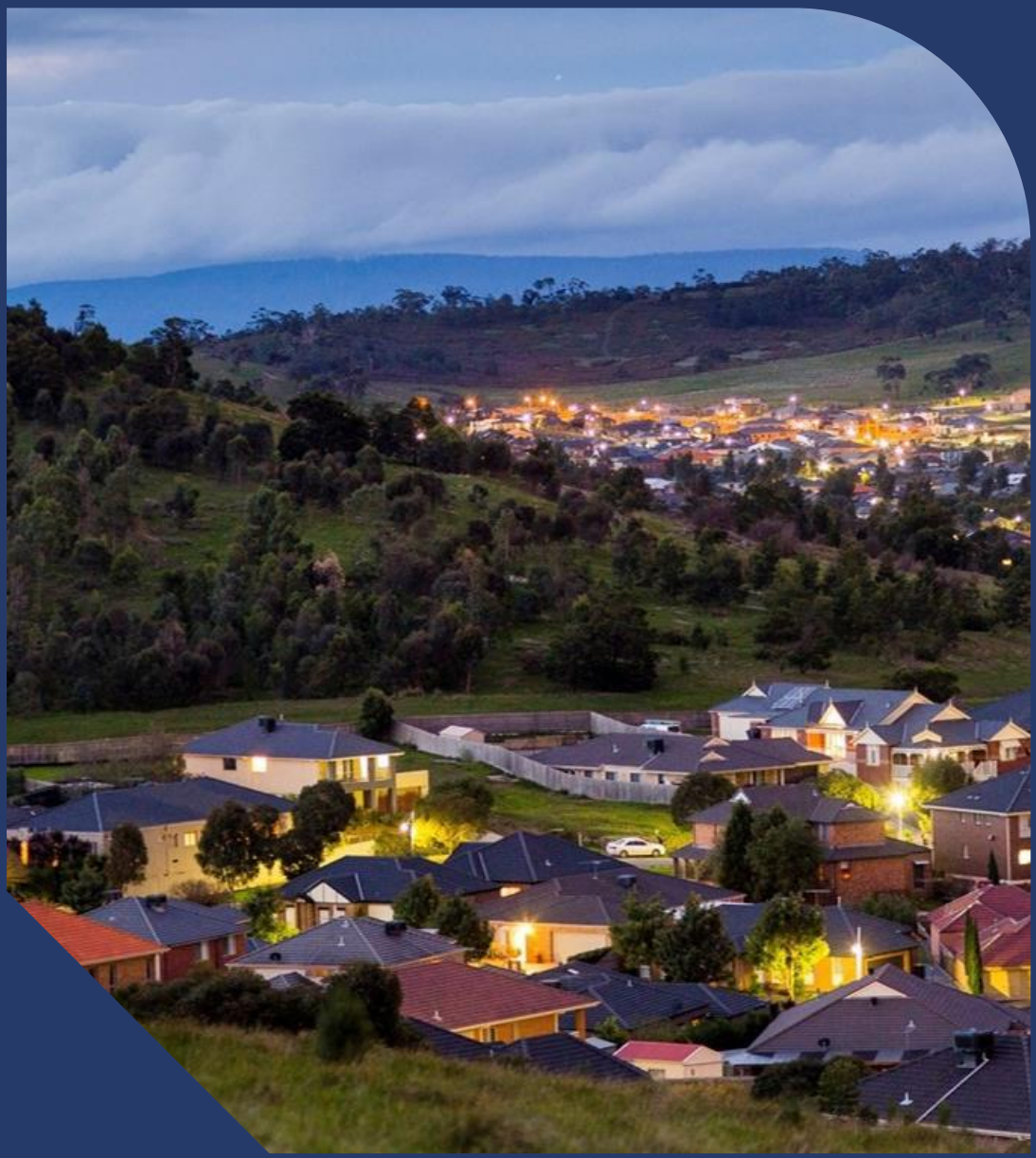

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AusNet

1. Executive summary

AusNet's smart meters were most installed over the period of 2010 to 2013 and starting to show early indications of age-related issues and risks. We have 847,000 smart meters installed at the premises of small customers. We will need to replace of our meters to mitigate performance and meter failure issues from impacting customers and placing us at risk of a large-scale meter failure impacting our license obligations. This business case assesses 3 different options of when to undertake the replacement:

- Base case option – replacing smart meters from July 2028 to 2041 (over 13 years) to mitigate risks, enhance cost efficiencies and reduce price risks.
- Early replacement option – replacing smart meters from July 2026 to 2040 (over 13 years) to mitigate risks, enhance cost efficiencies and reduce price risks.
- Not replacing meter until the next regulatory period – replacing most smart meters from July 2032 to July 2038 fixing meters when they fail.

We will need eventually need to replace our installed smart meters. Like other consumer electrical products like mobile phones, smart meters have:

- Batteries that deteriorate with age and use during supply interruptions (meter battery service life is about 10 years).
- Switches that wear out, e.g., meter load contactor that turns hot water on and off is capable of ~10,000 operations before failing.
- Flash memory degradation from reputative use and inadequate voltage supply.
- Circuit conductors and terminals between components and to the comms cards.
- Meter hardware performance that limits introduction of new functionality and apps, e.g., new requirements expected in 2027 from AEMO's NEM reform program).

Currently, we replace about 1% of our older meter variants (pre-2018) per year due to the full range of issues. Fault rates have been slowly escalating, and newly emerging memory failure issues are likely to drive a rapid escalation of meter faults. We must undertake a meter replacement to avoid the following customer and compliance issues to remain compliant with mandatory obligations with this aging smart meter fleet.

This business assessment includes a quantitative options assessment of:

- replacing meters that fail as opposed to regionally coordinated bulk replacements that result in lower labour costs,
- manually resolving meter time synchronization issues that occur after an electricity outage if the battery in the meter does not sustain the meter clock until the restoration of the meter's electricity supply, and
- funding additional deployment project management staff, including media and communications specialists for high volume.

Additionally, we discuss the qualitative impacts and risks on each option of:

- poor customer experience from hot-water supply interruptions and billing errors;
- reputational issues from lengthy delays with resolving if volumes escalate; and
- compliance risks associated with meter failures, if meters cannot be replaced in timeframes mandated by the National Electricity Rules and Victorian obligations.

Our assessment concludes that option 1 replacing meters in July 2028 leads to the lowest cost of ownership, reduces adverse customer impacts and maintains an acceptable level of compliance risk to the business. Table 1 below shows assessed net present value of each assessed option and indicates the likely qualitative impacts and risks.

Table 1: comparison of meter replacement options from NPV discount analysis ($m, 2025-26 dollars)

	Total cost	NPV	COMMENTS
Base case – replacing smart meters from July 2026 to 2039	448.7	0	Option avoids escalating meter fault issues and less costly meter replacement labour rates. However, customers would not benefit from the lower depreciation cost of a later replacement.
Option 1 – replacing smart meters from July 2028 to 2041	430.1	18.6	Option generally avoids escalating meter fault rates and performance issues, and defers investment in new smart meters by 2 years.
Option 2 – not replacing meter until July 2031 to July 2039)	456.6	-7.9	Option risks penalties for compliance breaches and causes customer disputes for billing errors and hot water heating failures, even with the funding rapid meter replacements.

Source: AusNet analysis

2. Introduction

2.1. Background

AusNet's smart meters were most installed over the period of 2010 to 2013 and starting to show early indications of age-related issues and risks. Out of our 847,000 smart meters installed at the premises of small customers, we installed 640,000 meters between Dec 2019 and the end of 2013. If we do not initiate a smart meter replacement these population will continue to age and if a meter failure starts to escalate, we bear the risk of breaching our NEM meter fault replacement obligations and Victorian meter data delivery obligations. Additionally, there would be a significant risk of massive customer service failure.

Every day we provide meter data for billing to retailers, market settlements and to help customers choose the best retail offer as required by Victorian legal requirements.[1] Smart meters also provide a range of other data services that benefits our customers by identifying safety issues, more efficiently identifying supply interruptions and lowering costs customers. Additionally, our meters provide Power Quality data (including voltage data) every 5 minutes. Voltage data is required for 95% of meters to comply with the ESC's Electricity Distribution Code of Practice.

After 2014, we installed smart meters to new customers and complete infill of customer premises, where we could not access the site to replace their meter in the 2009-2013 period. We know from our experience and warranty advice provided from our meter manufacturers that our smart meters have the following failure mechanisms.

- Batteries that deteriorate with age and use during supply interruptions. Warranty advice indicates that meter battery service life is 10 years. A meter battery does not have enough electricity to supply the meter through an outage is not failure that necessarily warrants a replacement. However, it does result in a meter time synchronisation issue within the meter once we restore the electricity supply. We must substitute the meter data affected by a due synchronisation issue before providing it to AEMO, Retailers or customers.
- Controlled load and main switches can wear out. Warranty advice indicates that the meter load contactor for hot water is capable of ~10,000 operations (on or off) before failing or a service life of 13.7 years. A meter load control contactor results in a customer complaining that they don't have hot water.
- Flash memory degradation from reputative use and inadequate voltage supply.
- Screens that stop can stop working. Warranty advice indicates that a meter screen's life is 15 years.
- Meter hardware performance that limits introduction of new functionality and apps, e.g., new requirements expected in 2027 from AEMO's NEM reform program.
- Circuit conductors and terminals that conduct very low voltage tend to corrode to point of causing unrecoverable system errors causing the meter to fail or loose communications connectivity (expected to fail at 25 years depending on environmental factors). At this point, circuit conductors and terminals that

[1] We must comply with the Minimum AMI Service Levels Specification (Victoria) September 2008 Release 1.1 and the Minimum AMI Functionality Specification (Victoria) September 2013 Release 1.2

conduct very low voltage tend to corrode to point of causing unrecoverable system errors causing the meter to fail or loose communications connectivity.

We manage our meter fleet by recording meter replacement rates for each meter variant and any exception management process that we undertake.

2.2. Problem definition

Most our smart meters are now more 11 years old. Like all meters, our smart meters will fail. We have observed increases in meter issues with meter components. Based on asset life estimate advice from our meter manufacturers, meters are more likely to fail after:

- Meter battery estimated asset life of 10 years;
- Load control switch rated to 10,000 hot-water heating switching instances (or 13.7 years);[2] and
- Overall meter and display screen estimated asset life of 15 years.

In recent years, there has been only a small increase in load control switch and display screen failure related replacements. However, there has been a sharp rise in recorded meter events relating to problems within the meter. These events include:

- Failure of automated time synchronisation requiring a meter program; and
- Meter data storage error events – meter detects its data recorded is not accurate in every data interval.

Our problem is consequential customer and compliance issues with mandatory obligations associated with this aging smart meter fleet. Already our obligations to meet our meter data delivery requirements are difficult to meet and if meter failure or meter issues escalate it will impact customer billing accuracy, our compliance performance and ability to identifying supply interruptions after a wide-spread supply interruption.

Today, we comply with our obligations to provide 99.9% actual meter data to retailers within 10 business days. In part, this is because any meter data substitution impacts this compliance metric. AEMO's Service Level Procedure (**SLP**) Meter Data Provider (**MDP**) services requirements under the NER have become more stringent since the Power of Choice rule changes. However, these targets remain less stringent than the above Victorian requirements, as detailed in the table.

Table 2: Comparison of Victorian and NER meter data delivery obligations

VICTORIAN TARGET	NER MDP SLP	COMPARISON: VICTORIAN AND NER OBLIGATIONS
No less than 99% of actual data to be available to retailers and AEMO within 24 hours of the time in previous point.	By the end of each week, we must provide AEMO with 98% quality and 95% quantity for the previous week's consumption.[3]	Vic target requires 99% of actual data delivered in 24 hours, while the NER target requires between 93% and 98% of actual or final sub data within a week.
No less than 99.9% of actual data to be available to retailers and AEMO within 10 business days from day the consumption occurred.	Within 6 months from the week the consumption occurred, we must provide AEMO with 99.9% quality and 99.9% quantity.	Vic target requires 99.9% of actual data delivered in 10 business days, while the NER target requires between 99.9% and 99.8% of actual or final sub data within 6 months.

Source AusNet based on the Victorian AMI Minimum Specification and AEMO's Service Level Procedure: Metering Data Provider Services

The following events all result in substituted data and impact this 99.9% metric.

- Supply interruptions to small customers and failure to provide zero final substitutions;
- Total meter failures until the meter is replaced;
- Meter comms interruptions (e.g., comms card, comms card interface, inadequate or intermittent mesh or 4G comms network connectivity);

[2] Based on warranty advice from L&G
[3] A minimum 93% of actual data quality can be with 95% quantity and 98% quality.

- Significant degradation of meter flash memory;
- Meter configuration changes from 30 minutes to 5 minutes;[4] or
- Abnormal customer usage patterns.

The Victorian AMI service level specification's obligation to provide 99.9% actual meter data are very challenging. We only have an allowance for 840 meters exhibiting any of the issues on any given day. Our metering technology, 3rd party 4G telecommunications and the nature of normal meter data substitutions for the above reason typically causes a data substitution rate of 0.05%, one that varies between 0.01% and 0.1% depending on weather and other factors. Our meter field service providers are contracted to replace a meter within 10 business days from the time a requested with an agreed Service Level of 96%. It would normally take us 1-2 business days to investigate and schedule a meter replacement.

Based on these assumptions, if just 15,000 meters fail in a year and replaced by our contracted resources without paying urgent response unit labour rates, we are unlikely to achieve our overall compliance performance with this AMI service level obligation to provide 99.9% actual meter data to retailers within 10 business days.

Additionally, meter data collection and deliver issues can result in customers, and their retailers, sending us enquiries and complaints. Each of these require manual effort to resolve and have a cumulative adverse effect on our reputation.

2.2.1. Key assumptions of the problem and analysis

The following assumptions were included in our metering replacement business case and are applicable depending on the circumstances of the option

- Smart meter replacements (meter with comms card + labour) are calculated based on volumes and rates from our meter cost model that incorporate contractor unit rates. We evaluated the cost of meter replacements and all opex categories from FY25 to FY41.
- The installation labour for bulk smart meter replacements is 20% less than our current contractor unit rate, as included in our metering cost model.
- Additional Project Management Office (**PMO**) cost implications to manage a large-scale meter replacement project based on the number of FTEs our 2009-2013 project are included with hourly rates based on our proposed administrative staff quoted service rate. These costs could potentially include a project director, deployment project manager or dedicated contract manager, process analysts, dedicated customer engagement specialists to establish customer facing communications and collateral.
- Compliance risk mitigation costs by replacing meter in a minimum of 2 days instead of 10 business days at higher service provider unit rates by using additional contractors. We based this additional rate on applying our tendered contractor unit for high priority jobs to 50% of smart meter replacements and we can renegotiate a 50% improvement on our current price.
- Additional resources improve data quality based on additional FTEs of administration staff to investigate and schedule meter replacements.
- Additional FTEs of administration staff for receiving and responding to enquiries or complaints from customers or their retailer and making consequential substitutions to the customer meter data to correct the problem. Based on forecasts relative to our current staffing and capacity.
- Modelling assumptions in economic model:
    - Central scenario assumes a discount rate of 5.45% with no adjustments to capex or opex
    - Sensitivity scenario 1 assumes a higher discount rate of 7.00% with no adjustments to capex or opex
    - Sensitivity scenario 2 assumes a higher discount rate of 3.91% with no adjustments to capex or opex
    - Sensitivity scenario 3 assumes a discount rate of 5.45% with a 15% adjustment to capex and opex
    - Sensitivity scenario 4 assumes a discount rate of 5.45% with a -15% adjustment to capex and opex

[4] As required by the 5-minute and global settlements Rule change

2.2.2. Evidence-based analysis

We used the Isograph's Availability Workbench's (AWB's) Weibull module to analysis our full population of smart meter for meter models (400, 410, 420, 430, 450), including failure data and specific meters replaced for other reasons such as not meeting 5-minute settlement requirements, see Table 3 below.

Table 3: Weibull analysis summary of model 400 meters

	Weibull Parameters		Expected Failures										
Model	Beta	Eta	Forecast_2025	Forecast_2026	Forecast_2027	Forecast_2028	Forecast_2029	Forecast_2030	Forecast_2031	Forecast_2032	Forecast_2033	Forecast_2034	Forecast_2035
400	1.5	62	1,074	1,117	1,158	1,198	1,237	1,274	1,310	1,346	1,380	1,413	1,446
410	1.9	47	3,473	3,696	3,917	4,136	4,353	4,567	4,780	4,990	5,199	5,407	5,612
420	1.6	47	1,736	1,814	1,890	1,963	2,035	2,104	2,172	2,238	2,303	2,367	2,429
430	1.7	40	2,096	2,213	2,327	2,439	2,547	2,654	2,759	2,861	2,962	3,061	3,158
450	1.2	48	61	62	63	64	65	66	67	68	68	69	70
693,471			**8,440**	**8,903**	**9,356**	**9,801**	**10,237**	**10,666**	**11,088**	**11,503**	**11,913**	**12,317**	**12,715**

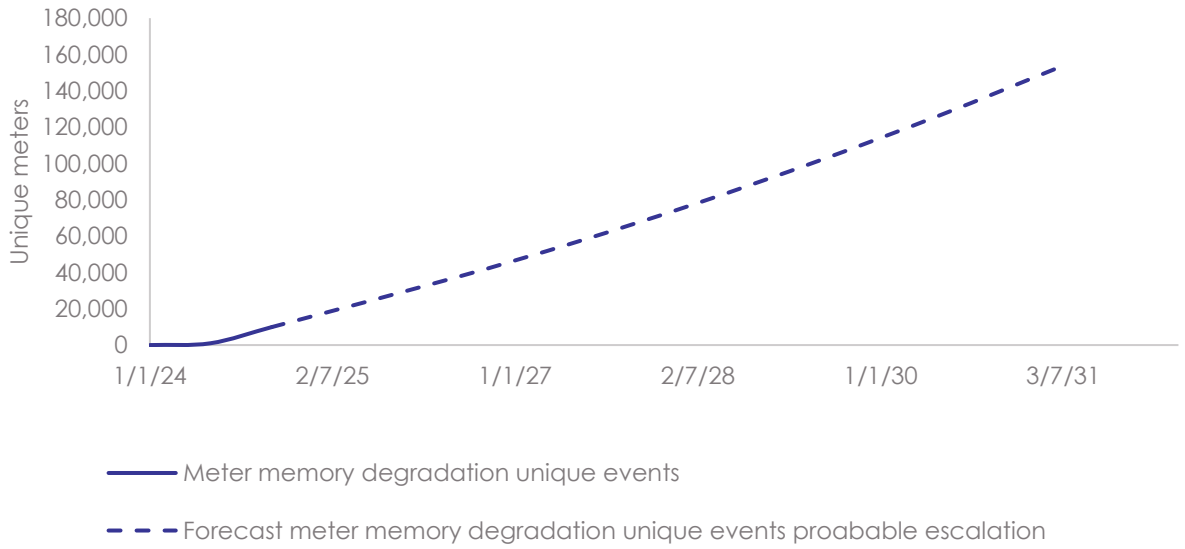
Source: AusNet using AWB's Weibull analysis software

Additionally, we engaged our global meter technology supplier, Itron, to undertake a technical, performance assessment report of our smart meters and end-to-end systems. This technical assessment identified the above trend of increasing meter memory errors.

The meter data storage error events are due to the degradation of the meter's flash memory at a steady rate of 1,500 unique meters per month occurring mostly in our oldest smart meters. This occurs in all modern electronic devices. The speed of degradation is affected by repeated use of memory from daily cycling (i.e., recording PQ data) and dips in the supply voltage inside the meter. Once flash memory degradation has reached a threshold where programmed data mitigation techniques in the meter that identify and avoid corrupted memory. The meter records these memory events to identify the issue and enable the meter service provider to replace the meter before it impacts the meter integrity.

The memory error rate in flash memory generally doubles every 1,000 memory rewrite cycles or 3 years for an in-service meter. Over time memory degradation within a smart meter will escalate to more frequent memory errors and total meter failure. Figure 1 below shows actual and our forecast growth in the number of these unique meter events recorded.

Figure 1: actual and our forecast growth in flash memory degradation based on extrapolations



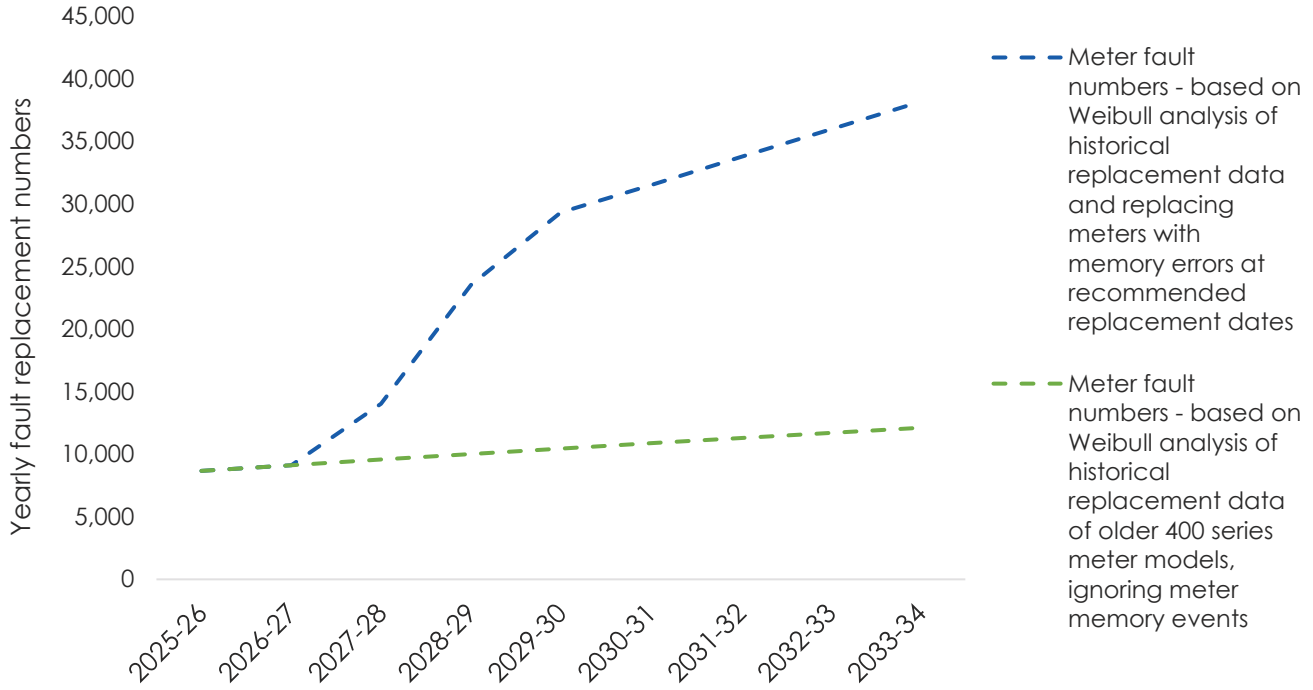
Source AusNet

This occurs in all modern electronic devices depending on the characteristics of flash memory within the device. The speed of degradation is affected by repeated use of memory from daily cycling (e.g., from daily PQ reads) and variations in the supply voltage inside the meter. The memory error rate escalates once flash memory degradation

has reached a threshold where programmed data mitigation techniques in the meter that identify and avoid corrupted memory.

To mitigate the risk of meter memory failures from impacting customers and our regulatory obligations, we propose to replace meters 3 years after a unique memory event is recorded. Figure 2 below shows our forecast of meter failures based on Weibull analysis and our approach to mitigating flash memory degradation.

Figure 2: Our meter failure forecasts based on Weibull probabilistic failure rate analysis and the recommended replacement of meters indicating compromised memory integrity events



2.3. Objective of the solution

Our objective is to implement a prudent strategy to mitigate the escalating meter failure rates that delivers efficient costs to our customers based on credible evidence. Meter failures must not cause likely compliance breaches, as we cannot be expected to incorporate plans that breach our obligations. The preferred solution needs to comply with obligations and deliver the best possible outcomes to customers in terms of cost and service delivery.

3. Options analysis

In assessing the options of managing our increasing rates of smart meter failures we considered 3 options. Options were chosen to inform our asset management approach to establish whether a delay to meter replacements is beneficial, as requested by our EDPR customer forum representatives. In analysing these costs, forecast the likely costs and benefits for each of the options and undertook sensitivity analysis using variations to the rate of return and costs described in section 2.2.1.

Table 4: Summary of options assessed

OPTION	REASON FOR OPTION	ASSESSMENT CONCLUSION
Base case – replacing smart meters from July 2026 to 2039	An option to start replacing smart meters in 2026-31 regulatory period at low rate to smooth costs for customers and minimise the risk of customer impacts	Option avoids escalating meter fault issues and less costly meter replacement labour rates. However, customers would not benefit from the lower depreciation cost of a later replacement.
Option 1 – replacing smart meters from July 2028 to 2039	An option to start replacing smart meters in 2028-29 to extend the life of smart meters to the benefit of customers and minimise the risk of customer impacts.	Option generally avoids escalating meter fault rates and performance issues, and defers investment in new smart meters by 2 years.
Option 2 – deferring meter replacements and commence meter replacements until July 2031	An option to test whether it is our customers' long-term interest to defer bulk meter replacements until the following 2031-36 regulatory period.	Option risks penalties for compliance breaches and causes customer disputes for billing errors and hot water heating failures, even with the funding rapid meter replacements for 50% of meter issues – assuming we can achieve a 50% discount on urgent meter replacements.

Source: AusNet

3.1. Replacing meters from July 2026

3.1.1. Cost

3.1.1.1. Capex for the base case option

The installation and replacement of meters is the only capex included and relevant to the economic analysis with mesh communications and IT system costs. The base case encompasses the replacement of our meters based on:

- estimated meter and comms cards purchase costs,
- contract unit meter replacement labour for meter replacements for fixing faulty meters, and
- an estimated, discounted meter replacement labour rate for a large-scale targeted meter rollout. We note, this discount benefits from scale but does not benefit from significant travel time reductions from replacing most of the meters in a street. Our targeted meter replacement involves replacing meters based on age, meter type and whether the meter indicates forthcoming memory problems.

The base option involves replacing smart meters at the start of the forthcoming regulatory period at a steady rate of about 70,000 meters per year (starting at 40,000 meters in 2026-27) until June 2039. At which point, no further bulk meter replacement will be required. Capex costs with this option are reduced by the discounted meter replacement labour rate being applied to 96% of meter replacements from 2024-2041.

The estimated costs of replacing the meters over the period are shown below in Table 5

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Table 5: Base case meter installation costs for each year of the options analysis ($m, real 2025-26)

	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36	FY37	FY38	FY39	FY40	FY41	FY42	TOTAL
Capex – meters & installation	6.1	6.1	24.5	42.8	42.8	42.8	42.8	42.8	42.8	42.8	42.8	42.8	42.8	30.0	27.6	8.1	6.1	6.1	524.8

Source: AusNet analysis in "ASD - AusNet - Smart meter replacement business case model – 31012025" shown in real 2025-26 $s.

3.1.1.2. Opex for the base case

The base case option of commencing the replacement of meters in FY26 exhibits no additional step or trend operational costs from forecast EDPR metering proposal calculated in our Post-Tax Revenue Model (**PTRM**). The following opex cost categories were identified as being applicable for the options analysis as described in section 2.2.1.

- Additional PMO costs to manage a large-scale meter replacement project
- Additional resources to improve data quality
- Customer impacts from meter failures
- Compliance risk mitigation costs

This base case represents **no** additional opex costs beyond the forecast PTRM costs for the 4 above categories or any other opex costs.

3.1.2. Benefits - qualitative only

The base case option maintains the same smart metering service as the other options. This base case reduces the risk of customer impacts from age and condition related meter failures by replacing meters at the start of the forthcoming regulatory period.

3.1.3. Risk assessment

The risk profile for the base case associated with all 3 options, was assessed relative to our Enterprise Risk Management Framework. Risks of highest concern are rated red, whereas those of lowest concern are rated blue.

The option of commencing a 13-year targeted meter replacement in July 2026 results in the risk of meter issues, Risk 1.1, causing a breach in our Victorian metering obligations and electricity distribution licence conditions rare. Between now and 1 July 2026, our forecasts based on Weibull fault analysis and our assessment meter memory events will almost certainly hold true. Table 6 below show our assessment of Risk 1.1.

Table 6: risk assessment for our base case

		Consequence				
		1	2	3	4	5
Likelihood	Almost certain					
	Likely					
	Possible					
	Unlikely					
	Rare				**Risk 1.1**	

Legend
A
B
C
D
E

	RISK	CONSEQUENCE	LIKELIHOOD	RISK RATING
Risk 1.1	Risk of failed meters causing a breach of our Victorian metering obligations and electricity distribution licence conditions	Level 4. Delivery of actual meter data not meeting Victorian regulatory requirements for a prolonged period resulting in a licence breach.	Rare	C

3.1.4. Summary

The base case option presents no additional meter deployment or fault operational costs with a risk profile that is as low as possible, but is still assessed as a Category C risk in our Enterprise Risk Management Framework. This option's cost and Net Present Value (**NPV**) shown in Table 7 is used as a point of comparison with other options. These costs reflect the economic value of the costs based on the current value of future depreciation of invested capex, as compared to the real costs of meter investment shown in Table 5 above.

The large negative NPV is a cost that meets the customer and regulatory requirements and is paid for with regulated Alternative Control Service fees. These fees and cost recovery are not subject to this economic analysis.

Table 7: Summary of discounted base case cost and NPV ($m, 2025-26)

	FY27-31	FY25-42
Cost	223.5	506.8
Benefits	0.0	0.0
NPV	NA	-506.8

Source: AusNet analysis in "ASD - AusNet - Smart meter replacement business case model – 31012025"

3.2. Replacing meters from July 2028

3.2.1. Cost

3.2.1.1. Capex for option 1

The installation and replacement of meters is the only capex included and relevant to this analysis. Similar to the base case, option 1 encompasses the replacement of our meters based on the same factors discussed in section 3.1.1.1.

Option 1 involves replacing smart meters halfway through the forthcoming regulatory period at a similar steady rate until June 2041, when no further bulk meter replacement will be required. Capex costs with this option are reduced by a lower meter replacement labour rate being applied to 96% of meter replacements from 2024-2042.

The estimated costs of replacing the meters over the period are shown below in Table 8. We note that these costs are very similar to the base case meter replacement costs in real terms.

Table 8: option 1 - meter installation costs for each year of the options analysis ($m, 2025-26)

	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36	FY37	FY38	FY39	FY40	FY41	FY42	TOTAL
Capex – meters and installation	6.1	6.1	6.1	6.4	24.5	42.8	45.2	42.8	42.8	42.8	42.8	42.8	42.8	42.8	42.8	25.7	25.7	11.5	542.8

Source: AusNet analysis in "ASD - AusNet - Smart meter replacement business case model – 31012025" shown in real 2025-26 $s.

3.2.1.2. Opex for option 1

Option 1 commences the replacement of meters in FY28 exhibits no additional step or trend operational costs from forecast EDPR metering proposal calculated in our PTRM. There was some indication of our failure analysis of increased meter replacement volumes in FY28 and FY29, however these volumes were lower than the materiality threshold for inclusion in our PTRM.

The following opex cost categories were identified as being applicable for the options analysis as described in section 2.2.1. Like the above base case, option 1 represents **no** additional opex costs beyond the forecast PTRM costs for the 4 above categories or any other opex costs.

3.2.2. Benefits - qualitative only

Option 1 attempts to maintain the same smart metering service. Option 1 reduces the risk of customer impacts from age and condition related meter failures by replacing meters midway through the forthcoming regulatory period.

3.2.3. Risk assessment

Like the above option, we assessed the risk profile for option 1 relative to our Enterprise Risk Management Framework. Risks of highest concern are rated red, whereas those of lowest concern are rated blue.

We assessed likelihood of the option of commencing a 13-year targeted meter replacement in July 2028 resulting in the risk of meter issues causing a breach in our Victorian metering obligations and electricity distribution licence conditions (i.e. Risk 1.1) to be unlikely. Between now and 1 July 2026, our forecasts based on Weibull fault analysis and our assessment meter memory events will almost certainly hold true. Table 9 below show our assessment of Risk 1.1.

Table 9: risk assessment for option 1

		Consequence				
		1	2	3	4	5
Likelihood	Almost certain					
	Likely					
	Possible					
	Unlikely				**Risk 1.1**	
	Rare					

Legend
A
B
C
D
E

	RISK	CONSEQUENCE	LIKELIHOOD	RISK RATING
Risk 1.1	Risk of failed meters causing a breach of our Victorian metering obligations and electricity distribution licence conditions	Level 4. Delivery of actual meter data not meeting Victorian regulatory requirements for a prolonged period resulting in a licence breach.	Unlikely	C

3.2.4. Summary

Option 1 presents no additional meter deployment or fault operational costs with a risk profile that remains is low at category C on our Enterprise Risk Management Framework. This option's cost and Net Present Value (NPV) shown in Table 10 below shows that relative to the base case delaying the meter replacement by 2 years provides $18.6m in benefits back to our customers.

Table 10: Summary of discounted option 1 cost and NPV ($m, 2025-26 dollars)

	FY27-31	FY25-42
Cost (capex + opex)	145.5	448.7
Benefits	0.0	0.0
NPV (absolute)	NA	-448.7
NPV (relative to base case)	NA	18.6

Source: AusNet analysis in "ASD - AusNet - Smart meter replacement business case model – 31012025"

3.3. Replacing meters after July 2031

3.3.1. Cost

3.3.1.1. Capex

The installation and replacement of meters is the capex included and relevant to this analysis are the forecast volumes. Similar to the base case and option 1, option 2 encompasses the replacement of our meters based on same factors discussed in section 3.1.1.1.

However, option 2 involves replacing smart meters at the start of the forthcoming regulatory period FY32 after the meters have already started failing in high volumes. The capex costs with this option are reduced by the discounted meter replacement labour rate being applied to 79% of meter replacements from 2024-2042, which less substantial than the meter installation labour savings achieved by the base case and option 1, 96% and 95%, respectively. In real 2025-26$, option 2 is spending $12.2m more than the other options on more fix on fail as compared to bulk meter replacements.

The estimated costs of replacing the meters over the period are shown below in Table 11.

Table 11: option 2 - meter installation costs for each year of the economic analysis ($m, 2025-26 dollars)

	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36	FY37	FY38	FY39	FY40	FY41	FY42	TOTAL
Capex – meters and installation	6.1	6.1	6.1	6.4	16.2	20.2	21.7	23.2	40.7	81.1	81.1	81.1	81.1	59.5	6.1	6.1	6.1	6.1	555.1

Source: AusNet analysis in "ASD - AusNet - Smart meter replacement business case model – 31012025" shown in real 2025-26 $s.

3.3.1.2. Opex

Option 2 opex cost categories were identified as being applicable for the options analysis. These costs are material for the reasons provided below.

- Additional PMO costs to manage a large-scale meter replacement project – with the need to rapidly replace meters from 2032 we would require significant management, process and dedicated customer engagement specialist resources. The meter replacement volumes of over 130,000 meters per year are similar to those experienced in our 2009-2013 smart meter roll-out that deployed 200,000 meter per year. We expect similar costs on a per meter replaced basis.
- Additional resources to improve data quality are required to mitigate Risk.1.1 discussed in section 3.3.3 below. We would require additional staff to speed up our identification of failed/problematic meters and scheduling of their replacements and our response to the other business as usual meter problems that contribute to 0.05% of meter data substitutions.
- Customer impacts from meter failures – sourcing additional administrative staff to for receiving and responding to enquiries or complaints from customers or their retailer and making consequential substitutions to the customer meter data to correct the problem.
- Compliance risk mitigation costs to reduce the volume of substituted meter data for more than 15,000 meter replacements per year to 2-4 business days by requesting our service providers to replace faulty meters in 2 business days instead of 10 business days.

Table 12 below show the cost for each category of opex costs for each year of assessment.

Table 12: option 2 - opex costs by category for each year of the option analysis ($m, 2025-26 dollars)

	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33	FY34	FY35	FY36	FY37	FY38	FY39	FY40	FY41	Total
Additional PMO costs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.9	0.9	0.8	0.6	0.2	0.0	0.0	0.0	0.0	4.0
Additional resources to improve data quality	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.5	0.5	0.3	0.2	0.2	0.2	0.0	0.0	0.0	0.0	2.1
Customer impacts from meter failures	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.2
Compliance risk mitigation costs	0.0	0.0	0.0	0.0	0.0	0.0	4.0	4.3	4.3	2.2	0.7	0.0	0.0	0.0	0.0	0.0	0.0	15.5
Total opex	0.0	0.0	0.0	0.0	0.0	0.2	4.6	5.7	6.0	3.5	1.7	0.8	0.3	0.0	0.0	0.0	0.0	22.8

Source: AusNet analysis in "ASD - AusNet - Smart meter replacement business case model – 31012025" shown in real 2025-26 $s

3.3.2. Benefits - qualitative only

Option 2 attempts to maintain the same smart metering service, however in attempting to defer meter replacement investment it will adversely impacts our level of customer satisfaction. An increasing number of customers will be affected by controlled load contactor failures and have cold showers, and be impacted by failures of the primary meter contactor and have a failed re-energisation at the meter. These costs are difficult to quantify.

3.3.3. Risk assessment

Option 2 is most likely to result in high meter rates from July 2031 in excess of 30,000 meters per year resulting from the combination of BAU meter failures and meter flash memory failures or data corruption. Without undertaking any mitigation of data errors and meter data substitution we would "almost certainly" breach our electricity distribution licence obligations until from 2030 to 2034 with customer outrage likely.

We assess the risk associated with this option relative to our Enterprise Risk Management Framework. Table 13 below shows the risk level matrix to which we have assessed the risks for each option. Risks of highest concern are rated red, whereas those of lowest concern are rated blue.

We consider that overall, this option has an elevated risk level even with the costly mitigation of additional data quality and paying a premium to replace 50% meters with 2 business days. Based on this risk rating we would seek additional mitigation measures to reduce the rating to an acceptable level.

Table 13: Risk assessment of Option 2

		Consequence				
		1	2	3	4	5
Likelihood	Almost certain					
	Likely					
	Possible				**Risk 1.1**	
	Unlikely					
	Rare					

Legend
A
B
C
D
E

	RISK	CONSEQUENCE	LIKELIHOOD	RISK RATING
Risk 1.1	Risk of failed meters causing a breach of our Victorian metering obligations and electricity distribution licence conditions	Level 4. Delivery of actual meter data not meeting Victorian regulatory requirements for a prolonged period resulting in a licence breach.	Possible – with mitigation activities	B

3.3.4. Summary

Option 2 presents option additional meter deployment costs (i.e. $12.2m) and 4 different categories of operational costs that are dominated by compliance mitigation costs (i.e. 73% of opex).

The risk profile that remains is high at category B on our Enterprise Risk Management Framework. This option's cost and Net Present Value (NPV) shown in Table 14 below shows that relative to the base case delaying the meter replacement by 5 years is overall negative by $7.9m.

Table 14: Summary of discounted option 2 cost and NPV ($m, 2025-26 dollars)

	FY27-31	FY25-41
Cost (capex + opex)	87.3	456.6
Benefits	0.0	0.0
NPV (absolute)	NA	-456.6
NPV (relative to base case)	NA	-7.9

Source: AusNet analysis in "ASD - AusNet - Smart meter replacement business case model – 31012025"

4. Sensitivity analysis

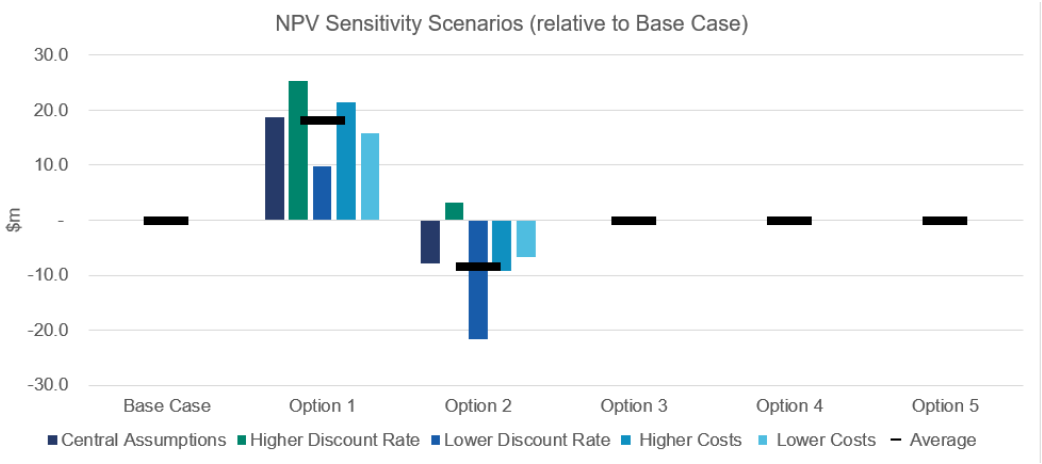
In assessing these 3 options we conducted a sensitivity analysis to determine whether variations in cost of 15% or to the applied discount rate of more than 150 basis points affects our conclusions. Table 15 and Figure 3 show the modelled results of the sensitivity analysis. Unsurprisingly, option 2 does improve relative to the base case with the lower discount rate but not enough to outperform option 1.

Table 15: Net Present Value ($m, 2025-26 dollars)

	CENTRAL SCENARIO	HIGHER COSTS	LOWER COSTS	HIGH GROWTH	LOW GROWTH
Option 1 – replacing smart meters from July 2028	18.6	21.4	15.8	25.3	9.8
Option 2 – Deferring meter replacements until the forthcoming regulatory period	- 7.9	- 9.1	- 6.7	3.2	- 21.7

Source: AusNet analysis in "ASD - AusNet - Smart meter replacement business case model – 31012025"

Figure 3: modelled results of sensitivity NPV analysis relative to the base case



5. Preferred option

Option 1 is our preferred option with $18.6m in lower NPV costs than our base case while maintaining an acceptable level of risk. Option 2 is more costly than option 1 by $28.5m and does not meet the needs of the business and is therefore not a recommended option. This preferred option conclusion withstood a sensitivity analysis against discount rate variations of more than 150 basis points and cost variations of 15%. Our customers will likely benefit most by undertaking option 1 instead of our base case or option 2 that defers meter replacements until the forthcoming period.

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